Replicating Sustainable Rural Cities

based on

an analysis

of

Nuevo Juan del Grijalva

by University of Michigan MBA students

Kurt Anderson • Fernando Andrade • Thiago Fernandes

Kara Honeycutt • Kristin Ohaus • Matt Thiel

April 27, 2010
Message from the University of Michigan’s Global Business Partnership Director

Building sustainable communities for the millions of families around the world living in poverty is one of the most important 21st century global challenges. It is about helping families not only survive but learn to thrive by providing the basics for their families and helping them to build a better future through education and economic opportunity.

In the spring of 2010, Ricardo Salinas and his foundation, Fundación Azteca, sponsored a team of six University of Michigan MBA students (Kurt Anderson, Thiago Fernandes, Kara Honeycutt, Kristin Ohaus, Fernando Andrade Sanchez, Matt Thiel) who spent seven weeks analyzing a new rural community named Nuevo Juan del Grijalva.

We are deeply grateful to Ricardo Salinas for encouraging an objective review of the progress made in Nuevo Juan del Grijalva. His only request in exchange for generously funding the project was that the students offer candid assessment and constructive ideas for improvement. Ricardo’s leadership, compassion and entrepreneurial vision are a role model for how corporate citizenship can positively affect the lives of thousands of people.

The result is a multi-media report produced by the Michigan MBA team. It is designed to help (1) the Nuevo Juan del Grijalva community by providing them feedback and ideas for improvement, (2) the government and business groups in Mexico who are building over a dozen more communities by providing them with lessons learned and guidelines for building other new communities, and (3) global communities in China, India, Brazil and any other countries looking to build new or renewed communities for those in poverty.

We are grateful to the people of the Nuevo Juan del Grijalva community for opening their arms to our MBA team who lived in the community while doing the study. We want to thank Fundación Azteca’s President, Esteban Moctezuma Barragán, and his director, Israel Heres for their invaluable support. We extend our deepest thanks to Grupo Salinas executive, Lucila Galan, who was extraordinarily helpful as were all the government officials who were part of this exemplarily effort.

Finally, we encourage others to join us in this journey to engage in global citizenship by sharing their knowledge and giving us their feedback.

Sincerely,

Noel Tichy
Director, Global Business Partnership
Professor, University of Michigan
Special Acknowledgements

Ricardo B. Salinas
Founder and Chairman
Grupo Salinas

Esteban Moctezuma Barragán
Executive President
Fundación Azteca

Lucila Galan
Directora Dinámica Organizacional
Grupo Salinas

Israel Heres
Coordinador de la Dirección General
Fundación Azteca
About the Global Business Partnership

The Global Business Partnership’s, Global Corporate Citizenship Initiative (GCCI) represents a cutting-edge national model for a new generation, building strong and lasting partnerships between business and society — differentiating skills, emphasizing free enterprise and operating on democratic principles.

**Action Learning Case Competitions**

For the past six years, case competitions involving MBA students from all over the continent and within the University have been held on subjects related to citizenship as outlined by our corporate partners. Students were given scenarios from the companies and competed for the opportunity to present their final analysis to the CEOs of our partnered companies. The action learning cases have included:

- **Help GE Healthcare Services** utilize its commitment to corporate citizenship to (1) better serve the needs of and improve the level of healthcare in the geographic area near its work-class John F. Welch Research and Development Center in Bangalore, India (2) while building a long-term and sustainable base for GE Healthcare Services in the region, and (3) doing so profitably.

- **Help P&G with its PUR product** (which costs pennies a day to purify water):
  1. How to market PUR, which offers a gigantic opportunity for improving health and hygiene in the world, by providing purified drinking water to the 1.2 billion people in the world who today lack access to clean drinking water.
  2. Explore how they can build on the PUR business momentum to engage more employees in the effort to better partner with NGO’s and other institutions to enhance its building of PUR in the US.
  3. Help to sustain business plans for PUR to be available in communities most in need around the world such as Haiti and Uganda where P&G currently is and up to twelve new markets that P&G will be in within the next year.

- **Propose ways to leverage GE’s product/service portfolio** to maximize the impact of corporate global citizenship.

- **Help 3M articulate worker safety in China** as an initial target using their occupational health and environmental systems.

- **Explore ways GE can approach emergency relief** beyond immediate needs into sustainable long-term relief to disaster-hit communities around the world. (i.e. GE’s long term role post tsunami, Katrina, Pakistan earthquake, etc.)

- **Propose ways to extend GE’s ecomagination strategy** into China and India (specific ideas for products, services and new ideas tailored to those markets).

- **Help GE bring awareness of affordable medical equipment** to rural underserved regions of India and China as part of their strategy to develop products “in country for country.”

- **Propose ways P&G will deliver their commitment to provide 2 billion liters of safe drinking water** through their Children’s Safe Drinking Water program which will mean saving 10,000 lives by 2012.
Focus: HOPE
Our model for engaging students, faculty and business leaders in action learning experiences that expand global corporate citizenship is the Detroit human and community development organization Focus: HOPE.

Independent Studies
Following the case competitions, we have designed a variety of follow-up action learning projects to further the research and recommendations given at these competitions. The first of these was a GE and Global Business Partnership co-sponsored trip to Bangalore, India by the winning MBA team who provided detailed plans of action for GE Healthcare Systems in the region. We also sent two teams of MBAs to New Orleans following the hurricanes Katrina and Rita in the summer of 2005. These teams worked with local not for profits in the efforts to rebuild the devastated communities.

Multidisciplinary Action Projects (MAP)
In addition to the MAP with Grupo Salinas in 2010, we have co-sponsored several MAP teams including another trip to India exploring how the University can leverage its resources to assist with the post-tsunami disaster in Southeast Asia in the winter of 2004. Additional MAP projects included:
- 3M: MBAs were sent to China to understand the best way to leverage OHES’s capabilities to advance overall worker safety in the country.
- P&G: Students were challenged with how to leverage PUR’s Safe Water Program to build PUR brand equity, trial, and loyalty in the US. Recommendations were to be consumer and data driven and include cost estimates and ROI analysis.
- GE: MBAs were asked to define the opportunity and scope the process for pro-bono capacity building volunteer activities for GE employees and retirees that would strengthen education systems and community organizations.

Multi-Campus Action Learning Competition
In 2009, we partnered with BusinessWeek, Trilogy (a high-tech software company) and P&G in a multi-campus action learning competition. CEO A.G. Lafley framed the real world topic he wanted fresh ideas on: taking the P&G sustainability strategy to a new level by inspiring and engaging 138 thousand employees around the world in 90 countries. The first rounds of workshops were run on a virtual platform within each MBA campus (Duke, Harvard, Northwestern, Michigan, Texas and USC) and a dozen P&G executives acting as facilitators and judges. The winning team from each campus was invited and hosted by A.G. Lafley for a final workshop with engagement from senior management.

Customized Action Learning Programs
Boys & Girls Clubs of America: We are in a partnership with the Boys & Girls Clubs of America (BGCA) having created a leadership academy for developing club staff nationally. We are working with the BGCA to involve the top 1000 clubs nationally in the development program.

Uplift Education & IDEA Public Schools: We are in partnership with two charter school systems in Texas helping them create a leadership academy for developing their staff and ultimately improving school performance.

Healthcare: We ran the Global Leadership in Healthcare program which partnered with dozens of medical organizations running CEO sponsored project based workshops in which leadership teams of various medical institutions came together to coach and be coached by peers in their industry.
# Table of Contents

**Executive Summary**  *play Summary video*  
NUEVO JUAN DEL GRIJALVA CASE STUDY  
**Infrastructure**  
Urban Planning  
Public Buildings  
City Services  
*play Infrastructure video*  
**Housing**  
Ownership  
Design  
Construction  
*play Housing video*  
**Services**  
Education  
Health  
Social Services  
Access to Financial Services  
*play Services video*  
**Business**  
Managing the Economy  
Managing Businesses  
Additional Implementation Considerations  
*play Business video*  
**Government and Community Development**  
Resident Recruitment  
Governing Structure  
Communication  
Community Building  
*play Government & Community Development video*  
**Recommendations**  
**Special Acknowledgements**  
**References**
EXECUTIVE SUMMARY

The Sustainable Rural Cities project is a partnership between the Chiapas government, Fundación Azteca and other organizations developed in 2007 to fight poverty by alleviating the effects of population dispersion and marginalization. Led by Governor Juan Sabines Guerrero, the Chiapas government incorporated the United Nation’s Millennium Development Goals into the state’s Solidarity Development Plan of 2007 – 2012. This plan informed the development of the Sustainable Rural Cities project which is based on a territorial model to promote regional development and enable the urban consolidation of people living in disperse rural areas.

The following report serves as a study of Nuevo Juan del Grijalva, the first project of the Sustainable Rural Cities. It includes general guidelines, best practices and important considerations for governments and organizations seeking to replicate this long-term solution to poverty. It is the product of a Multidisciplinary Action Project (MAP) completed by six masters of business students from the Stephen M. Ross School of Business at the University of Michigan who travelled to Mexico in the Spring of 2010. The team conducted extensive interviews with authorities from the Chiapas government, representatives of partnering foundations and residents to inform their analysis. Research included interviews with experts in social and sustainable business development in emerging markets.

Research on the Sustainable Rural Cities was divided into five pillars:

- Infrastructure
- Housing
- Services
- Business
- Government & Community Development

After comprehensive evaluation and analysis of the Nuevo Juan del Grijalva project the following key considerations were developed for each pillar:

- Infrastructure
  - Ensure critical services of potable water, electricity, and communications are in place for the sustainable rural city to succeed in the long term
  - Partner with local government for funding and implementation of infrastructure-related projects
  - Leverage universities and regional architectural experts to provide important skills and expertise for city planning and urban development
• Housing
  o Establish ownership rules and regulations aligned with project strategy
  o Consider regional and cultural preferences in home design
  o Design housing with flexibility in mind
  o Engage residents in home construction
  o Leverage stakeholder relationships and local resources to develop cost efficiencies

• Services
  o Develop a deep understanding of the region and population that will form the new community
  o Partner with local government for funding, implementation and maintenance of service-related projects
  o Consider and reflect potential effects of population growth and demographic changes in service infrastructure

• Business
  o Find one or two businesses that are viable at large volumes and grow those businesses to be major community employers
  o Define the correct mechanism to filter businesses development and leadership
  o Ensure that there is a clear government exit strategy to avoid long term dependence on subsidies

• Government & Community Development
  o Gain alignment with local leaders in resident recruitment process
  o Establish leadership roles and community rules
  o Foster community development via common social spaces and activities
  o Develop community maintenance strategy

view Executive Summary video
**Nuevo Juan del Grijalva Case Study**

What is Nuevo Juan del Grijalva?

Nuevo Juan del Grijalva is a planned community located in Chiapas, the southern most and poorest state of Mexico. It is the first community to be built by the Sustainable Rural Cities Institute, a partnership between the Chiapas government and Fundación Azteca developed in 2007. The focus of this partnership is to fight poverty by alleviating the effects of population dispersion and marginalization.

What are the key elements of the community?

Nuevo Juan del Grijalva is home to more than 1,850 people brought together from eleven extremely poor and dispersed villages in the county of Ostucan in Chiapas¹. The key elements of the community are infrastructure, housing, services, business and government and community development.

The infrastructure of the community begins with an urban plan that includes zoning for personal residences, businesses, public buildings, roads and bridges, and public parks. Public buildings include schools, hospitals, churches, recreation centers and any other shared spaces. Common city services include water purification and delivery, drainage and water treatment, energy delivery (including electricity and gas), garbage hauling, and public lighting. This system infrastructure provides the backbone for everyday life in the community.

Today, the community has 410 residences (with a total of 1,000 planned). Each house is 60 square meters in size and is located on a 300 square meter plot of land. The houses, made with concrete flooring, adobe brick walls and aluminum roofing, each have two bedrooms, a bathroom with plumbing, and a kitchen/living area. All have access to running water and electricity. In the back of each home there is a covered porch with a ventilated wood-burning stove and a large washing basin. The back yards of the homes were designed to be productive, and each resident was given the option to raise small livestock or grow plants.
Services include a health clinic, school, childcare center and adult education center. The health center is open twenty-four hours, offers over 150 services and is outfitted with state-of-the-art equipment. The school includes preschool, primary and secondary education levels with the possibility of expanding to a preparatory program. A science lab and a computer center enable advanced teaching methods. The childcare center is available for working mothers with children aged 18 months to 6 years.

Community businesses can be divided into three categories: retail businesses, micro businesses and agro industry. Retail comprises small home businesses, convenience stores and a commercial corridor which is home to approximately 20 businesses including a barber shop, beauty salon, veterinarian, seamstress, hardware store, butcher shop and taco stand. The micro factories include an adobe brick plant, blacksmith and carpentry shop. In terms of agro industry, there is a network of tomato greenhouses, cheese production, eggs, cocoa and a land repurposing program, which helps residents to convert their ranch land into more productive sustainable crop generation. Nuevo Juan del Grijalva is also home to an eight room hostel.

The Government and Community Development elements reflect considerations for developing a functioning community government, managing the relationship between the government and the citizens of the new community, and finally developing a close-knit community from a widespread area. In the case of Nuevo Juan del Grijalva, an existing structure of eleven community leaders was brought together to form the rules for the new community and provide a road map on how to convince the villagers to move into the new community. Currently the governing body is a council of twenty residents, ten from both the north and south sides of town.
Why was the project pursued?

Mexico
Mexico’s area of approximately two million square kilometers comprises thirty-two states. With 111 million inhabitants, 77% of which live in urban zones, it is the eleventh most populated country in the world. Total population growth is 1.13%, the infant mortality rate is 18 deaths per 1,000 births and life expectancy is 76 years. Ninety-one percent of the total population over the age of 15 is literate. ii According to Dr. David Gordon’s paper, Indicators of Poverty & Hunger, 18.2% of Mexico suffers from Extreme Food Poverty, 25.1% from Capability Poverty and 47.7% from Wealth Poverty. iii In simpler terms, 54% of Mexicans live with $4 or less per day, 32% with less than $2.50 per day and 24% with less than $2 per day. According to the Human Development Index (HDI), Mexico’s .854 score ranks it 53rd out of the 182 countries evaluated. The HDI provides a composite measure of three dimensions of human development: living a long and healthy life (measured by life expectancy), being educated (measured by adult literacy and gross enrolment in education) and having a decent standard of living (measured by purchasing power parity, PPP, income). iv

Mexico is the twelfth largest economy in the world with an estimated $1.5 trillion total GDP and the eighty-third largest with an estimated per capita GDP of $14 thousand (per capita GDP is 30% of the size of the US). v Given that a large portion of the economy of Mexico is informal, there are issues with government support, regulation and tax collection. In Mexico City alone, an estimated 50% of the population is involved in informal businesses, many as street vendors. The formation of a large informal sector is driven primarily by the government’s inability to provide services, goods and jobs to Mexicans. vi

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Food Poverty Measure</td>
<td>18.2%</td>
</tr>
<tr>
<td>Capability Poverty Measure</td>
<td>25.1%</td>
</tr>
<tr>
<td>Wealth Poverty Measure</td>
<td>47.4%</td>
</tr>
</tbody>
</table>

* Measured as a percentage of 2008 population

Mexico faces several major challenges include low wages, underemployment, unequal wealth distribution and few opportunities for those living in the poverty stricken southern states. vii The top priorities of President Calderon’s administration are to reduce poverty and create jobs. Other programs are focused on improving public education, upgrading the country’s infrastructure, modernizing labor laws and fostering private investment in energy. viii

Chiapas
Chiapas, with a geographic area of approximately seventy-four thousand square kilometers, is the eighth largest state of Mexico. It comprises 4.5 million inhabitants, making it the seventh most populous state. Of those 4.5 million inhabitants, 1 million Chiapanecos speak indigenous languages. There are over nineteen thousand villages in Chiapas, 99% of which have fewer than 2,500 residents. Chiapas is the poorest state of Mexico as measured in GDP per capita.
Given that the poverty level in Chiapas is three times more severe than the national level, Chiapas is in last place nationally in terms of HDI. The average percentage of illiteracy is twelve points above that of the national level. The average mortality rate is 3.5 points about the national level. In terms of infant mortality, there are as many as 30 deaths out of every 1,000 births; which when compared to the national average of 18 is staggering. Of the 118 counties in Chiapas, 110 are considered to have high to very high levels of marginalization.\textsuperscript{x}

Given these statistics of population dispersion and marginalization, and considering the irregular terrain, Chiapas has great difficulty providing basic services and enabling economic and social development among its many communities.\textsuperscript{x} Thus, 30\% of people live with dirt floor, 15\% of families live in one single room, 23\% of homes do not have proper sewage and 29\% lack drinkable water. The main health concerns related to these living conditions include eye and respiratory diseases and malnutrition.\textsuperscript{xi}

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Mexico</th>
<th>Chiapas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic Area</td>
<td>2 million km sq</td>
<td>74 thousand km sq</td>
</tr>
<tr>
<td>Population</td>
<td>111 million</td>
<td>4.5 million</td>
</tr>
<tr>
<td>Infant Mortality</td>
<td>18 deaths per 1000 births</td>
<td>30 deaths per 1000 births</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>75.3</td>
<td>72.4</td>
</tr>
<tr>
<td>Illiteracy</td>
<td>9%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Government efforts to combat marginalization and poverty have historically been based on subsidies, bad public management and uncoordinated territorial growth.\textsuperscript{xii} There is a great need for investment in productivity via integrated policies to address education, health and business potential. A model which provides a higher quality of life via productive, sustainable projects without harming rural lifestyle is essential.\textsuperscript{xiii} In the absence of such reform, dispersion will continue its vicious cycle of creating poverty due to lack of access to services which inevitably will become more expensive for the government to maintain.

How did the project start?

History of Project Development
To combat the extreme levels of marginalization and poverty, the current administration led by Governor Juan Sabines Guerrero, incorporated the United Nation’s Millennium Development Goals into the Political Constitution of Chiapas. These eight goals are\textsuperscript{xiv}: 
At the same time, Governor Sabines drafted the Chiapas Solidarity Development Plan of 2007 - 2012. The priorities of this plan are as follows:

- Education
- Health
- Economic development
- Environment
- Civil protection
- Vulnerable social groups
- Indigenous populations
- Institutional development
- Equal opportunities and gender equality

As a follow-up to these priorities, the Sustainable Rural Cities project was developed by a collaborative effort of the Chiapas government, Fundación Azteca and academics. The project was based on a territorial model which promotes regional development and enables the urban consolidation of people living in disperse rural areas.

With the development of this project came the formation of the Sustainable Rural Cities Institute, a state government office which administers the program. The objectives of the Sustainable Rural Cities program are to:

- Create a subsystem of cities in rural zones strategically located to adjust the territorial distribution of population to the potential regional development.
- Concentrate disperse locations to enable delivery of basic services, governance, social cohesion and better use of public resources.
- Generate productive projects for dignified and paid formal employment.
- Mitigate environmental deterioration and the destruction of ecosystems and biodiversity.

The next step in the process was the creation of the Advisory Council of Sustainable Rural Cities which is comprised of the leaders of twenty-eight foundations that fund and advise the construction of these communities. The objectives of the Council are:
Advisory Council of Sustainable Rural Cities members:

- Fundación Azteca
- Fundación Telmex
- Fundación BBVA Bancomer
- Fundación Adobe
- Fundación Kaluz
- Instituto Carso de Salud
- Empresarios por la Educación Básica
- Promotora de Desarrollo Estratégicos Integrales
- Fundación Natura
- Sistema Educativo Brain Pop
- Sistema CRIT
- Fundación Farmacias del Ahorro
- Fundación Unidos Por Ellos.
- Integración Social IPN
- Universidad Autónoma de Chiapas
- Academia Mexicana de Arquitectura

A complication with the Nuevo Juan del Grijalva Project was a tragic flood and subsequent landslide which impacted the area. On November 5, 2007, after days of relentless rain, an entire mountain on the bend of the Grijalva River in central Chiapas collapsed into the river. As the mass of land plugged, the flow of the river and waters rose rapidly flooding the entire town of Juan del Grijalva. Although planning was already in progress for the sustainable rural city, this disaster accelerated the project schedule. As survivors were relocated to temporary camps, the project switched from a planning to a construction focus to ensure minimal time in camps for those impacted.

Who was in charge of project?

Grupo Salinas
Grupo Salinas is a conglomerate comprised of nine business units including, TV Azteca, Azteca America, Grupo Elektra, Banco Azteca, Seguros Azteca, Afore Azteca, Grupo Iusacell, Azteca Internet and Italiка. At the head of the company is Ricardo Salinas, a successful Mexican businessman, who has driven Grupo into the sectors of communication, commerce, financial services,
telecommunications and internet. Grupo Salinas concentrates on the middle class and strives to improve society via excellent products and services. It currently operates in Mexico, the United States, Argentina, Brazil, El Salvador, Guatemala, Honduras, Peru and Panama.\textsuperscript{xvii}

\textit{Fundación Azteca}

Given Grupo Salinas’ position as a media company, it is privy to social issues. To complement its for profit businesses, in 1997 Ricardo Salinas created Fundación Azteca which aims to improve issues related to health, nutrition, education, productive projects and the environment.\textsuperscript{xviii} Fundación Azteca works for a better Mexico by enabling individuals to help themselves. Their programs include:

- Rural Cities
- Live Long Lacandona Jungle
- Emergency Support
- Professional Midwives
- Aztec Movement
- Live Without Drugs
- Let’s Clean our Mexico
- Aztec School
- Community Bank
- Elektra Park
- Aztec Hope Orchestra
- Break the Silence

\textit{Chiapas government}

The construction of Nuevo Juan del Grijalva was possible with the support of Governor Sabines and the newly formed Sustainable Rural Cities Institute. Working with the Secretaries of Mr. Sabines’ cabinet as well as the National University of Chiapas, the Institute coordinated research efforts, planning exercises and construction management.

\textit{How was the project managed?}

Collaboration among county, state and federal government agencies as well as supporting foundations was essential to the success of the project. The Sustainable Rural Cities Institute played the role of project manager working to coordinate these efforts. Construction of the Nuevo Juan del Grijalva was made possible by the generous support of many partners. To solicit funding, Fundación Azteca used a menu approach in which specific projects were assigned to organizations. The health clinic, for example, was built by Teletón a Mexican organization which supports social programs.

\textit{Who are the key stakeholders?}

\textit{Townspeople}

The largest stakeholders in this project are the people. In the first phase of Nuevo Juan del Grijalva, 410 families from eleven villages were brought together and their needs and concerns were taken into account from the initial evaluation stage to planning and construction. Heavy
involvement of each resident was required to ensure the project would provide the necessary support to improve the lives of some of the poorest people in Mexico.

**Government**

Federal, state and county level government bodies must be heavily involved in this type of project. For Nuevo Juan del Grijalva, careful attention was paid to coordination between the state of Chiapas and the county of Ostucan to ensure effective implementation and maintenance of the community. The role of the Sustainable Rural Cities Institute is to guarantee that the interests of the people, government and foundations are met.

**Foundations**

The overwhelming support of numerous foundations was essential to the success of this project and future endeavors. Working with the government, foundations foster a good balance to both government and social interests while also participating in the Advisory Council of Sustainable Rural Cities to provide advisory support in addition to their financial contributions.

**What are the costs and sources of funding?**

The first phase of the Nuevo Juan del Grijalva project was made possible through collaboration among various government agencies and foundations. Below is a summary of the high level project cost and contributions from each of four main categories of funders: federal, state and county government and foundations.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Direct Investment</th>
<th>Indirect Investment</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Investment*</td>
<td>$439,753,669</td>
<td>$113,320,405</td>
<td>$553,074,074</td>
<td>88.1%</td>
</tr>
<tr>
<td>County Investment</td>
<td>1,450,000</td>
<td></td>
<td>1,450,000</td>
<td>0.2%</td>
</tr>
<tr>
<td>State Investment</td>
<td>5,489,636</td>
<td></td>
<td>5,489,636</td>
<td>0.9%</td>
</tr>
<tr>
<td>Foundations</td>
<td>68,117,531</td>
<td></td>
<td>68,117,531</td>
<td>10.8%</td>
</tr>
<tr>
<td>Total</td>
<td>$513,360,836</td>
<td>$114,770,405</td>
<td>$628,131,241</td>
<td></td>
</tr>
</tbody>
</table>

*Includes Ramo 20, Ramo 23, Rendimientos Financieros Ramo 23 & CONAVI

All figures are in USD

*Exchange rate for April 2009 (Oanda.com) .0705

The following study was informed via extensive interviews with authorities from the Chiapas government, representatives of partnering foundations and residents. Research included interviews with experts in social and sustainable business development in emerging markets.

Research on the Sustainable Rural Cities was divided into five pillars:

- Infrastructure
- Housing
• Services
• Business
• Government & Community Development

Based on an investigation of the Nuevo Juan del Grijalva case study and the goals of the Sustainable Rural Cities, there emerged five areas of considerations that holistically establish the foundation for a successful community.

• Infrastructure
  o Ensure critical services of potable water, electricity, and communications are in place for the sustainable rural city to succeed in the long term
  o Partner with local government for funding and implementation of infrastructure-related projects
  o Leverage universities and regional architectural experts to provide important skills and expertise for city planning and urban development

• Housing
  o Establish ownership rules and regulations aligned with project strategy
  o Consider regional and cultural preferences in home design
  o Design housing with flexibility in mind
  o Engage residents in home construction
  o Leverage stakeholder relationships and local resources to develop cost efficiencies

• Services
  o Develop a deep understanding of the region and population that will form the new community
  o Partner with local government for funding, implementation and maintenance of service-related projects
  o Consider and reflect potential effects of population growth and demographic changes in service infrastructure

• Business
  o Find one or two businesses that are viable at large volumes and grow those businesses to be major community employers
  o Define the correct mechanism to filter businesses development and leadership
  o Ensure that there is a clear government exit strategy to avoid long term dependence on subsidies

• Government & Community Development
  o Gain alignment with local leaders in resident recruitment process
  o Establish leadership roles and community rules
  o Foster community development via common social spaces and activities
  o Develop community maintenance strategy
What is the role of infrastructure in the sustainable rural community?

Infrastructure is figuratively and literally the backbone of the community. In the sustainable rural community, ability to rely on basic services – water, electricity, transportation, communication – is essential for residents to work, live, and prosper. Thus, aside from being simple brick and mortar, infrastructure is a strategic enabler of natural, physical, human and economic resources.

To achieve these goals, Nuevo Juan del Grijalva started with a series of objectives, including one which speaks to infrastructure: The supply of infrastructure and equipment for basic public services for the sustainable rural city, including at minimum: potable water, electricity, drainage, and water filtration and treatment plant.\textsuperscript{xx}

Three key considerations in infrastructure planning are:

<table>
<thead>
<tr>
<th>Key Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consideration #1</strong></td>
</tr>
<tr>
<td>Ensure critical services of potable water, electricity, and communications are in place for the sustainable rural city to succeed in the long term</td>
</tr>
<tr>
<td><strong>Consideration #2</strong></td>
</tr>
<tr>
<td>Partner with local government for funding and implementation of infrastructure-related projects</td>
</tr>
<tr>
<td><strong>Consideration #3</strong></td>
</tr>
<tr>
<td>Leverage universities and regional architectural experts to provide important skills and expertise for city planning and urban development</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Important Infrastructure Metrics of Juan del Grijalva</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Investment:</strong> $25,263,000 USD</td>
</tr>
<tr>
<td><strong>Total Investment per Resident:</strong> $13,655 USD</td>
</tr>
<tr>
<td><strong>Exchange rate for April 2009 (Oanda.com) .0705</strong></td>
</tr>
</tbody>
</table>
What are the objectives of providing a high-quality infrastructure?
The goal of infrastructure in the sustainable rural community is to provide a foundation for each of the United Nations Millennium Development Goals. In concert with social services, education, government and other capabilities by the peer pillars of the sustainable rural community, infrastructure addresses and enhances the ability to reach the goals of:

1. End Poverty and Hunger  
2. Universal Education  
3. Gender Equality  
4. Child Health  
5. Maternal Health  
6. Combat HIV/AIDS  
7. Environmental Sustainability

What are the key infrastructure elements?
The following discussion describes the essential elements to be considered when planning the infrastructure for a sustainable rural community. This chapter is broken into three sections: urban planning, public buildings and city services.

Urban Planning

Urban planning in the sustainable rural community includes site selection, city modification, and urban layout. City planners should consider consulting with regional and global experts, balancing the traditional needs of urban design with the cultural preferences of the residents in the area. When designing Nuevo Juan del Grijalva, planners used the following tenets as guides:

- The city must be capable of supporting an initial population while being able to expand to support future residents
- The city must be pedestrian-friendly, so that citizens can move about the city without the need for cars or busses
- All necessary services for daily life are available within the community

The following considerations and best practices are a starting point for those planning discussions.
Site Selection

Establishing the rural sustainable community generally follows one of three paths:

- A new location for the city is selected on which no buildings or infrastructure exist (commonly referred to as “green field” development)
- An existing location that was devastated by a natural disaster is selected; significant opportunity exists for reshaping the area due to heavy demolition and excavation
- An existing city is selected, or a modification to an existing city is added

Planners should first and foremost consider the impact of natural disasters on the area. In numerous cases, poor cities are especially devastated by natural disasters. Often, desirable locations (e.g., proximity to water) are at high risk for future devastation. If possible, explicitly selecting a region which mitigates these risks will help to minimize costly human and economic losses in the future.

Second, planners should evaluate the human, natural, and economic resources of the sustainable rural city, seeking to maximize the effectiveness of either a new city or an addition/modification to an existing city:

- Human considerations: the fundamental goal is to combat poverty and dispersion; as such, the location (whether a new city or an extension to an existing city) should be selected in such a way as to benefit the largest number of nearby citizens. In Nuevo Juan del Grijalva, the new city was placed near eleven target communities which were affected by the mudslide.
- Natural considerations: a city which is placed near natural resources has a greater opportunity for success. A potable water source (or the ability to import potable water from a nearby source) is a requirement for the city. Proximity to an economically productive natural resource (e.g., fields for ranching or crop growing, mines / mineral deposits) is ideal.
- Economic considerations: at any given population level of the city, each family must be capable of earning a livable wage through jobs in the area. Establishing the city nearby to a rich natural resource obviously provides an immediate economic advantage. Other considerations include proximity to a transportation network (e.g., roads, highways, waterways, railways or airports), proximity to regional markets (i.e., nearby medium-size and large-size cities), and proximity to regional industries (e.g., suppliers of key inputs, distributors of products).

Upon selecting the target region of the new city, the selection of the plot of land for the new city should consider:
• Cost: the level of investment required by public and private sponsors to acquire the property
• Earth-moving: the extent to which modifications to the local terrain would be required (e.g., leveling, bridge building, support walls)
• Water distribution: using gravity to assist in the distribution and collection of water

Selecting the City Size
To be effectively sustainable, the size of the city is extremely important over time. The initial city should be capable of supporting all of its residents, including government services, social services, and city services. In Nuevo Juan del Grijalva, the first concern was addressing the needs of roughly two thousand displaced citizens. Thus, the initial design for the city used two thousand as a target initial population, a size which has proven to be an effective starting point. Future sustainable cities should weigh the needs of the local population with the ability to effectively deliver services, opting to “start small” and expand over time as needed.

A secondary consideration when selecting the city size is fixed versus variable investment in infrastructure. For example, a water purification plant should be viable for fifteen to thirty years. A large fixed investment is required up front, with limited modifications to grow capacity in the future. Capacity for investments of this nature should balance the available of public and private funds versus the long-term target population of the city. Avoiding costly modifications or new facilities in the medium term is ideal.

Establishing the City Layout
Traditional best practices for urban layout certainly apply to the sustainable rural city. Although many residents may not be familiar with living in a community of this structure, the benefits over the long term of a modern layout will outweigh any transitional costs.

Zones for current and future occupation are required. Based on the initial city population and density, a plot of land for immediate use should be established. Plans for medium-term and long-term expansion should be identified from the outset, and neighboring parcels should be purchased in advance or available for later purchase should they be needed. In Nuevo Juan del Grijalva, a total of 296 acres were allocated for the city.

Planners must designate clear residential, commercial, and industrial zones. At the highest level, the city should be organized with clear residential neighborhoods with a central
commercial district. Industrial or agro-industrial areas should be located nearby but not next to these zones.

The plan should allow for flexibility in neighborhood design and placement of families. In Nuevo Juan del Grijalva, two distinct neighborhoods (north and south) were divided by a commercial corridor. Neighborhoods were organized around two temples (Catholic and Adventist), and individual house selections were largely determined by the village of origin of each family. Families and friends were given the opportunity to select houses nearby to each other.

**Public Buildings**

A sustainable rural community requires a series of public, commercial and governmental buildings in order for all services to be delivered effectively. The urban plan should consider the necessary capabilities of the community, and identify locations for each of the buildings which are required to deliver those capabilities. Abstracting from the public buildings in Nuevo Juan del Grijalva, this list provides an effective template for future rural sustainable communities:

<table>
<thead>
<tr>
<th>Public Buildings in the Rural Sustainable Community</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commercial Buildings:</strong></td>
</tr>
<tr>
<td>• Commercial Mall, with stands for small retails</td>
</tr>
<tr>
<td>• Rural hotel</td>
</tr>
<tr>
<td>• Transportation center</td>
</tr>
<tr>
<td>• Various small business (e.g., convenience stores, grocery stores, dry goods stores)</td>
</tr>
<tr>
<td><strong>Industrial Buildings:</strong></td>
</tr>
<tr>
<td>• Various factories or agricultural processing centers</td>
</tr>
<tr>
<td>• Distribution and replenishment center</td>
</tr>
<tr>
<td><strong>Community Buildings:</strong></td>
</tr>
<tr>
<td>• Community center</td>
</tr>
<tr>
<td>• Multi-purpose sports fields</td>
</tr>
<tr>
<td>• Small parks</td>
</tr>
<tr>
<td><strong>Governmental Buildings:</strong></td>
</tr>
<tr>
<td>• Town hall</td>
</tr>
<tr>
<td>• Mayor’s office</td>
</tr>
<tr>
<td>• Pre-school</td>
</tr>
<tr>
<td>• Primary, secondary and preparatory schools</td>
</tr>
<tr>
<td>• Adult education center</td>
</tr>
<tr>
<td>• Community technology center</td>
</tr>
<tr>
<td>• Health center / hospital</td>
</tr>
<tr>
<td>• Police / security office</td>
</tr>
</tbody>
</table>

*A community playground*
City Services

The following section discusses the core city services that the rural sustainable city provides to its residents.

Water

Providing potable water is the single most important priority for the rural sustainable community. Every Millennium Development Goal is predicated upon access to clean water on a daily basis without significant hardship. Fortunately, modern techniques for acquiring, purifying, distributing, collecting and treating water are well refined and well documented. The challenge for the planner focuses instead on identifying an appropriate funding source and selecting a capable partner to assist in construction.

The state government took responsibility for planning and implementing water management services. Local and regional experts were consulting during the planning and construction process. Federal funding was available for all planning, construction, and maintenance processes. A nearby river was sufficiently pure and could be used for extracting water for the purification process. Future cities may consider alternate sources such as well, regional water distribution systems, or desalination. To prevent pollution in the local environment, a state-of-the-art water treatment facility is used to cleanse the water before returning it to a local stream. Future communities should consider the environmental impact of water management practices. In a hilly environment such as northern Chiapas, incoming water is pumped to the treatment plant which resides above the city on a hill. Gravity is utilized to distribute and collect water with minimal pumping required. Water treatment occurs at a location well below the altitude of the city.

| City Service Buildings: | • Fire station  
|                        | • Water purification plant  
|                        | • Water treatment plant  
|                        | • Garbage dump  
|                        | • Electricity distribution / substation |

<table>
<thead>
<tr>
<th>Benchmark Costs for Water Management in Nuevo Juan del Grijalva</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Purification Plant: $500,000 USD</td>
</tr>
<tr>
<td>Water Delivery System: $750,000 USD</td>
</tr>
<tr>
<td>Water Treatment Plant: $475,000 USD</td>
</tr>
</tbody>
</table>

*Exchange rate for April 2009 (Oanda.com) .0705
Electricity

Just as in the case of potable water, electricity in the home is a major enabler of the Millennium Development Goals. Cities which can offer electricity to their residents will see stronger growth and prosperity in the long run over cities that do not offer such services.

If regional power distribution is available, sidestepping the issue of independent power generation provides a significant advantage. In the case that a rural community is responsible for independent power generation, consider the reliability and environmental impact, if possible, of the power source. Identification of a sponsor for funding whether federal or state government, private sponsors or international energy companies may be integrated into the development of the electrical infrastructure for the community.

In many cases, the new residents of the city are not accustomed to consuming electricity, and thus are reluctant to pay for consumption. Establishing a transition model in which energy is subsidized is an effective tool for smoothing the transition into the new community; however, a plan for reducing subsidies over time should be clearly established at planning time and communicated to residents up-front.

Street lamps which turn on in the evening and turn off in the morning increase the security and walk ability of the community. Nevertheless, residents who were not accustomed to urban life may not appreciate the light pollution of the city. Community leaders and transition volunteers should be prepared to explain the rationale for street lighting so as to avoid a backlash for residents shortly after moving to the community.

Transportation

The heart of the sustainable rural community is the economy, and economy rides on the back of the local and regional transportation system.

Residents depend on transport in the community to return to regional agriculture fields and transporting goods to and from the community. As residents are moved into the community in an agriculture-based region, a

### Benchmark Costs for Electricity Distribution in Nuevo Juan del Grijalva

| **Facilities / Substations:** | $40,000 USD |
| Construction of Above-Ground Transmission Lines: | $360,000 USD |
| Construction of Underground Transmission Lines: | $1,000,000 USD |
| Exchange rate for April 2009 (Oanda.com) .0705 |

### Benchmark Costs for Transportation in Nuevo Juan del Grijalva

| **Road Upgrades to Nearest City:** | $1,140,000 USD |
| **Road Network in the Community:** | $210,000 USD |
| **Construction Central Boulevard** | $45,000 USD |
| Exchange rate for April 2009 (Oanda.com) .0705 |
fundamental paradigm shift occurs. Families that were once nearby to fields and far from social services become far from fields and nearby to social services. An ability to commute back and forth to farming areas is an important consideration for the workers in the community. The long-term economic success of the community is predicated on the ability to fundamentally transform the economy. In order to stay competitive in local and regional markets, inputs and outputs from businesses must be transported to and from the community. Especially in remote, rural instances, the nearby highway system can either enable or cripple the sustainable rural community.

To meet the needs of the sustainable rural community, planners of Nuevo Juan del Grijalva followed these best practices:

- **Upgrade the highway to the community:** The regional highway infrastructure was upgraded to facilitate construction in the community and to encourage transportation to/from the community in the medium term.
- **Install sidewalks:** To reach the goal of a walkable city, each road within the community is flanked by curbs and sidewalks on both sides. This improves safety as well as water drainage.
- **Provide a transportation center:** Bus service is necessary between the community and other regional destinations. A central transportation center can provide medium-distance bus service as well as shuttles to local worksites. This improves the flow of goods and services both within the community and between the community and other regional markets.
Communication

Communication services are an essential component of any community. When considering the Millennium Development Goals, health and education are immensely facilitated by communication with outside teachers, nurses, and doctors. Fortunately, given today’s technology, providing communication and internet resources does not require an overly burdensome capital investment.

Modeled after the approach of Nuevo Juan del Grijalva, the sustainable rural community can provide the following capabilities:

- **Mobile telecommunications:** Land-line telephone service in the home is not a requirement in the modern rural city. A single mobile telephone tower can deliver cost effective, pay-as-you-go phone service for residents that wish to have phone service.
- **Computer labs in classrooms:** Teachers and students benefit can utilize Internet-based resources to replace traditional textbooks and learning aids.
- **Computer labs in community centers:** Residents of all ages can utilize shared computers to exchange email, place phone calls via IP-based services (e.g., Skype), check weather reports, and conduct other important daily business.

Planning and deploying a communication infrastructure can be challenging for the designers of the sustainable rural community. In Nuevo Juan del Grijalva, a mobile service providers was the ideal partner for a symbiotic relationship: providers can extend their network with an emerging customer base while improving its ties to the community, and customers can benefit from high-quality, low cost options for placing and receiving phone calls. Breaking the community down into small projects creates an opportunity to assign ownership to individual business partners. For example, find a major bank or retailers, and assign ownership of the primary school, including the computer lab, to that partner. Similarly, there is an opportunity to engage a large computer provider as a sponsor in order to secure discounted pricing on computer hardware and networking supplies.
Garbage Disposal

To meet the Millennium Development Goal of environmental sustainability, an effective garbage management program must be in place. Within the sustainable rural community, consider the following best practices for managing garbage:

- Provide adequate garbage disposal outlets: Routine door-to-door garbage collection is not required in small cities; however, garbage receptacles should be liberally spread throughout the community so that residents can dispose of household trash and on-the-go items.
- Encourage a recycling program: As with many emerging local economies, residents will take advantage of disposable products for everyday consumption and use. If possible, establish a program for recycling water bottles, soda bottles, and other containers. Such as program will reduce the strain on garbage collection, improve the cleanliness of the local environment, and encourage positive behavior in the community.
- Schedule routine collection: To encourage a well-kept and clean community, ensure that garbage collection from public receptacles is scheduled at sufficient intervals such that garbage does not overflow and become litter on the streets.
- Establish a secure disposal site: If regional garbage disposal options are not available, a local garbage dump must be established. When determining the site, consult with local experts to determine a safe, sustainable location. Introducing new pollution hazards inhibits the growth and development of the community in the long term.
What is the role of housing in the sustainable rural community?

The main objective of the Nuevo Juan del Grijalva is to mitigate the effects of dispersion and extreme poverty. Providing housing in a centralized location where residents have access to the necessary infrastructure and services and is a key component of a rural sustainable community.

Today, the community is home to 410 residences (with a total of 1,000 planned). Each house is 60 square meters in size and is located on a 300 square meter plot of land. The houses, with concrete flooring, adobe brick walls and aluminum roofing, each have two bedrooms, a bathroom, and a living area. Homes have access to running water and electricity. In the back of each home, there is a covered patio with a ventilated wood-burning stove and a large washing basin. Since the backyards of the homes were designed to be productive, each resident was given the choice to keep small livestock such as chickens or grow plants.

<table>
<thead>
<tr>
<th>Housing Investment Benchmarkxxi</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>$5,483 USD</td>
</tr>
<tr>
<td>Labor</td>
<td>$1,703 USD</td>
</tr>
<tr>
<td>Tools</td>
<td>$82 USD</td>
</tr>
<tr>
<td>Total Direct Cost</td>
<td>$7,278 USD</td>
</tr>
<tr>
<td>Total Indirect Cost</td>
<td>$1,568 USD</td>
</tr>
<tr>
<td>Total Cost per House</td>
<td>$8,846 USD</td>
</tr>
<tr>
<td>Total Cost per Resident</td>
<td>$1,960 USD</td>
</tr>
<tr>
<td>Total Community Investment</td>
<td>$3,626,780 USD</td>
</tr>
<tr>
<td>Total Investment per Household</td>
<td>$8,846 USD</td>
</tr>
</tbody>
</table>

*Exchange rate for April 2009 (Oanda.com) .0705*
Housing Floor Plan

All residences are delivered to families identical in size and layout
*Floor Plan provided by the Institute of Rural Sustainable Cities

Five key considerations in planning for housing are:

<table>
<thead>
<tr>
<th>Key Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consideration #1</td>
</tr>
<tr>
<td>Consideration #2</td>
</tr>
<tr>
<td>Consideration #3</td>
</tr>
<tr>
<td>Consideration #4</td>
</tr>
<tr>
<td>Consideration #5</td>
</tr>
</tbody>
</table>
What are the objectives of providing housing?

Housing provides a base to achieve five of the eight United Nations Millennium Development Goals:

1. End Poverty and Hunger
2. Universal Education
3. Gender Equality
4. Child Health
5. Maternal Health

What are the key housing elements?

The following discussion describes the essential elements to be considered when planning housing for a sustainable rural community. This chapter is broken into three sections: ownership, design and construction.

Ownership

In order to develop a successful community, the housing rules and rights of the residents must be in alignment with the goals of the community. For Nuevo Juan del Grijalva, the community developers created ownership rules devised to foster community and to promote people building roots within the community.

Residents must commit to living in their homes for a minimum of 25 years.

This rule was put into effect primarily to incentivize people to build roots within the community. It also prevents residents from moving back to their old homes, many of which were crippled by the flood or are located far away from services that their families need to thrive. The rule ensures that the current generation of children of the community stay in school.

However, in Nuevo Juan del Grijalva, many residents still rely on the property in their old communities for farming income. Depending on the distance to a resident’s farmland, the man of the household has the right to live in his old home during the week and return to Nuevo Juan
del Grijalva on the weekends. However, the mother and children must live at Nuevo Juan del Grijalva full time. The home title is taken away from residents who do not comply with this rule.  

Planners of Sustainable Rural Cities should consider adding flexibility to the housing agreement. As communities thrive and the families that live within them gain financial stability, some inhabitants may wish to move into larger homes in neighboring areas or cities. Metrics to assess the appropriate tenure of the land agreement must be established. These metrics can be based on the community’s economic growth rates or projected average household incomes. It is also important to devise a petition process for residents that wish to sell their house prior to the agreed upon time.

Residents must agree to place the ownership title of the house in the name of the female head of the household. This rule was established in order to guarantee that the mother and children have a home even if the male head-of-household stays in the community or leaves.

**Design**

*Engage local partners*

The government of Chiapas engaged the University of Chiapas to provide architecture and design services for the housing at Nuevo Juan del Grijalva at a reduced cost. Utilizing a regional university resource also ensured that the architects were more familiar with the context of the community.

*Respect regional and cultural preferences*

In order to successfully relocate people into a Greenfield development and to help people acclimate to a new location, the incorporation of familiar cultural references in the design of the houses is important.

During the planning process for Nuevo Juan del Grijalva, the University of Chiapas (UNACH) conducted a study to learn more about the social and cultural nuances of those who would move to the new development. UNACH worked to understand the people’s activities, education levels, average household size, religion, and more.

Armed with this cultural context, the architects designed three layouts for the residences. The layouts were then presented to the residents for feedback. Ultimately, one layout was selected for prototyping.
Prior to the commencement of construction of the houses, Fundación Azteca and its counterparts requested that just one house be constructed for resident review. This was a critical component of the housing planning process, as it provided important feedback that could not be provided through UNACH’s initial cultural study. For example, many of the homes in the old community had outdoor bathrooms and had open layouts without windows. Therefore, the homes of Nuevo Juan del Grijalva were originally designed with this in mind. However, when residents saw the model house, they commented that they would prefer indoor bathrooms, and windows to protect from flooding during inclement weather. If the focus groups had not been conducted, these key insights might not have come to light prior to construction of the houses.

Cultural insights were also incorporated into the design of the backyards. Since residents were used to living off their land, each backyard was designed to accommodate chickens, rabbits, and other small livestock and plants. For residents, the chicken coop is essential because families rely on the eggs that the chickens provide for food.

The transition from living on large plots of land to densely populated neighborhood blocks can be challenging for residents. If possible, housing plans should be laid out in a way that respects residents’ privacy. For example, planners might consider putting the bedrooms in the back of the house facing the backyards, and might consider utilizing opaque fencing materials to divide each resident’s property so that the backyards stay private.

*Design housing with flexibility in mind*

It is important to keep housing layouts and materials simple to maintain cost efficiency during construction. At Nuevo Juan del Grijalva, all houses are delivered to the residents with the same layout. However, the architects designed the layouts with flexibility so that residents can build additions to their homes as their incomes or families grow. For example, the porch area can easily be converted into an extra room, and the large back yard can accommodate further extensions.
Floor plans were designed with flexibility in mind. Residents can build additions to their homes as their incomes or families grow.

*Floor Plan provided by the Institute of Rural Sustainable Cities

In the five months that residents have lived in the community, several families have built additions and made cosmetic changes to their homes. Also, many residents have retrofitted their houses to accommodate small home businesses.

Remodeled house

Construction

*The importance of community engagement*

The premise of the Sustainable Rural Community is to provide residents with the infrastructure and support necessary to eventually become self-sustainable. The values of citizenship and self-sustainability must be ingrained in the minds of residents. Self-construction helps residents feel a sense of pride and ownership for their home and their community. xxxi Accordingly, asking residents to help build their own houses is a key component of developing a truly sustainable community.
Setting a positive precedent, approximately 80 residents helped build their own houses in Nuevo Juan del Grijalva. In future Sustainable Rural Communities, residents will be required to either help build their own house or contribute to the building of community spaces.\textsuperscript{xxx}

Local residents were employed to make the adobe bricks for the housing and to help construct the houses. Using local labor helped cut transportation costs, and provided a source of income for residents, and helped foster a sense of engagement and pride for residents in the community.

\textit{Cost efficiencies}

Cost efficiencies are critical in government and NGO based community initiatives. Leveraging stakeholder relationships and local resources can help mitigate costs. For example, in Nuevo Juan del Grijalva stakeholders helped secure building materials at a reduced cost by working with companies willing to engage in corporate social responsibility efforts. Cruz Azul, the cement supplier, donated 300 tons of cement, and Mexalit Industrial donated 50\% of the cost of the waterproofing materials. These efforts helped reduce housing costs by approximately 15\%.\textsuperscript{xxx} The planners of Nuevo Juan del Grijalva also utilized local earth to create the adobe bricks for the housing, and the bricks were made on-site. This helped cut material costs, and also lowered transportation costs. Transportation can be difficult because the roads leading to Nuevo Juan del Grijalva are narrow and steep.
What role do services play in the sustainable rural community?

At the heart of the Sustainable Rural Cities project is the objective of fighting poverty by reducing population dispersion. Bringing several thousand people together into a new community requires a very comprehensive service system to support the community’s development. Those tasked with defining a service portfolio for a new community must consider the characteristics of both the region and the people. Planning and customizing are essential to the development of a robust service platform. Given the significant investment costs, it is also important to cultivate strong relationship between the private and public sectors in order to take advantage of their complementary expertise.

Nuevo Juan del Grijalva started with a series of objectives, including one which speaks to services: Promoting social cohesion, reduce risks and provide better quality of life for current residents and future residents of localities. xxii

Three key considerations relevant to service planning are:

<table>
<thead>
<tr>
<th>Key Considerations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Consideration #1</td>
<td>Develop a deep understanding of the region and population that will form the new community</td>
</tr>
<tr>
<td>Consideration #2</td>
<td>Partner with local government for funding, implementation and maintenance of service-related projects</td>
</tr>
<tr>
<td>Consideration #3</td>
<td>Consider and reflect potential effects of population growth and demographic changes in service infrastructure</td>
</tr>
</tbody>
</table>

What are the objectives of providing a high-quality service level?

The service pillar provides a base to achieve four of the eight United Nations Millennium Development Goals:

2. Universal Education

5. Maternal Health

4. Child Health

6. Combat HIV/AIDS
What are the key service elements?

The following discussion describes the essential elements to be considered when developing a comprehensive service platform for a sustainable rural community. This chapter is broken into four sections: education, health, social services and access to financial services.

Education

The education component in a sustainable rural community should consider both basic (pre-school, primary, secondary and high-school levels) and complementary (college degree and professional training) levels. Strong partnerships between the community and the local government are critical for the development of education infrastructure and quality standards appropriate for the region.

The following tenets were used in the design of Nuevo Juan del Grijalva:

- Develop an extensive pre-screening process to inform the specifications for education services, defining facilities requirements, equipment and teachers
- Build a flexible infrastructure to accommodate population growth and demographic changes
- Create an integrate education system to ensure quality and support for student development

<table>
<thead>
<tr>
<th>Benchmark Education investments of Juan del Grijalva</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Investment:</td>
</tr>
<tr>
<td>$1,572,150 USD</td>
</tr>
<tr>
<td>Total Investment per student:</td>
</tr>
<tr>
<td>$8,544 USD</td>
</tr>
</tbody>
</table>
| *Exchange rate for April 2009*
| (Oanda.com) 0.705                             |

Pre-school

Nuevo Juan del Grijalva’s preschool comprises seventy-three students separated by age into three different groups. There is an average of twenty-five students per class. Each one of the age group has a dedicated teacher and support staff. The pre-school offers an art teacher and a coordinator responsible for overall program development. A nutritional breakfast is offered daily to all students.
Primary School

Nuego Juan del Grijalva’s primary school supports thirty-four students. One teacher is dedicated to each subject including art and sports. The educational program is focused on developing strong reading, writing and analytical skills. Students benefit from afternoon enrichment classes to improve specific educational gaps. High performing students are recognized with fellowship to reward and incentivize.

Secondary School

The secondary school’s one-hundred students are divided into three age groups. The youngest group is further separated into two smaller groups to assure individual attention. The school has eight dedicated teachers for each subject. Students also have the opportunity to learn in a state-of-the-art multimedia center and science lab. As with primary level students, high performers in the secondary school are rewarded with fellowships.

The education system at Nuevo Juan del Grijalva provides additional learning opportunities for students. Some examples include English courses and agriculture workshops held in the experimental greenhouse.

Complementary Education

Initiatives to provide alternative paths for students upon completion of secondary education might also be considered. Several examples include college education and professional training opportunities.

In Nuevo Juan del Grijalva, a partnership between Fundación Azteca and the University of Chiapas fostered the establishment of a virtual college. Classes will be held in a modern conference center in the Aztec Tower where students can attend virtual lectures and complete assignments. There are currently three college degrees: Population Security in Disasters, Municipal Development and Governance and Social Management. These degrees were defined based on the potential needs of the community.
Professional skills courses such as carpentry and electrical wiring represent an alternative education path and potential source of additional income.

**Health**

Collaboration with government experts to assure alignment between practices and standards should be considered when developing a comprehensive health program.

When designing Nuevo Juan del Grijalva, planners used the following tenets as guides:

- Health services should be able to support potential demand from surrounding areas
- Preventive programs are necessary to reduce most common health problems
- All basic health services should be available twenty-four hours per day

The following considerations and best practices are based on Nuevo Juan del Grijalva experience and should only be used as a starting point for planning discussions.

**Portfolio of health services**

Before defining the service portfolio to be offered at the Nuevo Juan del Grijalva Health Clinic, an extensive screening process was conducted to develop an understanding of common health conditions of the population. Planners used this information to:

- Define a list of preventative programs
- Identify and track the progress of each pregnant women
- Develop a detailed list of patients with critical diseases requiring special attention

**Benchmark Health Investments of Juan del Grijalva**

<table>
<thead>
<tr>
<th>Benchmark Health Investments of Juan del Grijalva</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Investment</td>
<td>$1,360,650 USD</td>
</tr>
<tr>
<td>Facilities</td>
<td>$1,177,350 USD</td>
</tr>
<tr>
<td>Equipment</td>
<td>$183,300 USD</td>
</tr>
<tr>
<td>Total Investment per habitant</td>
<td>$735,486 USD</td>
</tr>
</tbody>
</table>

*Exchange rate for April 2009 (Oanda.com).0705*

**Health Services Portfolio**

<table>
<thead>
<tr>
<th>Health Services Portfolio</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventive actions programs</td>
<td></td>
</tr>
<tr>
<td>Ambulatory Medicine</td>
<td></td>
</tr>
<tr>
<td>Reproductive Health</td>
<td></td>
</tr>
<tr>
<td>Dentistry</td>
<td></td>
</tr>
<tr>
<td>Pregnancy, childbirth and newborn</td>
<td></td>
</tr>
<tr>
<td>Emergency</td>
<td></td>
</tr>
</tbody>
</table>

**Facilities and Equipment**

Once the service portfolio is defined, planners should consider how to establish and coordinate a partnership between private and public sector to assure necessary funding for the construction of the facilities and acquisition of equipment.

*Health Clinic Reception*
<table>
<thead>
<tr>
<th>Health Center Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 general medicine rooms</td>
</tr>
<tr>
<td>1 dental office</td>
</tr>
<tr>
<td>1 preventive medicine room</td>
</tr>
<tr>
<td>6 beds (2 pediatric and 4 adults)</td>
</tr>
<tr>
<td>1 delivery room (birth room)</td>
</tr>
<tr>
<td>1 sterilization equipment center</td>
</tr>
<tr>
<td>1 medical residency</td>
</tr>
</tbody>
</table>

**Social Services**

A sustainable rural community requires a series of support programs to assure a healthy transition period into the new community. Those programs also play an important role preventing families from moving back to their former homes. Abstracting from the social services in Nuevo Juan del Grijalva, this example provides an effective model for future rural sustainable communities.

*Child Care – Community Child Care Center*

This educational and recreational space provides comprehensive care for children aged eighteen months to six years. This resource is oriented to children of working mothers. It operates under guidelines of the Preschool Education Program – ensuring a unified educational system for the community. The service is offered at no cost Monday to Friday, 8 am to 4 pm. With two dedicated teachers, the twenty-four children currently enrolled receive full psychological and nutritional care. Children are also involved in special activities designed to promote the development of their cognitive, intellectual and social abilities. Parents have the guarantee that their children are well cared for while they work. The center also provides parenting classes.

*Adult Support – Community Development Center*

The center was developed to improve quality of life and enhance the sense of community through socio-cultural initiatives. Its free programming is available for members of the community aged 15 and older. Currently, the center offers:

- Adult literacy classes
- Basic skills training, such as computer classes
- Recreational and cultural workshops, such as art and music
- Psychological services

Access to Financial Services

Many residents formerly lived in a subsistence economy and are not educated in the workings of a cash economy. Their transition to the new community requires training in money management and basic financial service concepts, such as:
  - Use of saving accounts
  - Basic personal financial planning
  - Access to investments
  - Use and management of credit – personal and microfinance products
What is the role of business in the sustainable rural community?

The objective of the rural sustainable city is to meet the United Nations Millennium Development Goals which is accomplished by moving citizens closer to where services and resources are provided. To maintain the sustainability of the city and to ensure that citizens are available to utilize these services, the city must provide a stable economy and long-term employment for its residents. Increasing the productivity and incomes of residents further enhances the ability of the community to fight hunger, improve health, and educate its citizens.

The following discussion describes the best practices for approaching business in the sustainable rural community. It is divided into three chapters: an overview of the economy as a whole, a discussion of best practices, and a review of several important tactical details for managing local businesses.

When considering the types of the businesses in the community, three classifications were used:

- **Retail Businesses**: small- to medium-sized businesses which provide goods and services for local and regional consumption. Examples include a bread shop, a grocery store, or a carpentry shop.
- **Agro Industry**: individual farmers or farming cooperatives which produce goods using farming or ranching techniques and sell to the local market or regional distributors.
- **Micro Industry**: manufacturing or processing businesses which seek to produce a good at volume for sale to a distributor or retailer. Examples include a cheese factory, a tomato greenhouse, or a t-shirt factory.

### Benchmark Business investments in Nuevo Juan del Grijalva

<table>
<thead>
<tr>
<th>Benchmark Business investments in Nuevo Juan del Grijalva</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Investment:</td>
</tr>
<tr>
<td>Total Investment per habitant:</td>
</tr>
<tr>
<td>Exchange rate for April 2009</td>
</tr>
</tbody>
</table>

![Tomato greenhouse](image1.png)

![Adobe Block Plant](image2.png)
Three key considerations in business planning are:

<table>
<thead>
<tr>
<th>Key Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consideration #1:</td>
</tr>
<tr>
<td>Find one or two businesses that are viable at large volumes and grow those businesses to be the major employers in the community</td>
</tr>
<tr>
<td>Consideration #2:</td>
</tr>
<tr>
<td>Define the correct mechanism to filter which businesses should be develop and who runs those businesses</td>
</tr>
<tr>
<td>Consideration #3:</td>
</tr>
<tr>
<td>Ensure that there is a clear government’s exit strategy to avoid long term dependence on subsidies</td>
</tr>
</tbody>
</table>

**What are the objectives of business?**

Business development supports four of the eight United Nations Millennium Development Goals:

1. **End Poverty and Hunger**
2. **Gender Equality**
3. **Environment Sustainability**
4. **Global Partnership**

**What are the key business elements?**

The following discussion describes the essential elements to be considered when planning businesses for a sustainable rural community. This chapter is broken into two sections: managing the economy and managing business.

**Managing the Economy**

In order to meet the Millennium Development Goals, the rural sustainable community must raise income per capita over the long run. Organizers of a new or largely modified city must balance the power of being “planners” with the free-market principles that are necessary for long-term economic prosperity. Understanding the correct amount of intervention is important to ensure the community’s success.

When influencing the local economy, planners should consider the following principles:

- Increase or retain a stable rate of employment in the community
- Ensure that income levels are sufficient to meet immediate needs (i.e., food, shelter and clothing) and afford basic services (e.g., electricity, water, health visits)
- Introduce subsidies and support in a way that does not promote long-term dependence
To achieve the stated goals of the community while adhering to these principles, the economy must undergo a fundamental long-term transition. Productivity of both land and labor must be improved, or the city will risk one of two negative outcomes:

- Residents will become long-term dependants of government subsidies
- The city itself will fail and be abandoned or regress to its prior state if possible

Planners must recognize the long-term strategic goal of the city as delivering high-quality government services at effectiveness and cost as similar as possible to the urban market. In this context, sustainability does not mean that (at the regional or city level) government costs minus taxes is a positive number. Rather, the city and the region are viable on both an economic and sociological level without long-run, excessive government and philanthropic intervention.

**Managing Businesses**

The following section highlights the best practices for how to intervene in the local economy and in the affairs of local businesses in an effective way. It covers topics that can apply to each business or enterprise within the sustainable rural community. In summary, those steps are:

1. Assemble and oversight board for all short- and medium-term affairs in the business community
2. Develop a macroeconomic and microeconomic plan for the first ten years of the community
3. Establish a processes for introducing new businesses to the community
4. Promote entrepreneurship in the community
5. Offer short-term support services to businesses in the community

*Assemble an Oversight Board*

A board of advisors, hereby referred to as the Business Advisory Board should be assembled to act as stewards for the economic health and well-being of the community and the region. The board should be responsible for the long-term direction and growth of the economy, as well as tactical decisions for ensuring its success. The board should be comprised of government officials, non-profit representatives and for-profit businesspeople. Members should be vested in the economic success of the project but willing to take the actions necessary to increase economic productivity while reducing or eliminating the need for outside intervention. It is especially important that each major industry within the sustainable community is represented on the board by businesspeople that own or operate for-profit businesses in that industry in that region.

*Develop a Ten Year Plan*

Before breaking ground on the sustainable rural community, a ten year economic plan for the community should be established. The owner and author of this plan is a special committee of
the Business Advisory Board, and it should be approved by all major stakeholders in the sustainable rural city project. The ten year plan should address, at minimum, the following:

- Projected size of the economy (analogous to a gross domestic product) year-over-year
- Projected population size and per capita income
- Projected employment rate in the community
- Projected share of incomes by sector (i.e., what percentage of income in the community comes from which sector)
- Mandatory versus nice-to-have businesses in the local economy, including:
  - When each business enters the economy
  - Major milestones for sales targets, cost targets, and profitability targets
  - Highlights for subsidy levels by year, including zero-subsidy goals
- Identification of one or two businesses which have the capability of producing at high volumes (discussed in detail below)
- Identification of those businesses which would benefit from business related to the construction of the city itself

The most important agents for transforming the long run per capita income of the community are one or two businesses which can grow to produce goods for net export at a high volume and employ a lion’s share of the community’s workers. To identify and grow those potential businesses, the committee should consider the following:

- Leverage the resources available on the Business Advisory Board. Local experts on each of the products and industry under consideration should be incorporated in the decision. These experts might consider their time and participation a form of corporate citizenship and/or community giving on behalf of their employer.
- Utilize the natural resources of the region. Favor any agricultural or industrial product is well-suited for production in the area (e.g., growing a crop which is well suited for the local climate; manufacturing a product which takes advantage of the historical skill set of local workers, such as furniture or jewelry making).
- Ensure that a market exists in advance. Verify that a long-term market for the product in question exists over the medium term horizon and covers the costs of producing and bringing the product to market.
- Sign purchasing contracts before investing. Utilize the relationships of the Business Advisory Board to establish purchasing contracts in advance of up-front investment in a given business.
- Collaborate with business partners throughout the process. Incorporate the knowledge and expertise of trading partners as each business is planned and established.

Examples of such businesses include cacao processing, cheese production, and clothing assembly.
Establish a Process for New Businesses Entering the Economy

Adhering to free-market principles is important for every rural sustainable community; however, during the fragile development period, the economy benefits from the Business Advisory Board overseeing which new businesses to introduce to the economy. The underlying motivation is not to stifle competition and over monopoly ownership to preferred partners. Rather, the purpose is to ensure that valuable resources, in the form of direct and indirect subsidies by governments and NGOs, flow to those entrepreneurs and enterprises that will benefit from them the most.

To accomplish this goal, a subcommittee of the Business Advisory Board should be responsible for approving each new business which enters the community. Anyone (resident or non-resident) or any company (including external companies seeking to open an operation within the community) can apply. When considering the application and its accompanying business plan, the subcommittee should review:

- Is the product or service viable? A realistic market share of the target market should be identified; that target market may or may not exist within the community. This is especially important as multiple communities are assimilated into a new target community, as not every businessperson will be able to continue their old line of work (e.g., if thirteen communities are brought together, the new city may not be able to support thirteen soda-and-potato-chip shops). If the product is intended for resale to an intermediary or a supplier, that supplier should be identified in advance and, if possible, a purchasing contact should be signed.

- Can the product be profitable? Target prices and project costs must provide a net profit with a suitable buffer for variance in actual prices or costs or changes in the economy.

- Can the business pay a livable wage? A minimum long-run staffing level should be identified and each employee and/or partner has been capable of drawing a livable wage while the business remains profitable.

To ensure that each new business has an environment that is conducive to success, the subcommittee must be able to facilitate the entrepreneurship process. Aside from ensuring that training resources are available and marketed (see below for more details), the subcommittee must ensure that funding sources are available for all viable new businesses. When considering the funding issue, two types of businesses can be considered:
Large-scale business proposals. Most businesses proposals that call for a large capital investment and high monthly revenues will be accompanied by a logical funding source by falling into one of two categories:

- Must-have community businesses, such as a grocery store or bread shop, are budgeted within the initial investment cost of the city
- Large, unplanned applications typically originate from a large external firm (e.g., a bank branch) that can provide the up-front funding

Small-scale business proposals. Without a clear guardian or the benefit of being a “must to have” business in the ten year plan, a small business proposal is very likely to fall victim to funding shortages. Micro-financing operations, such as Banmujer and Banchipaas in Nuevo Juan del Grijalva, must be available to provide loans and support services to these entrepreneurs. In situations in which government-sponsored entities to do exist, planners should reach out to international organizations that offer micro-credit services to find a partner for establishing such operations in the community.

**Promote Entrepreneurship in the Community**

Once a process has been established for new businesses in the community, it is imperative that the process becomes as easy to use as possible. As discussed in the Services Pillar under Access to Financial Services, residents may have little or no experience with a cash economy or how to write a business plan. As such, promoting entrepreneurship takes two important forms:

- Offering training sessions. Education sessions on writing a business and, more basically, the fundamentals of a successful business, should be available via the adult education services in the community.
- Marketing the entrepreneurial process. The application process itself, including the benefits of starting your own business, should be marketed to the members of the community. New entrepreneurs may be timid about coming forth with ideas due to personal or cultural reasons. Encouraging those future business owners, especially women and young adults, can dramatically change the landscape of the economy in the long run.

**Offer Support Services to New Businesses**

New entrepreneurs in the community, despite an effective business plan and a clearly viable go-to-market strategy, may not have the skill set to navigate through the important start-up and growth phases of the business. As such, support services are a critical resource for new business partners. The goal of support services should be to fill important gaps in skills or understanding in the short term in order to create business partners that are qualified and
capable in the long term. Subsidies in this area are at risk for forming long-term dependence, and thus should be distributed and managed judiciously.

An effective support offering for new and existing entrepreneurs should include:

- Training materials on business fundamentals (e.g., how to track sales and costs, managing inventory, reporting common business metrics, etc.)
- Education materials on the specific market/industry of each business
- Mentorship relationships with members of the Business Advisory Committee

**Additional Implementation Considerations**

To accompany the general best practices that are noted above, the following implementation considerations provide tactical guidance for addressing specific challenges or circumstances which may arise.

**Coordinating the Agriculture Community**

Regions that are strong candidates for the rural sustainable city approach are typically agrarian in nature. While it is important to identify one or two industrial businesses in the rural sustainable community, a certain percentage of the population will remain farmers in both the short and long term. Often, those farmers are owners of small plots of land and each grows a variety of crops with the objective of providing food for consumption by the family.

The goal of the coordination effort is the change the product mix to focus on one, high-yield crop that can be collectively farmed and brought to market at higher volumes. The underlying strategy of this goal is to reduce production, distribution and marketing costs and to maximize partner income. Tactically, this goal can be achieved through the following best practices:

- Select a high-yield crop that thrives in the local climate:
  Traditional crops (e.g., cotton, corn, beans) can be replaced by higher price and higher productivity fruits and vegetables. An important effort is being made in Nuevo Juan del Grijalva where local farmers are encouraged to convert their land from traditional uses to highly profitable crops. A secondary goal of growing alternative crops instead of using the land for traditional uses, such as cattle, is the reforestation of land.
• Phase land conversions over time: Farmers will be hesitant to endure the three-to-five years necessary for the new crop to bear sellable produce; as such, convert only a small share of the overall acreage at any given time to reduce large disruptions any given year. Subsidies may be required during initial conversions as income temporarily drops before the first high-yield crops can reach maturity.

• Pool production equipment and resources: Reorganizing adjacent fields into cooperatives introduces the possibility of using a common set of equipment and laborers to farm a larger plot of land of a consistent crop, thus lowering operational costs considerably.

• Identify a market or wholesaler in advance: Before the target product is identified and planted, ensure that a market exists and a current wholesaler or retailer is available to purchase the product at a profitable price per unit weight or per unit volume.

• Provide ample budget for marketing and education: Traditional farmers will undoubtedly have a family history of farming a given plot of land for a given crop. Extensive outreach will be required to inform and persuade residents to abandon traditional techniques and pursue modern crops and processes.

Zoning for Retail/Commercial in the Urban Plan
An important enabler for the economic health of the sustainable rural city is the urban plan and zoning of the commercial districts (for a more in-depth discussion of the urban plan, see Infrastructure – Urban Plan). To support successful businesses, the urban plan should incorporate the following three priorities:

• Establish a commercial corridor: Both merchants and customers are more successful when retail shops are located nearby each other in an area that is centrally and conveniently accessible by all residents of the community.

• Provide a mall facility for small vendors: Small businesses require a facility that requires low startup costs and the ability to exit easily should the business not remain profitable. Nuevo Juan del Grijalva utilized a “rural mall” technique that provided small stalls in a mall format to businesses looking to sell goods or services. The stalls included water and electricity hookups if required. This arrangement offered entrepreneurs a place to house a growing business that did not require buying or building a freestanding building.
• Locate small retail shops throughout the community: Some retailers, such as a convenience store, are more successful when physically located closer to the customer. In this case, a few smaller retailers should be placed near neighborhood hubs (or busy street corners) to more convenient access to goods and services. In the case of Nuevo Juan del Grijalva, five Super Chiapas are strategically located within the community, each one is supposed to serve in average 85 families.

*Utilizing the Home for Small Business*

Certain small businesses may require little (if any) physical equipment or selling space. The rural sustainable community should encourage entrepreneurs who can supplement their family income through small, home-based businesses. A valuable commodity in this environment is the home itself. The common spaces of the home (both inside and out) can be modified to meet the needs of the business. For example, a rug-making loom could be placed in the living room of a resident, or a small woodshop could be built in the back yard. These businesses can provide important income and revenue creation opportunities to the residents of the community.

Another effort made in Nuevo Juan del Grijalva is the construction of Productive Backyards for each house, this refers to the use of land for food production inside the lot assigned to each home. It can easily be assumed that the residents of a rural city had lived on plots where they harvested or raised their own food. Introducing productive backyards not only serves to reduce their food spending, but also preserves the customs of the old community.
GoverNment and Community Develoment

What is the role of government and community development in the sustainable rural city?

In addition to the benefits of providing housing, infrastructure, services and employment, the government has several opportunities when bringing together formerly dispersed communities. Chief among these is the potential improve communication and establish a strong relationship with the people. Improved communication is the key to successfully forming a governing body and a strong community ethos.

Financial benefits for the government

In addition to providing more efficient communication and governance, consolidating disperse populations provides significant financial benefit due to decreased services delivery costs. In the case of Nuevo Juan del Grijalva, the Chiapas government estimates a savings of almost $300 million dollars in road construction from bringing these eleven villages together. Similarly it will cost $3.5 million dollars less to deliver potable water to one centralized community versus eleven dispersed villages.xxxvii Although these cost savings might at first be overshadowed by initial investment costs, over time the benefits of more efficient services delivery may result in financial savings. The following map shows the locations of the eleven original villages in relation to Nuevo Juan del Grijalva.

Opportunities for the government to better serve constituents

While it is easier to communicate with people when they are no longer dispersed, it is also easier for them to rally behind grievances held by a small minority. An example of a government relations concern for Nuevo Juan del Grijalva is that citizens have come to expect government and outside agencies support. According to one of the community leaders, some residents feel they were forced to move and thus deserve more from the government.xxxviii The council of Nuevo Juan del Grijalva and the Chiapas government are working together to address the risk of this dependency cycle taking root. This is necessary to ensure the community is self-sustainable in the long-term. The opportunity to partner with local leaders helps the government to better understand and address the needs of its constituents.
Four key considerations relevant to government and community development are:

<table>
<thead>
<tr>
<th>Key Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consideration #1</strong></td>
</tr>
<tr>
<td><strong>Consideration #2</strong></td>
</tr>
<tr>
<td><strong>Consideration #3</strong></td>
</tr>
<tr>
<td><strong>Consideration #4</strong></td>
</tr>
</tbody>
</table>

*What are the objectives of providing a governing body and strong sense of community?*

An effective governing body and strong sense of community directly address two of the eight United Nations Millennium Development Goals:

![Gender Equality](image)

*What are the key government and community development elements?*

The following discussion describes the essential elements to be considered when planning the government and community development aspects of a sustainable rural community. This chapter is broken into three sections: resident recruitment, governing structure, communication, and community building.

**Resident Recruitment**

*Approaching potential residents*

The primary method of recruitment was to meet with potential residents to discuss the benefits of immediate access to education, health and other services. Women and children were especially drawn to the service offerings. In the case of Nuevo Juan del Grijalva, many potential residents who were impacted by the flood were living in a temporary camp and thus were more supportive of a new way of life.

However, in order to gain the trust of and access to the residents of the villages, the Chiapas government identified and approached the informal or formal leaders of each separate village to gain alignment. The community leadership’s endorsement of the project helped persuade a significant majority of villagers to move.
Managing potential reluctance to move

The villagers who declined to join the new community cited concerns of retaining ownership of their land and resistance to changing their life styles; concerns which are likely to be encountered elsewhere. While some steps can be taken to guarantee the property rights of villagers, concerns will persist especially in countries that lack strong land ownership laws. One significant way to mitigate this reluctance is to provide a transportation network for villagers to travel to and from their land. Addressing the resistance to change is more complicated. A potential strategy is to invite those less inclined to relocate for a community visit. By providing a tangible contrast to their current way of life and demonstrating how others have made the transition, initial resisters may be more inclined to move.

Governing Structure

Identifying leadership

When forming a new governing body, it is wise to look at the existing village structures and adapt them to form a new governing body. One key step to forming a governing body is to identify appropriate leadership. In Nuevo Juan del Grijalva, the government solicited volunteers to represent the community as leaders. After leaders were identified, the selected leaders agreed to form a community council to support the needs of their respective villages. Leadership should ideally be screened to ensure they have the best interests of the community in mind.

Defining roles and responsibilities

Clear definitions of roles and responsibilities are an essential first step to forming a new government. Once in position the governing council will act as the main liaison between the community, the government and other supporting organizations. Working on the behalf of the community, council members must be available to receive resident concerns, communicate relevant issues to government authorities and participate in community conflict resolution where necessary.

The council was divided into two ten-member councils so that the Northern and Southern neighborhoods of Nuevo Juan del Grijalva were equally represented. Although these councils
typically convene together, they are focused on bringing the concerns of the two neighborhoods to the table.

The council was asked to perform three tasks:

- Develop the community rules
- Suggest an ideal governing structure
- Discuss strategies to convince the villagers to relocate to the community.xliii

The council established a relationship with a representative from the Chiapas government who serves mostly as an impartial advisor. According to the Chiapas government, the villagers choose to use this outside officer to ease the process of governing.xliv On the one year anniversary of the community, this advisor will be replaced by an elected mayor who will lead the governing council and represent the town to the Chiapas government. This election will represent an important milestone in the development of Nuevo Juan del Grijalva as an independent, sustainable rural community.

Establishing community rules and standards

After the leaders were approached they designed a list of rules detailing standards for living in the new community. Several rules focus on standards for domestic animals and community cleanliness.xlv One important rule is a ban on alcohol sales within the town that was circumvented in some senses by the presence of a bar just outside of the city limits. Leveraging village leaders to design the community rules was effective given their perspectives on which rules must be documented and which can be unspoken community standards. The emphasis on hygiene was interesting to note and is one that must be considered in regions like Mexico, where proper trash collection is a major issue. So far, both community leaders and officials of the Chiapas government are pleased with the residents’ obedience given the minimal enforcement measures in place.xlvii

Communication

Managing expectations

Central to establishing a healthy relationship between the community and government is the management of expectations. The most commonly cited expectation of the people of Nuevo Juan del Grijalva, beyond the desire for better education and medical care, was a need for economic development opportunities.xlvii

While Nuevo Juan del Grijalva is unique, the wish for economic opportunity and service delivery is universally held. When establishing expectations, it is important to ensure that the
community understands that government and NGO aid is short term, and should be considered a platform for self sustainability rather than a long term subsidy.

Although difficult, striking the balance between short-term aid and long-term sustainability is a must, and effective communication is the key to striking that balance.

*Establishing an effective communication system*

In order to maintain a successful government and community, there needs to be an effective communication system. Establishing two-way communication channels fosters the development of a trusting relationship between government and resident. It also facilitates the government’s ability to address concerns early, and thus minimize larger scale issues.

The strategy for communication must consider the methods for sharing and receiving information. Whether messages are broadcasted via a radio station, included in a weekly newsletter, posted on fliers around a community or push to all three mediums, leaders must ensure that residents are informed. On the other hand, residents must be given the opportunity to provide feedback publically, privately or anonymously. Town council meetings should have a portion that is open to the public, so people can observe the governing process and understand how their concerns are being addressed. This practice helps to ensure accountability of the council and fosters trust.

**Community Building**

*The roles of common use areas*

During city layout and infrastructure planning it is critical to plan public use areas such as parks, sports facilities, gathering areas and adult education facilities. These public spaces effectively facilitate community development especially when residents relocate from widely dispersed areas. Community spaces are also critical to mitigating social divisions which may arise given the potential tensions of relocating formerly distant neighbors. Social tensions can ultimately cause detrimental impacts to the community. In the case of Nuevo Juan del Grijalva some businesses were initially struggling because they were owned by partners from different villages who found it difficult to work together. Other businesses claimed that their unsuccessful operations were attributed to a stigma among community members against the village from which they originated. Thankfully, the community seems to have been spared from serious social divisions such as those based on religion or ethnicity.
The importance of community-wide activities

Equally important to establishing a strong working relationship between the people and the government is planning community building activities. While much of the community building for youth is addressed by school and daycare programs, it is necessary to provide opportunities for adults and older teens as well. Activities such as sports leagues, adult education classes and fairs can all be useful in bringing a community closer together by facilitating social interaction. So far, Nuevo Juan del Grijalva has very successfully delivered education services to adults and children. The community’s centrally located facilities are designed for community activities. The next step is to develop a calendar of events including a spring fair which the council hopes to pull off with the support of community volunteers.

Developing metrics to track community development

Maintaining a sense of community requires the ability to track progress. Two examples of metrics that the Sustainable Rural Cities Institute uses to evaluate community development include school attendance and use of the medical clinic. The economic office of Nuevo Juan del Grijalva evaluates the success of in-town stores to gauge the level of comfort residents have with each other by showing how much they are willing to support each other’s businesses. Several other metrics to consider include, but are not limited to:

- Trends in attendance at town hall meetings
- Trends in attendance at community events
- Number of events planned by citizens versus those planned by government officials
- Level of participation in town sports leagues

Additionally a door-to-door survey of the town should be done once every six months to track resident satisfaction with services, economic advancement, and community building. In some cultures, an anonymous survey may prove more useful depending on the population’s comfort with providing honest feedback. Regardless of the survey method, results should be published along with a plan for addressing the most commonly held concerns. Monitoring government and community development is critical, but these functions can only be informed if the townspeople are aware, informed and involved in their community via an effective communication system.
RECOMMENDATIONS

Recommendation #1: Develop one or two major businesses to feature increased volumes, trading contracts with major retailers, and a distinct “sustainable community” brand.................................56
   Activity #1: Establish the Business Advisory Board for Nuevo Juan del Grijalva.......................................................57
   Activity #2: Identify and select those candidate products which are viable for high-volume production........................................................................................................................................58
   Activity #3: Establish contractual agreements with distributors and retailers.................................................................59
   Activity #4: Build a brand for products of the “Sustainable Rural City”.................................................................59
   Activity #5: Invest and scale up production in selected products and businesses..............................................................60
   Activity #6: Bring the products to market..............................................................................................................................61

Recommendation #2: Establish metrics and success rates to determine stability of the community to inform responsible expansion........................................................................................................62
   Economic Indicators ........................................................................................................................................................62
   Social Indicators..........................................................................................................................................................63
   Environmental Indicators...........................................................................................................................................64

Recommendation #3: Enhance communication system to promote a clear feedback loop among government officials, community leaders and residents.................................................................65
   Activity #1: Hold a Monthly Town Hall Meeting...........................................................................................................65
   Activity #2: Conduct biannual survey of the residents in the community...........................................................................65
   Activity #3: Publish a community newsletter..................................................................................................................66

Additional Recommendations........................................................................................................................................67
1. Leverage existing resources and natural landscape to develop ecotourism potential ........67
2. Build a bridge between existing advisory services and micro credit programs (e.g., Consultants in NJG linked to BanMujer)........................................................................................................................................67
3. Improve coordination in project development and evaluation among governments, NGOs and other stakeholders to ensure best practices are shared and integrated into future projects........................................................................................................................................................................68
4. Promote an actively engaged community........................................................................................................................68
5. Reduce political risk by shifting ownership from government administrations to NGOs ....69
Recommendation #1: Develop one or two major businesses to feature increased volumes, trading contracts with major retailers, and a distinct “sustainable community” brand

The strength of the rural sustainable city is delivering high-quality services to its residents. Nuevo Juan del Grijalva’s metrics pertaining to health and education will surely rise in the years to come. Conversely, the biggest risk to the city and to the project is economic. Without long-term, stable employment families will not be able to purchase food to eat each day. This will lead to families going back to their original villages where food is plentiful on their farmland but service delivery is poor. This negative outcome can be avoided by offering well-paying jobs physically located nearby the sustainable rural city.

This recommendation focuses on the tactical objective of increasing the number of jobs in Nuevo Juan del Grijalva that pay a wage capable of supporting a family. It is organized by the steps that are required to organize the stakeholders and resources necessary to achieve this objective. Recognizing that qualified personnel and expertise are already focused on these issues in Nuevo Juan del Grijalva, this recommendation is meant to include and enhance the resources which have already been dedicated to this cause.

A high-level timeline for the implementation of the six steps of this recommendation follows:
Activity #1: Establish the Business Advisory Board for Nuevo Juan del Grijalva

The purpose of the Business Advisory Board will be to provide oversight and management of the emerging economy of Nuevo Juan del Grijalva by leveraging the expertise of leading members of the business, non-profit and government communities. The Board will be the steward for all business affairs in the rural city, responsible for both setting the strategic direction as well as making tactical day-to-day decisions.

Members

The Business Advisory Board should include representatives from the following constituencies:

- **Government.** Representatives from the offices of the Secretaria de Hacienda and the Secretaria del Campo should act as liaisons to state and local government. Additional representatives from other departments should be added as needed.

- **Non-profit.** Foundations and other NGOs with a vested interest in Nuevo Juan del Grijalva should be included. Candidates include representatives from Fundación Azteca, Fomento Social Banamex, Fundación Bancomer, Instituto Carso, and others. Ideal candidates offer extensive non-profit experience as well as relationships in the for-profit business community.

- **For-profit business.** The Business Advisory Board’s potentially biggest contribution will be connecting entrepreneurs in the community with successful members of the for-profit community. Ideal candidates spend the majority of their time focusing on for-profit ventures, but are motivated to give back to the community. It is imperative that members with deep industry expertise related to the two target businesses are present on the board. For example, if cacao is selected, ideal candidates would include:
  - A representative from a regional food product distributor
  - A representative from a major domestic or international cacao processor (e.g., Nestle, Hershey)
  - A representative from a major retailer of chocolate products (e.g., Target, Comercial Mexicana, Bremen, Wal-Mart)
  - A representative that has a proven track record in entreprenerouship or venture capital
Responsibilities

Over the long term, the Business Advisory Board should support the entrepreneurs of Nuevo Juan del Grijalva in the following ways:

- **Exchanging industry best practices.** To improve productivity and increase volumes while maintaining quality, business partners in the community need access to improvements in technology, business processes and manufacturing techniques.
- **Connecting with future distributors/retailers.** Building long-term, strategic relationships with distributors, purchasers, and retailers is essential for increasing the volume of sellable product coming from the community. Ideally, partner organizations are represented on the board and interact with local businesspeople on a daily basis.
- **Mentoring business owners.** Cultural transformation of the businesspeople in the community is an important component of the long-term success of the rural city that can be easily overlooked. Assigning a mentor to each businessperson in the community encourages the transfer of “soft skills” and knowledge to entrepreneurs looking to make the transition into a cash-based, free market economy.

Activity #2: Identify and select those candidate products which are viable for high-volume production.

One of the first formal activities of the Business Advisory Board should be recommending which products are viable as long-term, high-volume export-ready goods in Nuevo Juan del Grijalva. The practical expertise available on the Business Advisory Board, as well as outside advisors and potential future business partners will all inform a strong recommendation. Important considerations for the recommendation are:

- What are the projections for wholesale and retail prices in the target market?
- Can the product be cost-effectively distributed regionally as well as nation-wide or internationally?
- How does the risk profile for producing this good change over time? Are market prices susceptible to economic or environment shocks?

As part of this recommendation, the subcommittee should identify projects and business according to three buckets:

- Projects or businesses which should be abandon
- Projects or businesses which should remain at medium or low volumes
- Projects or businesses which are viable candidates for high-volume growth

58
Potential candidates in Nuevo Juan del Grijalva which the subcommittee might consider for further research include:

- Cacao farming and processing
- Cheese production
- Exotic fruit (e.g., mangosteen, lychee, avocado)
- Factory-based assembly (e.g., clothing)

An assigned sub-committee member with entrepreneurship or R&D experience should also explore innovative or creative ideas for other potential products which have yet to be considered or implemented in the community.

**Activity #3: Establish contractual agreements with distributors and retailers**

Signed supplier contracts are a critical prerequisite to any additional capital expenditure for a given product or business. Potential business partners should be readily identifiable after conducting the due diligence analysis for target products. If additional investigation is required, appropriate members of the Business Advisory Board should be consulted to assist with the analysis. The combined business plan and supplier contract should identify:

- Projected production costs per unit volumes across time
- Projected distribution costs across time
- Agreed upon purchasing prices and volumes across time
- Options for future volume increases and contract extensions

Aside from strict trade agreements, supplier contracts should also be seen as an opportunity to establish learning relationships with industry experts. An important challenge for emerging businesses in Nuevo Juan del Grijalva is maintaining quality while striving to meet volume requirements. Trading partners are uniquely positioned to share knowledge and best practices with businesses in the community, helping both partners meet the goals set forth in the contract.

An existing example of a CSR-related partnership of this type is the Conservation International / Starbucks relationship. More details can be found at [http://www.conservation.org/campaigns/starbucks/Pages/default.aspx](http://www.conservation.org/campaigns/starbucks/Pages/default.aspx).

**Activity #4: Build a brand for products of the “Sustainable Rural City”**

As the cheese factory “Don Juan” and “quesos no palabras” demonstrate, a brand and/or slogan for the products of Nuevo Juan del Grijalva – and the network of rural sustainable communities – is an important tool for building awareness and increasing sales volumes. If one or two products in each community, including Nuevo Juan del Grijalva, can be scaled up at
volumes which can reach a broad cross-section of consumers, an umbrella brand for the “Sustainable Rural City” will benefit all products produced in those communities.

Ideally, the brand would capture the following qualities:

- Produced by citizens of the rural sustainable community
- High-quality, organic, naturally-grown ingredients
- Directly benefiting the rural sustainable cities project

By combining the image of high-quality products with “giving back” to the community, an umbrella brand can be an effective marketing technique for appealing to distributors, retailers, and consumers alike.

**Activity #5: Invest and scale up production in selected products and businesses**

Once sufficient progress has been made in each of the preceding four activities, meaningful capital investments can be made in the target industries and products. Examples of potential investments include: soil/crop conversion, farming/harvesting equipment, processing equipment, additional factories, technology systems, training, and hiring additional staff.

Several major risks are inherent to investing in a target business before a target market and distributor/retail can be identified. In the worst case scenario, the risks shown below can result in negative NPV for investment:

- Manufacturing techniques, even if scaled to large volumes, cannot sufficiently lower the marginal production cost to compete with other products in the segment
- Transportation costs or lag times for exporting from the community make the product fundamentally uncompetitive on the open market
- Price volatility introduces too much risk for the businesses and residents of the community to absorb significant swings from year to year
Activity #6: Bring the products to market

Bringing a product to market is the final step in creating a commercially viable product portfolio for Nuevo Juan del Grijalva. Trading contracts with distributors/retails should identify when the first high-volume exchange of products are set to begin. A “step up” technique for production volumes may be utilized during the first several years of growth of the business. Even as each business grows to these volumes, it is imperative that the tenets of this action plan are maintained through go-live and the steady state:

- Communication and relationship with trading partners and suppliers are ongoing and constantly evolving
- Major milestones and quarterly reports for each business are made available to the Business Advisory Board
- Systematic quality and process reviews with industry experts ensure that business are healthy over time

Brand Identity and Marketing Collateral should include:

- An unique, distinctive umbrella brand logo for the Rural Sustainable Cities concept
- A complementary logo for each project location and respective products
- A brochure explaining the Rural Sustainable Cities concept, history, and portfolio of products
- A brochure specific to each location and its specific portfolio of products
- A website dedicated to telling the Rural Sustainable Cities story and marketing its products

Co-Branding marketing strategies should also be developed as an option for partners. Key incentives to consider include:

- Direct linkage between Nuevo Juan del Grijalva and the CSR effort of the business partner
- Increased (co-branded) private label presence on the store shelves
- Cost-effective, joint media campaigns

By combining the image of high-quality products with “giving back” to the community, an umbrella brand can be an effective marketing technique for appealing to distributors, retails, and consumers alike.
Recommendation #2: Establish metrics and success rates to determine stability of the community to inform responsible expansion

As the city grows it is imperative that an overall equilibrium is maintained. In order to add citizens to the community, the infrastructure, services, and businesses of the area must be prepared to accept new residents. As Nuevo Juan del Grijalva and other sustainable rural communities grow, planners should track several important metrics and use these indicators to understand the overall health of the community. This information should be used to judge whether or not the community is prepared to add additional residents.

The following discussion highlights the important economic, social and environmental metrics which may be used to inform these decisions.

**Economic Indicators**

The role of private businesses in the sustainable rural community is to provide an economic engine for the community, thus improving the living conditions of residents in the area. As the city grows, planners should ensure that growth is healthy and sustainable, and the city is ready for each new phase of its development. The following economic indicators can assist in monitoring the economic health of the community:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Benchmark</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment ratio</td>
<td>Total number of workers that are seeking employment</td>
<td>2.70% Statewide Chiapas unemployment ratio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total number of workers that are working or seeking employment</td>
<td></td>
<td>Census</td>
</tr>
<tr>
<td>Employment ratio from productive projects</td>
<td>Number of employees working in “productive project” businesses</td>
<td>N / A</td>
<td>Industry statistics and census</td>
</tr>
<tr>
<td></td>
<td>Total number of workers in the community</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Defines how effective the productive projects have been in offering sources of income.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of population below $1 per day</td>
<td>Number of residents living one less than $1 USD per day</td>
<td>50% per the Millennium Development Goals</td>
<td>Census</td>
</tr>
</tbody>
</table>
**Social Indicators**

A fundamental aspect of the rural city is to provide all basic services to the population and ensure proper utilization. Therefore, it is essential to analyze indicators demonstrating the performance of the services:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Benchmark</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolment ratio in schools</td>
<td>Percentage of 6 – 15 years old attending school</td>
<td>Most recent national figure for Mexico is 99.2%iii</td>
<td>School statistics, census</td>
</tr>
</tbody>
</table>
| Utilization of schools in the community                                   | \[
Number of pupils \over Total capacity of school system
\]

The school capacity should be analyzed to define if the actual school needs to be expanded, or if a new school should be built.

| Proportion of adolescent birth rate                                     | \[
Number of babies born to adolescent mothers \over Total babies born
\]

| Proportion of youth population with comprehensive correct knowledge of HIV/AIDS | Percentage of youth in school passing a contagious disease awareness test | N / A                                                                 | School evaluation          |
| Incident and death rates associated with contagious diseases             | Percentage of deaths due to contagious diseases                               | N / A                                                                  | Health center statistics   |
Environmental Indicators

To understand the environmental impacts to the region surrounding the sustainable rural city, the following indicators may be tracked:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Meaning</th>
<th>Benchmark</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of land covered by forest</td>
<td>Captures the productive use of land in or around the community.</td>
<td>Most recent national figure for Mexico is 33.7%(^x)</td>
<td>Department of Agricultural</td>
</tr>
<tr>
<td>Remaining useful life of water processing resources</td>
<td>Estimated time (years) that water purification and treatment plants are available</td>
<td>29 years in Nuevo Juan del Grijalva</td>
<td>Department of Infrastructure, State of Chiapas</td>
</tr>
<tr>
<td>Utilization of water processing resources</td>
<td>Percentage of capacity used</td>
<td>10% in Nuevo Juan del Grijalva</td>
<td>Department of Infrastructure, State of Chiapas</td>
</tr>
</tbody>
</table>

\(^x\) Source of the national figure: National Institute of Statistics and Geography.
Recommendation #3: Enhance communication system to promote a clear feedback loop among government officials, community leaders and residents

The extent to which the planners and managers of Nuevo Juan del Grijalva have engaged and continue to engage residents is remarkable. Nevertheless, improvements to the communication system of the community should be made in order to strengthen the relationship between the government, community officials, and residents. The steps recommended below are easy to implement, will increase resident satisfaction and allow local leadership to track issues with townspeople. Information gained from implementing the suggested steps will also be helpful in establishing future sustainable rural cities.

Activity #1: Hold a monthly town hall meeting

A monthly meeting in which all residents and community leaders are invited should include at minimum: a review of old business with a summary of how it was resolved, a chance for townspeople to ask questions and present petitions, and a discussion of new business. The review of old business will give people a sense that their concerns are being heard and the chance to petition and ask questions of the council will give a sense of having a voice.

Introducing elementary parliamentary procedures will ensure the meetings run smoothly and do not take extended amounts of time. The meetings could rotate between the two churches or take place in the community center. Holding town halls is an important step, but it has the disadvantage of being a public forum and some people will prefer to share their concerns privately. The town halls should also be concerned with larger scale issues, but smaller scale issues are important as well and another system should be put in place to respond to the needs of privacy and smaller scale.

Activity #2: Conduct biannual survey of the residents in the community

By providing a private forum for voicing concerns, a bi-annual survey provides an effective mechanism for understanding the needs of the community. To improve responsiveness and accommodate illiterate residents, the survey should be conducted in person by a representative that does not live in the community. Partnering with a non-profit sponsor to own and execute the survey addresses independence concerns while engaging a wider audience in the rural sustainable cities project.

The survey should include a selection of questions designed to track resident satisfaction with life in the city, quality of services, and government actions. The survey should also contain a comment section where citizens can voice concerns related to life in the town. Emphasizing the survey’s anonymity will spur more honest responses. While residents will be skeptical of the survey’s anonymity and may alter their comments accordingly, ensuring the survey encompasses the entire population will give it enough scale to be useful.
The results of each survey should be published and distributed in a report to the townspeople, project partners and stakeholders, and outside observers. The report should include trends in selected statistics, main issues raised, and steps taken to resolve the issues or a justification for taking no action. Independent survey administrators should use their discretion when deciding how to prioritize the issues raised by residents.

Activity #3: Publish a community newsletter

A regularly-published newsletter would inform residents of community-wide activities and other important announcements. Initially, an external representative (e.g., a community liaison from Fundación Azteca) should be responsible for publishing the newsletter. However, in the long term the responsibility should be transitioned to a local leader.

The bi-weekly or monthly newsletter would be easy to implement and could contain information such:

- Job openings
- Community activities
- Government announcements
- School announcements
- Medical center announcements
- Training opportunities

An example article in the newsletter would discuss how to budget and pay for electricity bills. Simple graphs and figures, such as average electricity usage per house and the average bill amount, would help build citizen awareness and potentially reduce the issue of late payments. The use of the flyer could also prompt the scheduling of more community activities.

Nuevo Juan del Grijalva and the sustainable rural cities project represents a creative and well-considered way to fight dispersion and poverty. A significant challenge inherent to the effort is the cultural transition that residents must undertake. A strong communication and feedback system will help to mitigate any negative feelings or resentment that may arise. Overall, pursuing these three activities will make for a stronger Nuevo Juan del Grijalva and provide a template for success for future rural sustainable rural cities.
Additional Recommendations

1. Leverage existing resources and natural landscape to develop ecotourism potential

Nuevo Juan del Grijalva is remote, beautiful, and unique. All three of these aspects are appealing to tourists seeking adventure. By taking some relatively simple marketing steps and leveraging the area’s natural beauty tourism can become a good source of supplemental income for the city.

The first step is to recruit ranchers willing to take people on half-day to full-day treks through the countryside around Nuevo Juan del Grijalva. Recruiting people who are willing to let tourists ride their horses or boats would allow for greater variety and offer the kind of experience for an adventure-seeking tourist.

Initial advertising should be done by distributing flyers in San Cristobal, Palenque, the Tuxtla airport, and the Villahermosa airport. These flyers should show pictures of the landscape around Nuevo Juan del Grijalva, some close-up shots of the town, and an informational website (see additional detail below).

An initial website should be set up including such details as what rooms are available in the hostel and how to book a room, what tours are available and how to book them, and generally describing other town facilities such as the various cafes would be very informative. It could also be linked to sites that “backpackers” use when planning their trips:

- http://www.backpackertours.com/
- http://www.intrepidtravel.com/
- http://www.hostelworld.com

The following are backpacker blogs that can be monitored to track developing word of mouth:

- http://www.travelpod.com/
- http://www.travelblog.org/
- http://blogs.bootsnall.com/
- http://www.lonelyplanet.com/thorntree/index.jspa

Finally if the people in town want to cater to the Voluntourism movement then they can post Volunteering opportunities on these sites:

- http://www.voluntourism.org/
- http://www.transitionsabroad.com

2. Build a bridge between existing advisory services and micro credit programs (e.g., Consultants in NJG linked to BanMujer)
The productive projects in Nuevo Juan del Grijalva have the support of an external consulting team. In addition to supporting community businesses, the consulting team could also be used to support entrepreneurship within the community. The objective is to stimulate entrepreneurial endeavors within the local population through business guidance and support. The most effective short-term solution is to attract microfinance institutions that can provide adequate financing for such small ventures and provide the right support so people without a business background can succeed.

The process of attracting institutions with productive microfinance programs to the community should start by identifying institutions with microfinance experience. Then a presentation on the sustainable rural community project and its objectives should be made to each of these institutions in order to familiarize them with the project and the market opportunity. Institutions such as Ban Mujer and Banco Azteca that already have a well developed and established program in Chiapas are great first options.

While the financing for new ventures would be covered by the banks, business advisory should still be offered through the existing consulting structure. Maintaining the consulting structure gives the people an experienced group of businesspeople to learn from and the fact that advisory services are provided will help to secure loans with more reasonable rates. To ensure access to consultants a formal scheduling procedure should be put in place so that current and future entrepreneurs will be able to secure access to advisory services.

3. **Improve coordination in project development and evaluation among governments, NGOs and other stakeholders to ensure best practices are shared and integrated into future projects**

Currently there is good coordination between all interested groups but with the rapid pace of project expansion it is imperative that a formal system of information sharing is introduced in order to make sure that all relevant learnings from earlier sustainable rural cities are incorporated into the planning and building of future cities. A system must be put in place to ensure that structural breakdowns in communication do not continue. Holding formal reviews of the project and keeping all stakeholders informed of changes in the project will ensure that the project will continually improve and future cities will be implemented with minimal problems.

4. **Promote an actively engaged community**

Town-wide social events are an excellent means for fostering a sense of community and building relationships among town members. A committee should be established for planning and executing such events and activities. At first, that committee might be
manned by volunteers outside of the community, but the long-term goal is to transition the ownership to a group of residents. Ideas for such events include:

- A monthly or bi-monthly town fair or dance
- Soccer and basketball leagues
- Monthly outdoor movie night

5. **Reduce political risk by shifting ownership from government administrations to NGOs**

As it stands the sustainable rural cities initiative is heavily dependent on financial and administrative government support. Consideration should be given to shifting more administrative and financial responsibility to the non-profits engaged with the project to hedge against the risk of a new political office holders responding to new priorities and withdrawing support from the project. For each component of the project, planners should carefully evaluate how to minimize long-term political risks with the operational challenges inherent to privatizing management and control.

---


We extend our special thanks to

*The Residents of Nuevo Juan del Grijalva*

**Grupo Salinas & Fundación Azteca**

Carlos Septien Michel  
Guadalupe Riojas  
Enrique Quiroz Acosta  
Laura Guajardo Jimenez Castro

**Sustainable Rural Cities Institute**

Jose Antonia Molina Farro  
Roberto Tovilla

**Consultants to Nuevo Juan del Grijalva**

Carlos R. Bracamontes Villa  
Mario Tacias  
Diana Vitte de la Rosa  
Roman Guerrero Hernandez  
Allyson Tamara Hernandez

Left to Right: Matthew Thiel, Thiago Fernandes, Kristin Ohaus, Kara Honeycutt, Fernando Andrade, Kurt Anderson
THE STATE GOVERNMENT OF CHIAPAS

Governor Juan Sabines Guerrero
Elizabeth Astorga Macias
Gustavo Castellamps Gordillo
Marcial Cruz Gonzales
Selene Domingo Gomez
Carmen Dione Mancilla
Juan Diego Farrara Salinas
Daniel Gallegos Ovicca
James Gomez Montes
Alberto Gonzalez
Eduardo Juarez
Rene Leon Ferrera
Javier Lopez
Lourdes Adriana Lopez
Jose Fernando Lopez Hernandez
Noe Madain Castaneda Torres
Jose Marquez Irbina

Leyber Jose Martinez Hernandez
Alejandra Maya
Almarosa Mendez
Jose Javier Moran Aramoni
Pacifico Orantes Montes
Cuauhtemoc Ordaz Gordillo
Jose Luis Pacheco Calvo
Julio Paredes Solis
Laura Patricia
Riguberto Alfonso Pinacho
Rocio Portilla Arcos
Ignasio Rodriguez
Jose Bersain Salas Culebro
Luis Sanchez
Erik Sandoval de la Torriente
Jose Irias Urbina
Juan Carlos Vidal

NUEVO JUAN DEL GRIJALVA STAFF

Dr. Eder Arreola Tadeo
Dr. Cesar Rafeal Herrera Mendez

Yadira Balboa Hidez
Jesina, Teacher at CAIC

UNACH

Hilda Ma Jimenez Acuedo
Katia Lili Villalobos Enciso

Jesus Gonzales Diaz

UNIVERSITY OF MICHIGAN

Dean Graham Mercer

Christopher DeRose

72
Primary Research


Arreola Tadeo, Eder, and Cesar Rafael Herrera Mendez. Tour of Medical Center and Interviews. Nuevo Juan del Grijalva.

Balboa Hidez, Yadira. Tour of Child Development Center (CAIC) and Personal Interview. Nuevo Juan del Grijalva. 06 April 2010.


López Hernández, C. José Fernando and Noé Madain Castaneda Torres. Presentation by the Office of Land & IRPAT. Chiapas Governor’s Palace, Tuxtla Gutiérrez. 26 March 2010.


Farrara Salinas, Juan Diego, Ignasio Rodríguez, Almarosa Mendez, Luis Sanchez, José Irías Urbina, and Mario Tasias. Group Interview on Productive Agricultural Products/IRPAT. Torre Azteca, Nuevo Juan del Grijalva. 29 March 2010.

Farrara Salinas, Juan Diego, and Mario Tasias. Tour of Chicken Farm and Tomato Greenhouses. Nuevo Juan del Grijalva. 30 March 2010.


González Diaz, Jesus, and Katia Lili Villalobos Enciso. Tour of the UNACH Virtual Distance University and Interview. Torre Azteca, Nuevo Juan del Grijalva. 06 April 2010.


Hart, Stuart. Phone Interview on CSR Research and Practices. 23 March 2010.


Maya, Alejandra. Presentation on Design Process of Nuevo Juan del Grijalva. Torre Azteca, Nuevo Juan del Grijalva. 01 April 2010.


Molina Farro, José Antonio. Presentation on Sustainable Rural Cities Institute and Nuevo Juan del Grijalva. Sustainable Rural Cities Institute, Tuxtla Gutiérrez. 24 March 2010.


Orantes Montes, Pacífico, and Jorge Najar Flores. Tour of Commercial Corridor and Interview. 07 April 2010.


Portilla Arcos, Rocio, and Riguberto Alfonso Pinacho, José Márquez Ibina, Yadira Balboa Hídez, Marcial Cruz Gonzales, Leyber José Martínez Hernández. Group Interview on Family Development (DIF). Torre Azteca, Nuevo Juan del Grijalva. 05 April 2010.


Ruxin, Josh. Phone interview on Millennium Villages, Rwanda. 09 March 2010.

Salas Culebro, José Bersain, Alejandra Maya and Javier López. Office of Social Development. Chiapas Governor’s Palace, Tuxtla Gutiérrez. 25 March 2010.

Salinas, Ricardo B. Pliego. Personal Interview. TV Azteca, Mexico City. 22 March 2010.


Vidal, Juan Carlos. Tour of Cheese Production Plant and Interview. Nuevo Juan del Grijalva. 30 March 2010.

Vitte del la Rosa, Diana. Personal Interview on Women, Business and organization Saber para la Vida. Torre Azteca. 31 March 2010. 06 April 2010.

Secondary Research

Fundación Azteca website
http://www.Fundaciónazteca.org/

Grupo Salinas website

Human Development Report 2009, United Nations Development Programme,
http://hdrstats.undp.org/en/countries/country_fact_sheets/cty_fs_MEX.html

México: The World Factbook, CIA

Tuxtla Gutiérrez, Chiapas, April 2009

United Nations Millennium Development Goals
http://www.un.org/millenniumgoals/


Photos/Media

Select photographs and charts provided by:
Chiapas State Government
Rural Sustainable Cities Institute
Factor Negocio Consultoría

Footnotes

i Israel Heres, email, 4/26/10


iii The Nonprofit Sector in Mexico presentation, 3/18/10, Fundacion Azteca, Laura Guajardo


ix Ciudades Rurales Sustentables presentation, 3/23/10, Fundacion Azteca, Esteban Moctezuma

x Ciudades Rurales Sustentables y Objetivos de Desarrollo del Milenio presentation, 3/24/10, Government of Chiapas, Jose Antonio Molina Farro
xi Ciudades Rurales Sustentables y Objetivos de Desarrollo del Milenio presentation, 3/24/10, Government of Chiapas, Jose Antonia Molina Farro

xii Ciudades Rurales Sustentables y Objetivos de Desarrollo del Milenio presentation, 3/24/10, Government of Chiapas, Jose Antonia Molina Farro

xiii Introduction to Mexico presentation, 3/16/10, Enrique Quiroz Acosta


xv Ciudad Rural Sustentable, Nuevo Juan del Grijalva, Libro Blanco, 2009

xvi Sustainable Rural Cities presentation, 3/23/10, Fundacion Azteca, Esteban Moctezuma


xix Sustainable Rural Cities presentation, 3/23/10, Fundacion Azteca, Esteban Moctezuma

xx Cuidad Rural Sustentable Nuevo Juan del Grijalva Libro Blanco, page 42

xxi Israel Heres, Fundacion Azteca, 4/26/10

xxii Interview with local resident, 4/4/10

xxiii Interview with Chiapas State Government Official Alejandro Maya, Office of Social Development, 4/1/10

xxiv Interview with Chiapas State Government Official Alejandro Maya, Office of Social Development, 4/1/10

xxv UNACH provided some work on a pro-bono basis.

xxvi Interview with Israel Heres, Fundacion Azteca, 4/15/10

xxvii Meeting with Esteban Moctezuma, 3/15/10

xxviii Interview with local resident, 3/31/10

xxix Interview with Esteban Moctezuma, Fundacion Azteca, 3/23/10

xxx Interview with Chiapas State Government Official Alejandro Maya, Office of Social Development, 4/1/10.

xxxi Cuidad Rural Sustentable Nuevo Juan del Grijalva Libro Blanco, page 115. The 15% was calculated by subtracting the original cost (147,995 pesos) by the new cost (124,000 pesos) after applying the donations, and dividing by the original cost.

xxsxxi Cuidad Rural Sustentable Nuevo Juan del Grijalva Libro Blanco, page 42


xxsxxiv Ciudades Rurales Sustentables presentation, 3/26/10, Secretaría de Hacienda, C.P. José Javier Morón Aramoni
xxxv Ciudad Rural Sustentable "Nuevo Juan del Grijalva" presentation, Juan Diego Farrara Salinas, Coordinator of IRPAT, 3/27/10

xxxvi Interview with Chiapas State Government Official Alejandra Maya, Office of Social Development, 4/1/10

xxxvii Presentation by Sustainable Rural Cities Institute, 3/24/10

xxxviii Interview with Community leaders, 4/5/10

xxxix Presentation by Chiapas Social Development Office, 3/25/10

xl Interview with main infrastructure engineer for Nuevo Juan del Grijalva, 3/30/10

xli Social Development Office Presentation, 3/25/10

xlii Rural Cities Institute response to written questions, 4/15/10

xliii Interview with Community leaders, 4/5/10

xliv Rural Cities Institute response to written questions, 4/15/10

xlv Interview with Community leaders, 4/5/10

xlvi Interview with Alejandra Maya, Office of Social Development, 4/1/10 and Community leader interview, 4/5/10

xlvii Interview with Community leaders, 4/5/10

xlviii Interview with Alejandra Maya, Office of Social Development-Chiapas, 4/1/10, corroborated by interview with tortilla shop owners, 3/ 31/10

xlix Interview with Alejandra Maya, Office of Social Development, 4/1/10

1 Rural Cities Institute response to written questions, 4/15/10