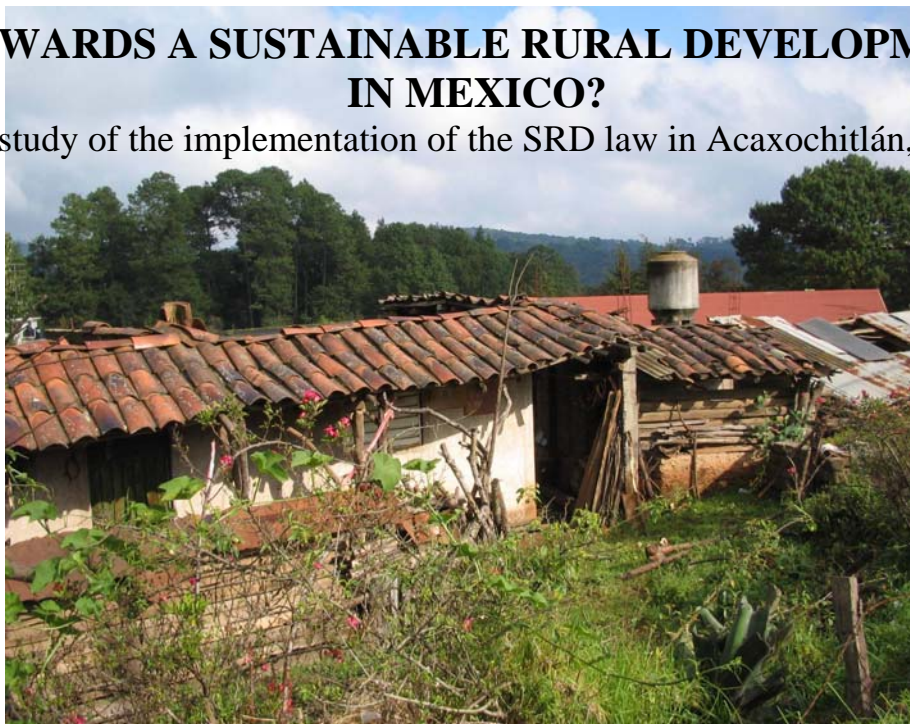




LUMES
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TOWARDS A SUSTAINABLE RURAL DEVELOPMENT IN MEXICO?

Case study of the implementation of the SRD law in Acaxochitlán, Mexico



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Submitted by:

Cynthia Alexandra Arochi Zendejas

Retorno 2 de Cima # 1 Col. Atlanta

Cuautitlán Izcalli

Estado de Mexico

C.P. 54740

Phone: +52(55)58687690

sandra.fernandez@keg.lu.se secaarochi@yahoo.com

cynthia-alexandra.arochi-zendejas.867@student.lu.se

Supervisor:

Sandra Fernandez

Centre for Gender Studies

Box 117

SE-221 00 Lund

Lund University

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Abstract

For years there has not been a real and sound sustainable development in rural Mexico. In part, this was due to its own history, inefficient agricultural programs and economic models that bypassed rural development. As a consequence, this led to socio-economic and environmental problems in the countryside, where the major part of indigenous and poor people live. A new attempt to overcome rural Mexico's structural problems is being tried by the Sustainable Rural Development Law, launched in December 2001. It is supposed to be a tool to achieve economic growth in the rural areas and enhance conservation of natural resources by taking into account participation and knowledge of people in those towns. Will the law facilitate the development of the towns that for many years have been forgotten, exploited and marginalized? Is it the starting point of changes and improvements to rural conditions after more than 70 years of unsuccessful programs? Or will it be one more program to put on the pot of good intentioned projects? This thesis intends to answer those questions by analyzing with a qualitative method, in which way the law is taking into account the three pillars of Sustainable Development and how it is been implemented. It will be done through the case study of an indigenous rural municipality in the center of Mexico, Acaxochitlán, which is implementing the law through the establishment of Municipal Councils for Sustainable Rural Development COMUDER.

Keywords: *Rural Sustainable Development (RSD), Mexican rural transformation, RSD Law implementation, Local Participation, Sustainable Livelihoods*

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Abbreviations and Acronyms

AE	Agro-Ecology
COMUDER	Municipal Council for Rural Sustainable Development
DIF	Family Integral Development
FAO	Food and Agriculture Organization
GR	Green Revolution
ILO	International Labor Office
IPM	Integral Pest Management
ISI	Import-substitution-industrialization
IMSS	Social Security Mexican Institute
SSA	Health Ministry
MDG	Millennium Development Goals
NAFTA	North American Free Trade Agreement
NGOs	Non governmental Organizations
NL	Neo-liberalism
NRM	Natural Resources Management
RSD	Rural Sustainable Development
SAGARPA	Ministry of Agriculture, Livestock, Natural Resources, Rural Development and Fisheries
SARD	Sustainable Agriculture and Rural Development
SD	Sustainable Development
SRD	Sustainable Rural Development
UN	United Nations
WB	World Bank
WTO	World Trade Organization

Chapter 1. INTRODUCTION

Mexico is a country where tradition and modernity converge. A nation that even though conquered and controlled for many years for the benefit of some outsiders, its cultural ancestry still remains in the behavior of its people (Fraser, 2000). Mexico has the potential to be a leading country for a positive development of Latin America. However, it faces several socio-economic and environmental problems due to different aspects i.e. its history, religion, political interests, demographic growth, international trade and competition among others. This can be clearly downplayed in the case of rural development and agriculture as throughout its history, these have been neglected.

Why are rural areas important? Firstly, primary productive activities and goods are generated from them. Secondly, considering the definition that rural community is the one that has less than 2500 inhabitants, a large part of the Mexican territory is considered as rural (Ruiz Garcia, 2001). However, according to data from the World Bank (2005) only one quarter of Mexico's population lives in rural areas. What is important to consider from that data is that rural areas are home of 60.7 percent of the extremely poor Mexican people and 46.1 percent of the moderately poor ones (World Bank, 2005). Therefore, rural development is important in Mexico for the achievement of the first of the Millennium Development Goals MDG (Ruiz Garcia, 2001) which is to eradicate extreme poverty and hunger (World Bank, 2005).

Also, according to the United Nations World Population Prospects (2005) rural population is decreasing in relation to the urban one (see table 1). Considering that these areas are home of the majority of indigenous people and that they are usually perceived as representatives of culture and traditions; if rural areas decrease, indigenous people might move from the rural to the urban ones, consequently they may adopt more modern ways of living and mexican traditions might be lost.

Table 1. Percentage of rural and urban population in Mexico 1950-2030

Urban		Rural	
Year	Percentage urban	Year	Percentage rural
1950	42.7	1950	57.3
1960	50.8	1960	49.2
1970	59.0	1970	41.0
1975	62.8	1975	37.2
1980	66.3	1980	33.7
1985	69.6	1985	30.4
1990	72.5	1990	27.5
1995	73.4	1995	26.6
2000	74.7	2000	25.3
2005	76.0	2005	24.0
2010	77.4	2010	22.6
2015	78.8	2015	21.2
2020	80.2	2020	19.8
2025	81.6	2025	18.4
2030	82.9	2030	17.1

Source: World Population Prospects (UNPP 2005)

A real and sound rural sustainable development will ease economic growth in the countryside, decrease depletion of natural resources and improve quality of life of people living in rural areas. In order to achieve this, the three pillars of sustainable development must be fulfilled.

Therefore, in Mexico, as an attempt to improve rural conditions the Sustainable Rural Development (SRD) law was launched in December 2001. It gives for first time a legal framework to empower rurality and sustainable development. It is also the first law to involve nine National Secretaries and one Institute. The SRD law is aimed to be a tool to achieve economic growth in rural areas and enhance conservation of natural resources by taking into account participation and knowledge of people in rural places. One of its major focuses is to foster productive activities within participatory planning from the bottom-up, through the establishment of Municipal Councils for Sustainable Rural Development, COMUDERs¹ in all the 2424 municipalities of Mexico (Cedeño, 2001).

1.1 Aim and Objectives

Will the RSDL, launched in December 2001, really consider and promote the equal development of the three pillars of SD?

The thesis aims to answer this question by exploring the possibilities of achieving a sustainable rural development in Mexico through the application of the new Rural Sustainable Law by the implementation of COMUDERs.

The way it will be done is by focusing in the following objectives throughout the research:

- To examine in which way the RSD law could promote a secure livelihood for peasant households in the studied area.
- To study the extent to which the law is promoting environmental concerns and the kind of instruments used to accomplish that goal.

The structure of the thesis is as follows: chapter one presents a brief background about the importance of having a legal framework for the achievement of sustainable development in rural areas; chapter two explains the methodology followed throughout the thesis; chapter three presents the theoretical framework chosen for the study; chapter four analyzes the empirical material; chapter five discusses the results and in conclusions the study is summed up.

1.2 The rural Mexico. A brief background

Throughout the Mexican history, from the hacienda to the ejido², economic, social and environmental aspects have never converged in the continuously changing rural and

¹ Stands for Consejos Municipales para el Desarrollo Rural Sustentable

² Communal owned land

agrarian programs. The Hacienda system that prevailed from the 1850s to the 1930s, imposed its economic power, political influence and social prestige (Kay, 1999). In this period the “Hacendatarios³” owned big extensions of land which the peasants worked receiving low wage and the benefit of living there.

Mexican revolution (1910) and later Cardenas government (1934-1940) marked the end of this feudalism (Fernandez, 2004). During the latter period rural development was pursued in order to make agriculture, particularly peasant agriculture, more productive and responsive to the needs of the industrial sector. By improving the economic situation of the rural peasantry, the internal market was expected to expand. However, large landholdings stood in the way of this objective. The rural land tenure structure shifted from hacienda to communal land and small-scale peasant private property. Nevertheless, either most of this land was of poor agricultural quality or was only redistributed in paper (Bryceson, 2000).

During the 1940s the green revolution, involving high-yielding seeds, chemical herbicides, insecticides and fertilizers, water control and genetic research, were applied in Mexican agriculture. Between 1956 and 1966 agricultural production increased at an average annual growth rate of 7.1 per cent, compared to 3.5 % between 1930 and 1946 (Bryceson, 2000; Kay, 2000). This period was referred to as the “Mexican miracle”, however, the main beneficiaries were the large landowners. Thereafter, agricultural performance has been poor (Kay, 2000).

The role played by agriculture in the process of industrialization was determined by a dual nature of the agricultural sector. On the one hand, the large, commercial farm sector provided the foreign exchange to finance imports of intermediate and capital goods for industrial development. On the other hand the traditional sector, which had benefited less from the green revolution, supplied cheap food to the internal market.

From 1930 to 1980, the policy known as the import-substitution-industrialization, ISI strategy (Otero 1996; Kay 2000) started the transformation of the agrarian system in means of subsidies for credits for, the purchase of agricultural machinery and equipment, improvement of quality of livestock, purchasing more fertilizers, high-yielding-variety seeds and technical assistance programs that aimed to stimulate the technological modernization of large land estates (Kay, 2000). Nevertheless, it also brought an increasing foreign debt contracted as a result of the incapacity of the national economy to keep financing its industrialization process along the path of the ISI strategy (Otero, 1996).

The collapse of ISI strategy brought into the scene neo-liberalism in 1982, as the way to relief Mexico from its big debt (Demmers, 2001). Neo-liberalism aimed at promoting foreign investment and production for export (Stephen, 1996). It led to a shift from expropriation of estates to privatization, decollectivization, land registration, titling and land-tax issues. This facilitated the break-up of indigenous communities and the sale of their land (Kay, 2000).

In 1992, within neo-liberal trends, the Article 27 of Mexico’s Constitution of 1917 was modified. The new agrarian law allows the sale of land of the reformed sector and the establishment of joint ventures of private capital with foreign capitalists (Kay 1996).

³ Large land owners

As a result, once again big farmers benefited from the liberalization of land, labor and financial markets, the opening to international competition and the withdrawal of supportive measures for the peasant sector (Kay, 1996). Hence, the brief agrarian history here exposed have contributed to a persistent rural poverty, unequal rural development, degradation of natural resources and lost of identity and traditions in rural areas.

In addition, in a neo-liberal model Mexico became part of the North American Free Trade Agreement, NAFTA, which increased the competitive gap between peasant and capitalist farming. Nevertheless, in the same neo-liberal path, it is more and more accepted that the empowerment of peasants and rural workers is essential for the efficiency and maximization of welfare (Kay, 1999).

This thesis will not analyze if neo-liberalization will benefit or not the agricultural sector; however it is important to remember that the SRD law was created within this framework. Will the SRD law be the starting point towards a sustainable development in the countryside? To answer this question it is necessary to define first, sustainable development and sustainable rural development, and then the importance of achieving it will be presented.

1.2 Sustainable development and Rural Sustainable Development

The sustainability discourse is based in the equal development of the economic, the social and the ecologic elements, renowned as “dimensions” or “pillars” (Littig & Erich, 2005). This concept has been spread internationally since the late 80s and early 90s. Thus, sustainable development pursues a socially equal, economically viable and ecologically sound development (UNEP, 2005). The definition of sustainable development and Rural Sustainable Development will be presented in the following section in order to clarify the concept of RSD.

1.3.1 Definitions of Sustainable Development and Rural Sustainable Development

The commitment about environment and development going together was officially promoted in 1987 by the World Commission Report on Environment and Development. This report, under the direction of Gro Harlem Brundtland, known as “Our Common future”, defined Sustainable Development as:

“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”
(Classics in env studies, 1998).

Later in 1992, during the World Conference of the United Nations in Rio de Janeiro, Agenda 21 was produced (Agenda 21, UN). This document, signed by Mexico among more than 200 countries and reaffirmed in 2002 in Johannesburg, refers to Sustainable Rural Development as Sustainable Agriculture and Rural Development, SARD. In chapter 14, it states that its major objective is to increase food production in a sustainable way and enhance food security (UNEP, Agenda 21).

The United Nations Food and Agriculture Organization, FAO, defines SRD as SARD:

“Sustainable development is the management and conservation of the natural resources base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development in the agriculture, forestry and fisheries sectors conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable” (FAO, 1988).

The World Bank also talks about Rural Sustainable Development in order to improve conditions in the rural areas and diminish poverty. It refers to it as Agriculture and rural development, ARD. The Bank's approach to rural development is holistic and multi-sectorial, focusing on improving the well-being of rural people by building their productive, social, and environmental assets (World Bank, 2005).

The definition stated in the RSD law in Mexico launched in 2001 is:

SRD is “The integral improvement of the social welfare of the population and of the economic activities in the territory outside of the urban nuclei according to the applicable resolution, assuring the permanent conservation of natural resources, biodiversity and environmental services within the territory”⁴.

As it can be seen from the definitions here presented it is internationally and nationally recognized that the achievement of a RSD, named ARD or SARD, is important in order to tackle poverty, enhance food security and to improve livelihoods in rural areas.

1.3.2 The need of a RSD model

About three quarters of the world's poor people live in rural areas (FAO, 2005; World Bank). Often, in the least developed countries, LDC, their major source of income is agriculture (FAO, ERP; ID21). The latter is in those countries, besides the major source of employment, an important export earner and a valuable contributor to the gross domestic product (GDP) (Dixon, 1990; Barke, 1993). In the case of Mexico, agriculture only represents 4.1% of its GDP, the rest is composed by 69.5% from services and 26.4% from industry (WB, 2004). According to Dixon (1990) the tendency for agriculture's share of GDP to be significantly low is a reflection of the low productivity of the sector (Dixon, 1990).

The low productivity of agriculture in this country might be the result of the neglect that this sector has suffered due to the industrialization process, inefficient rural programs and agricultural reforms (Otero, 1996; Kay, 2000). For instance, the development research in the 1950s was mainly concerned with agriculture as a source of the economic surplus, labor and raw materials required for industrial development (Martinussen, 2004).

⁴ Own translation from “el mejoramiento integral del bienestar social de la población y de las actividades económicas en el territorio comprendido fuera de los núcleos considerados urbanos de acuerdo con las disposiciones aplicables, asegurando la conservación permanente de los recursos naturales, la biodiversidad y los servicios ambientales de dicho territorio” (Sustainable rural development law in Mexico, 2001)

The Green revolution emerged in Mexico as an attempt to increase agricultural production. This was product of the vision that Rockefeller Foundation had about peasant's agriculture as stagnant and backward (Preston, 1996). Modernization of agriculture was encouraged then and modern crop technological innovations were brought to rural areas. Yet, the green revolution approach "solving social problems with new technologies" (Preston, 1996) was criticized from the ecologic, social and economic points of view by some scholars.

For instance, ecologically, it promoted the use of agrochemicals which contributed to environmental degradation, pollution of waters and damage of the local micro fauna that serves as a natural predator on crop pests (Preston, 1996). Socially, it tended to displace traditional peasant values and native technologies (Preston, 1996; Shiva 2000). Economically, GR, benefited only to big producers and reduction in the availability of fertile land and genetic diversity of crops (Shiva, 2000).

Some people argue that to a certain extent the rural poor have taken advantage of modern techniques, using them in a scaled down form as part of a relatively sustainable rural livelihood strategy (Preston, 1996). However, in Mexico, less than 12% of farmers adopted improved varieties of crops and only 25% of them incorporated fertilizers (Altieri et al 2002).

1.3.3 Mexican outlook towards RSD

It could be argued that if Mexico keeps on with the agro-industrial model i.e. bring more technology to rural areas; then agricultural production would be increased and therefore the livelihoods in rural areas will be improved as well. However, by this way Mexico would be following American and European models that worked for them more than a hundred years ago under different circumstances but that does not mean that it will work for Mexico nowadays.

According to Przeworski, this process is best described as "modernization via internationalization" which means that many developing countries in the 1980s adopted the development strategy of the advanced capitalist world. They adopted the "political, economic and cultural organization already existing elsewhere: democracy, markets and an individualistic consumption-oriented culture that dominates the advanced capitalist world" (Demmers 2001).

What are the results of following those models? Mexican economic situation seems to be stable. For instance, from the period of 1990 to 2002 GDP increased from 2.83 to 6.79; fertility rate decreased from 3.3 to 2.4, adult literacy rate increased from 87.3 to 90.5, life expectancy rose from 70.8 to 73.6, under-five mortality rate dropped from 46 to 30 per 1,000 (see annex 1). With these figures Mexico was considered as an upper middle income country and the state with the biggest GDP in all of Latin America (WB, 2005).

Nevertheless, the economic growth experienced until now has also lead to environmental pollution, wasteful use of natural resources, poverty, severe unemployment and socioeconomic inequality (Guimarães, 2001). To illustrate this, in the same period 1990 to 2002 the percentage of forested area decreased from 32.2 to

28.9, CO2 emissions increased from 3.7 to 4.3 (WB, 2005). Besides, 77% of the country's population is still poor (53% living on less than \$2/day and 24 % living on less than \$1/day) and the richest tenth of the population earns over 40% of total income and the poorest tenth earns only 1.1% (WB, 2005) .

Considering sustainable development's definition "to meet the needs of the present without compromising the ability of future generations to meet their own needs", Mexico, as many other countries does not seem to be in the right path of sustainable development yet, however it is trying to achieve it. The three pillars of sustainable development must be filled equally or at least the most equally possible i.e. economic, social and environmental equal development. Sustainable development thus, implies economic growth together with the protection of environmental quality in order to provide social welfare.

Therefore, even if in global terms the economic growth in this country has been improved the reality is that the ecologic and social pillars of SD still need to be re-enforced. For instance, Carabias (2000) has pointed out some factors that have resulted from neglecting sustainable development in different fields: demographic, productive, ecological, economical, commercial, social, cultural and political.

They are all interrelated and affect the three pillars of Sustainable Development; however, some of them affect directly or at first the social, economic or ecological aspects. Regarding this, I have made a table adapted from Carabias (2000) ranking the different factors into the three pillars. It does not mean that they do not affect the others as well.

Table 2. Some Implications of neglecting sustainable development.

FIELDS	FACTORS	SOC	ECON	ECOL
Demographic	Population growth	X	X	X
	Spatial dispersion	X		X
	Migration	X	X	
Productive	Unskilled technical assistance		X	
	Extensive agriculture and livestock			X
	Inadequate and dirty technologies			X
Ecological	Deterioration of ecosystems			X
Economical	Disarticulation between peasant economy and national economy		X	
	Low prices in raw material		X	
	Low or bad subsidies provision		X	
Commercial	Specialized marketing for mass production		X	
	Conditioning credits		X	
Social	High consumption patterns		X	
	Poverty	X	X	
Cultural	Lost of traditions	X		
Political	Unsustainable public politics	X		
	Lack of social organization	X		
	Social conflicts	X		

Adapted from Carabias (2000)

As it can be seen in the table, there are many factors that affect not only the rural livelihoods but also the urban ones. Therefore neglecting a sustainable development at the end contributes to deteriorate rural and urban citizen's lives in the long term. This is because people live either in urban or rural areas; if people migrate from the rural to the urban ones due to a non rural sustainable development it results in overpopulation; consequently, there is more demand of services, more transportation vehicles, more pollution, more housing, less green areas, etc as it happened in Mexico City. Hence, to have a legal background to pursue Sustainable Development is indeed important.

1.3 Rural Sustainable Development law

The RSD law represents the legal framework that for the first time in Mexican history puts together the ecologic, social and economic dimensions of SD aiming to improve rural conditions. It also engages for the first time nine National Ministries and one Institute, in order to participate in the programs promoted by it. It empowers farmers in order to get the necessary assets to improve productivity in the countryside and participate in the market. It also claims to promote productive activities in an ecological way and to consider peoples participation from the bottom up, within the decentralization framework (Based on the RSD law, 2001; Rosenzweig, 2003).

It puts decision-making in the hands of people. Therefore, the law serves as a framework to promote decision-making within the municipality and its citizens. This is done through the implementation of the Municipal Councils for RSD, called COMUDERS⁵.

As stated in article number five of the law, it aims to:

1. Improve welfare in rural areas, regarding producers, rural workers and other actors of the rural society;
2. Reduce regional disparities in economic development
3. Reduce regional disparities in economic development, promote agricultural production in order to improve "food security"
4. Preserve the base of natural resources and biodiversity by means of sustainable use
5. Recognize the economic, environmental, social and cultural dimensions of agriculture.

(Translation taken from Rosenzweig, 2003)

Before going through the analysis of the implementation of the RSD law, it will be presented the methodology used for the study.

Chapter 2. METHODOLOGY

2.1 Qualitative method

The methodology selected for the thesis research was a qualitative one, because qualitative methods recognize the relevance and importance of people's perspectives on the practicalities of everyday life (Limb, 2004). Besides "it is about thinking in terms of a problem or a situation's properties and dimensions to achieve a proper definition of

⁵ Consejo municipal para el desarrollo rural sustentable

them, establishing similarities and/or differences between problems or situations” (Fernandez, 2004). The situation here studied is to examine if within the framework of the RSD law, a real and sound Rural Sustainable Development is on its way to being achieved in Mexico. Thus, it is a good tool to combine theory on RSD and empirical data in order to understand how the dynamics work at a rural level in Mexico. The thesis does not intend to create a new paradigm or criticize theories; it only aims to study ways in which the legal framework is upholding RSD in Mexico.

One of the major factors that have to be taken into account is that the RSD law was published four years ago. Thus, it is still very soon to see the results using the indicators for MDG or Human development. However, through the case study of the implementation of municipal councils, it is possible to examine if the law is on the right path and how the three pillars of sustainable development are being promoted in it.

Since this topic involves many dimensions and factors interconnected, I decided to choose a case study town in order to have a better insight on how the RSD law through municipal councils is empowering the sustainable development in the countryside. Therefore, the research questions will be answered through the case study of the implementation of municipal councils COMUDERs in a rural municipality.

2.1.1 Why this rural municipality?

The town selected for the case study was Acaxochitlán and it was chosen on basis to:

a) It is a town with 60% of indigenous people located 20 kilometers far from the second largest city in the state of Hidalgo. This state is one of the territories with high migration rates, marginalization and indigenous people living in it (Usabiaga, 2002). Therefore, it is a very good example of a rural town that still conserves its traditions and that is highly influenced by modernity because two big cities are located nearby (Tulancingo and Pachuca).

b) In the agricultural scene, they shifted from growing apples (natural agricultural potential) to cultivating tomatoes and mushrooms due to market forces. Moreover, they continue growing corn as a tradition or for self consumption but not as income generator.

c) The municipality has potential to develop other non-agricultural activities as alternative livelihoods i.e. tourism and forestry. However, one of the major barriers to develop them is the environmental problems they face i.e. deforestation due to illegal logging, and water and soil pollution.

d) Finally, another important point to make this town appealing for the choice is the previous personal knowledge of it since I had the experience of working there for six months. This fact made the accessibility to the sources easier and it took less time to make the contact and agree on interviews and provision of information.

Despite this advantage, some disadvantages were presented. One of them was the short time spent in the municipality. This fact permitted only to interview people in charge of the implementation of the municipal councils and people working in the city hall, but not people in the communities. Besides, people from the indigenous communities that

were available to interview in downtown were skeptical to the questions and to the research, therefore they did not cooperate in answering them or they gave vague answers.

Hence, if there is a second phase for the study, the process will include interviews with the community, which will make the information richer. However, people interviewed are in continuous contact with the community and they provided valuable data as key-informants. Thus, the approach taken here is the interpretative one, because it takes into account people's understanding of their worlds (Rubin, 1995). This is necessary in the present study because it is very important to include the perception of the people that are in charge of making the change and people affected by it within the theory in order to answer the research questions.

Finally, it is worth saying that during the research process there was a modification of topic, thus some concepts and theories were abandoned throughout. However, that fact enriched the learning loop.

2.2 Material for the case study

The data for the case study came from documents, interviews, participant-observation and direct observations (Yin Robert, 2003; Limb 2004). Those materials were chosen aiming to obey the three principles for data collection while doing case studies: a) multiple source of evidence b) a formal assembly of evidence and c) explicit links between the questions asked, the data collection and the conclusions drawn (Yin, 2003).

2.2.1 Written material

The literature reviews used for this research as second sources, included books on rural development, agriculture, modernization, sustainable development, etc. Scientific articles related to rural development theories, neo-liberalism, green revolution, modernity and agro-ecology. Documents provided by the municipality, governmental and international surveys for statistical data were also used. Some of them were in paper some were found through the electronic resources.

2.2.2 Empirical material

The major empirical material used for this research was interviews because they “allow a wide range of experiences to be documented, voices to be heard, representations to be made and interpretations to be extracted” (Limb, 2004). They were conducted as semi-structured open-ended interviews, since they allow people to speak for themselves about their own views and experiences of the world” (Limb, 2004)

The type of questions asked to people working in the municipality and non-indigenous producers aimed to know if they acknowledge the RSD law, if they were aware of what SD is and if they put it into action and about their own livelihoods and preferences (see annex 2). The types of questions asked to people in charge of the RSD in the municipality and of the implementation of the Municipal council, were related to the

implementation and considerations of the three pillars of sustainable development within the promotion of productive activities.

The first set of questions was conducted as personal interviews to 16 people working in the municipality. The second set of questions was asked to the people in charge of rural development.

The information held from interviews was very valuable for the analysis of the implementation of Rural Municipal councils. Additionally, participant observation is another important tool for gathering information. Working six months there, one and a half years ago, provided me with some understanding of the dynamics of this community since participant observation enables gaining a broader perspective of the community and the relationships within it (Limb 2004).

2.3 Scope and limitations

The thesis does not pretend to analyze the complete RSD law; it will only be taken as a tool to study the economic, ecological and social approaches that it promotes through the Municipal councils for RSD. Therefore, neither NGOs nor private sector will be considered as studied subjects. Also, even if the law was created within a neo-liberal model, the latter will not be analyzed here because of the aim of the thesis, which is to explore the possibilities of achieving a sustainable rural development in Mexico through the application of the new Rural Sustainable Law by the implementation of Municipal Councils for SRD COMUDERs.

Some of the information provided by the municipality was taken through participatory methods. Some scholars (Dalal-Clayton et al, 2003) enounce some advantages and disadvantages of participatory methods; however, in this thesis the method that was used by the RSD coordinator to get the information provided will not be discussed. Indigenous people identity and inclusiveness are indeed important; nonetheless for the purposes of the thesis, they were not studied in depth.

Land tenure, land reforms and food security are wide and important topics that deserve individual studies, therefore they will not be included in the research. The data collected also pointed towards very interesting and essential topics such as health, nutrition, migration and education that also deserve deeper studies.

Chapter 3. THEORETICAL FRAMEWORK

Agriculture has an important role to play with regard not only to the production of food and other products, but also to the preservation of valuable natural and historical features of the landscape, such as biological diversity. Due to its environmental effects, agricultural production is a very significant factor in determining the possibility of attaining important goals for environmental conservation. In addition, the job opportunities and income generated by agricultural activity have great social and cultural significance for rural areas (Sustainable Agriculture, 1998).

Therefore, even if promoting productivity growth in agriculture is important in order to improve welfare in rural areas (ILO, 2005; WB, 2005) we cannot dismiss ecosystems degradation and social identity. Is there a way to increase productivity in order to improve the conditions of poor people in rural areas and at the same time not overexploit croplands, grazing areas and plantations?

In a Post-Washington consensus world where the subsidies to Green Revolution technologies are being removed, and in a post-Rio world in which environmental sustainability is on the agenda, sustainable development seems to be the answer, and it has become a central element in current discourses on rural development and peasant studies (Henk, 1997).

Sustainable agriculture is a relatively recent response to the decline in the quality of natural resources associated with modern agriculture. Therefore, agricultural production is no longer seen as a technical issue, it is regarded as a complex set of socio-cultural, ecological and economic dimensions (Altieri, 2002).

Hence, the theoretical framework chosen for the thesis is Agro-ecology because it copes with the sustainable agriculture context. It was chosen because it regards different intellectual traditions and disciplines including peasant studies, ecology and environmentalism and development theory (Marsden, 2001). The fact of having a theoretical framework allows the study to have a better scope of how the SRD law is approaching the development of the three pillars of SD.

3.1 Agro-ecology

Within this framework, agro-ecology is proposed as an alternative way to achieve sustainability, which will generate an ecologically, rather than industrially, oriented discourse. Agro-ecology emphasizes vital principles such as biodiversity, recycling of nutrients, synergy and interaction among crops, animals and soil; regeneration and conservation of resources within the context of a pro-poor farmer (Altieri, 2000).

This approach claims to offer opportunities to substantially increase food production while preserving the natural resource base and empowering rural communities because it regards the co-evolution or co-dependency between society and natural factors as agroecosystems⁶ (Marsden, 2001) (Altieri, 2000)

The list of agro-ecological principles below draws guidelines to develop more sustainable agro-ecosystems in rural areas (see annex 1 to have the complete list of principles):

- Use Renewable Resources
- Minimize Toxics
- Conserve Resources
- Manage Ecological Relationships
- Adjust to Local Environments
- Diversify

⁶ Agroecosystems are communities of plants and animals interacting with their physical and chemical environments that have been modified by people to produce food, fibres, fuel and other products for human consumption and processing.

- Empower People
- Manage Whole Systems
- Maximize Long-Term Benefits
- Value Health

Altieri (2000) has enlisted the key constrains for implementing sustainable agriculture, originally documented by Thrupp 1996, as follows:

Macroeconomic policies and institutions

Pesticides incentives and subsidies

Export orientation and monocultural focus of conventional policies

Lack of incentives for institutional partnerships

Pressures from agrochemical companies

Political and economic power wielded against IPM

Advertising and sales practices

Funding/donor issues and sustainability questions

Lack of funding, especially long-term support

Lack of recognition of IPM/sustainable agriculture benefits

Need for reducing dependency on donors and for developing local support

Lack of information and outreach on innovative alternative methods

Weak internal capacities of institutions involved

Institutional rigidities among some collaborators

Lack of experience with agro-ecology and participatory methods Social and health concerns sometimes neglected

Lack of communication and cooperation skills (among some groups)

Agro-ecology should also interact with different levels of decision-making: improve entrepreneurial skills of farmers, marketing challenges, add value to the primary production and generate employment, fortify negotiation capacities of social organizations and economic agents, agree with local governments, the state and social actor to establish favorable politics towards rural development (Yurjevic, 1997).

In Mexico and in the world there are many good examples of the success of agro-ecological systems (Altieri, 2000; Carabias, 2002; Preston, 1996). If it is a good sustainable approach, then why has it not been spread more rapidly? Some scholars that have studied agro-ecology stated that it is because each agro-ecosystem is different. Thus, agro-ecological principles must be applied and adapted to each particular agro-ecosystem; and because technological or ecological intentions are not enough to disseminate agro-ecology (Altieri, 2002).

This means that macroeconomic policies and institutions should increase public investment in agro-ecological participatory methods instead of promoting the use of pesticides and conventional technologies (Altieri, 2002).

Also, in order to achieve a major diffusion of agro-ecology there are some factors that must be undertaken such as to increase public investments in agro-ecological participatory methods, to have more subsidies for agro-ecological techniques than for

conventional techniques, to improve the infrastructure in poor and marginal areas and to provide equitable market opportunities (Altieri, 2000).

3.2 Sustainable Livelihoods and Capital Assets

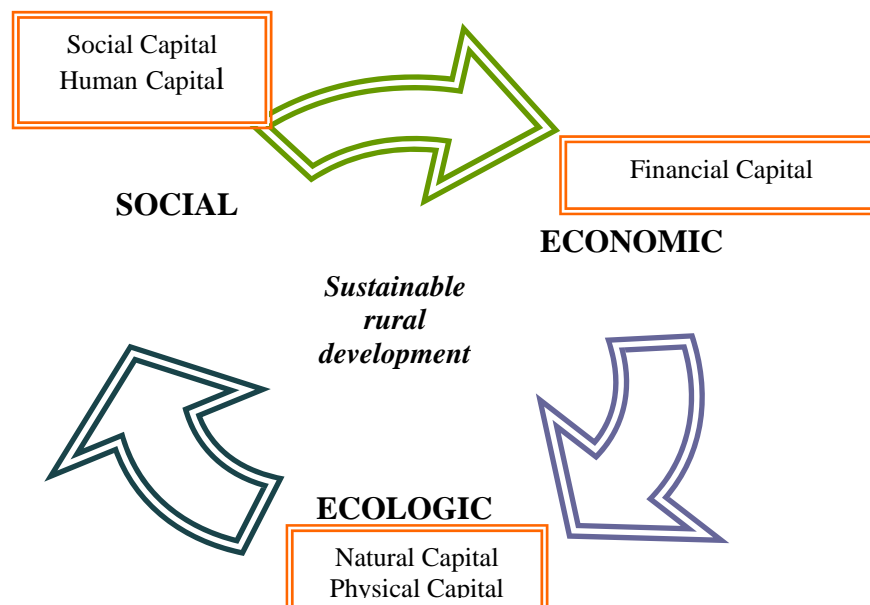
Different scholars working within the discipline of sustainable agriculture (e.g. Altieri, 2002) sustain that agro-ecological improvements in rural areas will lead to more sustainable livelihoods. Therefore, if Rural Sustainable Development follows agro-ecological principles, then it will trigger sustainable livelihoods to people living in rural areas.

It is also important to consider that while talking about agro-ecology and SRD, it cannot be dismissed that the five capital assets which are addressed in sustainable agriculture and sustainable livelihoods. The capital assets refer to the natural (land, water, plants and animals), social (family, group and institutional links), physical (infrastructure), human (knowledge and health) and financial (cash in hand or indirectly accessible) elements of development (Dalal-Clayton et al, 2003; McDougall & Braun, 2003).

Therefore, analyzing how the Municipal Councils for SRD, which were created within the legal framework of the SRD law, are approaching, promoting or empowering each of the capitals will guide the study to conclude into which extent the SRD law is ensuring sustainable livelihoods in the studied area. In addition it will also help to study the extent in which the law is promoting environmental concerns and what kind of instruments are being used to accomplish that goal.

Below, a figure will be shown, as an attempt from my part to integrate each of the five capitals into one of the three dimensions of sustainable development and therefore facilitate the analysis (fig 1).

Figure1. Integration of the five assets for sustainable livelihoods within the three pillars of Sustainable Development.



It shows that social and human capitals correspond to the *social* pillar; financial capital matches with the *economic* pillar, and finally, the natural and physical capitals relate with the *ecologic* pillar. Issues within all three dimensions will be analyzed. For example, concerning the social dimension, how social and human capitals are being treated by the SRD law and the COMUDER in Acaxochitlán. Similarly, within the economic dimension, how financial capital is being treated and finally within the ecologic dimension, how natural and physical capitals are being treated.

Chapter 4. ANALYSIS OF THE EMPIRICAL MATERIAL

The next section will present the collected empirical material. As it was stated in section 2.2.2, it was acquired from primary and secondary sources of information. Primary sources include data from interviews with key informants and observations; secondary sources consist of data taken from governmental pages, documents produced in the municipality and in the COMUDER meetings; as well as reports provided by people in direct contact with the peasants and people working in the municipality in key areas such as rural development, tourism, communication, infrastructure, etc.

The way these will be presented is as follows: first of all, based on secondary sources, the situation of the municipality of Acaxochitlán and the importance of the COMUDERs will be briefly introduced within the legal framework of SRD law. Secondly, the projects that the municipality is following as a product of COMUDER meetings will be cited; thirdly the information from primary sources will be presented in each of the dimensions to be analyzed within the information from secondary sources i.e. documents provided by key informants and the SRD law. Finally, the outstanding points from the empirical material will be discussed in another section.

4.1 Municipal Council for Rural Sustainable Development of Acaxochitlán

One of the ways the SRD law is upholding the sustainable development of rural areas is through the establishment of Municipal Councils for SRD (COMUDERs). These councils provide a space for local decision making from the bottom-up; they enable people to be taken into account through participatory planning (SAGARPA, 2005). The COMUDER is also aiming to be the authority to decentralize economic resources that come from the national level (SAGARPA, 2005).

As stated in section 2.1.1 Acaxochitlán is a rural municipality located 20 kilometers far from Tulancingo, the second largest city in the state of Hidalgo, Mexico. This municipality is considered to have a medium low development, according to the Human Development Index (fig. 3). It has a population of 36, 978 inhabitants and is constituted by 36 communities from which 60 percent are indigenous people. Approximately 51.2 % of the population works in the agricultural, livestock and fisheries sectors. The major economic potentials of Acaxochitlán are agriculture, forestry and tourism (Mejia, 2004)

Figure 2. Human Development Index of Acaxochitlán

Human Development Index 0.640		
Human Development: Medium low		
Ratio of illiterate people more than 15 years old	Ratio of people that goes to school	GDP per capita adjusted in dollars
68.6	52.8	2.775
Child mortality ratio: 38.30 Child survival ratio: 0.73 Net primary enrollment ratio: 0.63 GIP per capita: 0.55		

Source: SEDESOL 2004 Adapted from Mejia (2004)

The municipality of Acaxochitlán, established the COMUDER in 2004 (Mejia, 2004). The first phase of the program involved an evaluation based on a participatory method called SWOT (analysis of strengths, weaknesses, opportunities and threats for the group or a certain activity) in each community (Mejia, 2004). Based on the document resulting from these meetings, the major needs that the community is facing are:

1. Need to improve the *organization* among agricultural producers in productive processes.
 2. Need of *training* and technical assistance.
 3. Improve infrastructure for distribution of *water*.
 4. Urgent need to improve Natural Resources Management (NRM) projects in order to improve *forests* management.
 5. Increase authority's *supervision* for Natural Resources Management and Conservation
 6. Take advantage of natural landscape in order to bring economic inputs, in the way of *ecotourist projects*.
- (Mejia, 2004)

Based on those needs, the next municipal strategic projects were drawn:

1. Organization and Training
 2. Application of proper technology based on the town's characteristics.
 3. Increase of productivity through inversion and programs that match the physical, human and social potential.
 4. Natural Resources Management and conservation
- (Mejia, 2004)

In order to facilitate the analysis below, I have ranked the four projects into the three pillars of Sustainable Development as figure 3 shows:

Figure 3. Strategic projects of Acaxochitlán towards SRD

STRATEGIC PROJECTS	SOCIAL	ECOL	ECON
Organization and training	X		
Application of proper technology based on the town's characteristics.			X
Increase of productivity through investment programs that match the physical, human and social potential.			X
Natural Resources Management and Conservation.		X	

Once again, this ranking does not mean that each project belongs solely to the assigned category. This distinction is only for the purpose of facilitating the analysis.

4.2 Social dimension

4.2.1 Social capital is the one that enables mutually beneficial collective action, contributing to the cohesiveness and cooperation among people in their respective societies. “The social capital assets include norms, values and attitudes that predispose people to cooperate (reciprocity, solidarity and trust)” (Pretty, 2002).

SRD law empowers social and economical organization of peasants and producers through the COMUDERs and specifically it addresses it in articles 143 and 151 (RSD law, 2001). As stated before, from the paper produced in the COMUDER, one of the strategic projects of the municipality of Acaxochitlán is the re-enforcement of the *organization and training* of producers of the town (Medina, 2004). This document also states the next activities to be done in order to achieve that goal: 1) Training programs, 2) Recompilation of bibliography concerning legal issues for organizations, 3) Gathering and conveying information, 4) Integration of organizations of producers (Medina, 2004).

The interview material shows some evidence that confirms in some way what has been stated. Indeed, each month, the one responsible for the meetings contact and bring experts that give a lecture to the producers that attend to the meetings for example

“legal assessment to be considered as an official organization, taxes, obligations and rights, pest control, sustainable forestry” (interviewee 1).

There have been several successful productive projects, where the people organize, and work together and that are making a living from it e.g. tomato greenhouses, workshops for handicap people, carpenter workshops, hives, etc. For example:

“...a group of women organized in order to start they own sewing business, they came into me as project developer and we wrote together the project to get subsidies. Now, they are in the phase of training in marketing and administration...” (interviewee 2).

Nevertheless, the interview material also presents some nuances. From personal observations and based in interviews an average of 35 producers attend the meetings every month (interviewee 1). Considering that the municipality has more than 3170 producers (Acaxochitlan, 2005), this number seems to be very low.

According to interviewee number one, the low attendance to the meetings might be because of the following reasons: a) they are busy working and they do not have time to attend, b) the lack of motivation regarding the benefits of attending, c) skepticism that the meeting or the program will help them improve their conditions. This is confirmed by interviews with three key informants, they all stated that peasants have been cheated many times in the past, therefore is hard to earn their trust:

“they do not believe that I go there to work with them and help them to develop productive projects considering their necessities, but when they finally trust in me they cooperate very well” (interviewee 2).

From these statements, it can be seen that it is beneficial for people in the municipality to organize in order to achieve better opportunities for economic support. However, organization takes time.

4.2.2 Human capital is, according to Pretty (2002), “the total capability residing in individuals, based on their stock of knowledge and skills as well as their health and nutrition. Here is important to consider that people’s productivity is increased by their capacity to interact with productive technologies and with other people” (Pretty, 2002).

Within the RSD law, human capital is the one that enables them to develop their entire potential; it is addressed specifically in articles 67, 119, 121 (SRD law, 2001). In the COMUDER document above presented, there is no evidence of a strategic line towards this capital.

However, some evidence from the municipality shows that health, nutrition, preservation of indigenous knowledge and provision of internet and computers are important elements to be developed in order to improve conditions of people in the town.

Health & Nutrition

The observations show that regarding health, it is still managed directly by the national government or from the state level (IMSS, SSA). They are the ones in charge of decision making. They implement different respiratory and digestive illnesses prevention programs, seasonal campaigns regarding diabetes, teeth hygiene, eye exams among others (interviewee 3).

Regarding nutrition, data from key informants pointed out that the local department of family integral development, DIF, provides daily cold breakfasts consisting in milk, cookies and fruit to 216 children. Similarly, there are 25 kitchens in marginalized areas that provide hot breakfasts to 780 children (interviewee 4). If those breakfasts and programs are really enough to cover the basic necessities in the long run is a question that can be raised here but that cannot be answered because it needs a deeper study outside the topic of the thesis.

Education & Internet

Education is a major element that would need a more deep analysis regarding its quality, economic and human resources. In interviews with authorities of the municipality, they pointed out that one of the major priorities of their administration was education.

Internet has been located under education because it is a good tool for training and education. Based on evidence collected from interviews, there exists a national program called “e-Mexico”, whose purpose is to deliver technological means to people in marginalized areas or located far away from the cities (interviewee 7). In Acaxochitlán, there have been two digital centers established in public libraries that offer courses in informatics and that provide information to all the people that request it (interviewee 7). Until now there have provided service to more than 500 users every month (Acaxochitlan, 2005)

“internet is important because it facilitates the access to information in the world, for instance through internet we have found buyers for kiwi that one producer was searching for” (interviewee 7)

This internet effort seems to be a good way to provide access to information. However, it will be necessary to investigate whether or not it is really accessible to the people that need it.

Indigenous people

This municipality is one of the four municipalities in region that has a department for the attention of indigenous people (interview 5). Therefore, considering the inclusion of indigenous people; evidence from observations and key informants show that authorities consider them important.

For example they assist them with translations, explanations or conveying important information (interviewee 5). In addition, they hold events honoring indigenous traditions:

“every year we have different celebrations concerning indigenous traditions, one of the big ones is the one for the deaths day, when the “brujos⁷ of the town come downtown and show what they do to the visitors. Every year this festivity is becoming more popular, and we receive people from different cities... ” (interviewee 6)

Despite this support one statement from an interview with a person working in that department revealed that:

“young people are ashamed to say that they speak Nahuatl⁸, to dress the traditional costumes and to dance folkdances” (interviewee 5).

So, although there is support from authorities in the municipality for indigenous traditions it could be speculated that to a certain extent they are still socially rejected.

⁷ Warlock, shaman or witch doctor

⁸ Aztecs language

4.3 Economic dimension

4.3.1 Financial capital is defined by the agro-ecological approach “as the goods and services built up through financial systems that gather savings and issue credit. It includes pensions, remittances, welfare payments, grants and subsidies” (Pretty, 2002). The SRD law defines it as the economic capital that enables the entrepreneurship of agricultural production (RSD law, 2001). It is promoted through the capitalization of productive activities in rural areas; and is referred to in articles 7, 32, 55, 57, 60, 61-64, 67, 70, 86, 115, 118, 121, 122 (RSD law, 2001)

At a local level, it is fostered through the COMUDER by different activities such as enabling the access to technology and training that will increase productivity; promoting the value added in their products and the development of system-product chains⁹ (Medina, 2004).

Rescue of agricultural products dismissed

The interview material shows some evidence that confirms that those activities are being implemented, as it can be seen in what is stated by interview eight:

“the way we are trying to enforce rural productivity in the municipality of Acaxochitlán is through the rescue of apple production that used to be important for the region, we are motivating them to diversify the types of apples so they can compete in a competitive market” (interviewee 8)

In addition, empirical material from interview also pointed out that the authorities together with some farmers are exploring the possibilities to create a network of tomato producers, which will enable them to sell their products at a better price

Prices

Nevertheless, the interviews also presented some evidence of a more complex picture. For instance, some producers and key informants affirmed that the market is one of the most important challenges in order to improve agricultural production

“...one of the problems for the agricultural products are the low prices farmers get paid...” (interviewee 9)

“they would be able to produce more and sell at a better price” (interviewee 1)

Value added for product diversification

Another activity that is being promoted in the municipality is to add value to the products (interviewees 1, 8, 9). They are empowering the production of organic products because this market normally pays more (interviewee 1). This point will be discussed further.

⁹ It regards in an integral way the production of a specific product i.e. raw material, technology, environmental impact, commercialization, price, market (Usabiaga, 2002).

4. 4 Ecologic dimension

4.4.1 Physical capital classified in the Ecological pillar because the SRD foster the creation of infrastructure with regards to natural resources preservation. It is defined in sustainable agriculture as “the store of human-made material resources, including buildings (housing, factories), market infrastructure, irrigation works, roads and bridges, tools and equipment, communication systems and energy and transportation facilities, which make labor more productive and better utilize natural resources” (Pretty, 2002). This capital is addressed directly in articles 7 and 63 of the SRD law. It is defined as the physical infrastructure as well as communication means, basic services, urban equipment and housing (Ruiz Garcia, 2001).

From the document of the COMUDER there are not special activities addressed to the physical capital; nevertheless, evidence from interviews shows some concurrence with the physical capital. According to the Secretary of the municipality to improve infrastructure and education are the main priorities of the municipality (interviewee 10)

“we are working at enabling roads, ameliorating school conditions and establishing more water pipes, especially to marginalized communities, however people do not notice what we are doing and keep complaining ” (interviewee 11)

Although the municipality is currently making efforts to improve infrastructure, there is no guarantee that future administrations will do the same; each administration lasts for three years. Therefore, a legal obligation could be useful in order to ensure the continuation of such efforts.

4.4.2 Natural capital is defined in Agro-ecology as the: “nature’s goods and services”. These include food, wood and fibre; water supply and regulation; treatment, assimilation and decomposition of wastes; nutrient cycling and fixation; soil formation; biological control of pests; climate regulation; wildlife habitats; soil formation; storm protection and flood control; carbon sequestration; pollination; and recreation and leisure” (Pretty, 2002).

The SRD law does not mention a natural capital in itself; nevertheless, when it addresses to the physical capital definition it stresses the importance of the preservation and regeneration of natural resources and environment (RSD law, 2001; Ruiz Garcia, 2001). At a municipal level, NRM and conservation is one of the strategic projects to be empowered by the COMUDER within the municipality. It proposes activities such as environmental education, reforestation and improvement of sustainable forestry techniques, improvement of agricultural techniques regarding water and soil management (Medina, 2004).

The interview material shows some evidence that confirms the local intentions to implement those activities. However, it also shows a more complex scene. On the one hand, authorities in charge of RD are promoting the production of agricultural products in an organic way (interviewee 1). On the other hand, the producers are still using pesticides and chemical products in order to improve the productivity (interviewee 2).

However, little by little they become conscious of the importance of producing in an ecological friendly way. For example,

“they get very surprised when we tell them that we have found DDT in milk”
(interviewee 1)

It can be seen that the authorities and the producers have the willingness to operate in a more ecological way, and to preserve natural resources. However, it seems to be a slow process that could be aided by specific references to these issues from the law, along with financial support.

Chapter 5. DISCUSSION

From the empirical material presented here, there are some insights that can be discussed in a more integral way. Firstly, it has been noted that organization is essential for producers in order to gain force and voice. This process is slow; nonetheless as long as the benefits start to pop up more people might start to organize in cooperatives and present productive projects to receive subsidies and credits.

However, even if farmers get to organize and develop productive projects the subsidies that they get are not sufficient to allow them to compete at a global level. This puts them in a very disadvantageous situation. Mexico does not give the same amount of subsidies to farmers as some other western countries do.

Until now Mexico, has signed twelve free trade agreements with over 40 countries including, Canada, United States of America, Guatemala, Honduras, El Salvador, the European Free Trade Area, and Japan (CIA, 2005). This does not seem yet to benefit the agricultural producers. Therefore, with organization and empowerment alone, the rural situation will not be ameliorated; there are external factors that affect rural development, especially the agricultural sector.

Organic production seems to be promoted in COMUDERS; however to change the land to be organic and cope with international norms six years of production without chemicals is required (Mason, 2003). Therefore, small producers might not been able to deal with this fact in a successful way. This might lead to weaken the competitiveness of them on the market. Indigenous knowledge regarding agricultural production does not seem to be taken into account and this might be worth a special consideration within the COMUDERS.

Also, based on the evidence presented, the empowerment of non-agricultural activities is promoted but not stressed. It is important, though, in order to diversify income sources and improve livelihoods (ILO, 2005). Ensuring sustainable livelihoods is necessary in order to improve the quality of life of people in rural areas. However, some scholars have stated that an equal development of the three pillars is not possible in the real world and that the economic one seems to pull towards its side (Littig & Erich, 2005).

It can also be concluded that municipalities play an essential role in the linkage between the people and the governmental national levels. It is them who deal with the people's

necessities and the decision power at higher levels. That is why they are important in order to downsize resource and promote the good governance in more real terms.

Interviews revealed that the present law will be modified by March 2006 because there are some points that must be strengthened and some articles might become mandatory¹⁰.

Empirical material pointed out interesting lines of research for further studies in the fields of education, health, nutrition, and indigenous people inclusiveness. It is also worth mentioning that interviews with peasants would be a very valuable research activity. However, due to the lack of time and money, it was not possible for the current research.

CONCLUSIONS

It can be concluded that Sustainable Rural Development is a complex process and a recipe to achieve it does not exist. For years, many elements have affected the rural and agricultural development of Mexico. The fact of applying models that work for other countries without considering the characteristics of the own one, plus years of unsuccessful rural programs have left rural areas aside from economic development and have produced more natural resources deterioration.

However, agro-ecological principles seem to be useful in order to achieve sustainable development in the countryside, but there are many outer factors such as trade prices and international policies, that must be considered when applying them.

The Rural Sustainable Development law targets to provide more secure livelihoods for people living in rural areas. It promotes local decision making from the bottom-up by participatory methods and resources decentralization.

However, even if the intentions are well meant, still the economic dimension seems to be a priority; which leave the ecologic and social pillars in a second place. The implications of not developing the social and ecologic dimensions as the economic one will decrease the latter one in the long term. The SRD law seems to have the purpose to empower farmers and include them in the market taking into account NRM and conservation. Yet, it is a very long term and slow process.

Since shifting to a more sustainable method of production is very slow, only the large producers will be able to survive. So, it seems that the small producers, or peasants, will lose because they do not have the economic means to support themselves through this transition. In sum, this lengthy process poses risks to marginalized people in Mexico as it has been happening throughout a major part of its history.

¹⁰ The current law is not obligatory for anyone.

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Annex 1 Mexico profile

Mexico Country Profile				
Click on the indicator to view a definition	1990	1995	2001	2002
1 Eradicate extreme poverty and hunger	<i>2015 target = halve 1990 \$1 a day poverty and malnutrition rates</i>			
Population below \$1 a day (%)	..	..	9.9	..
Poverty gap at \$1 a day (%)	..	..	3.7	..
Percentage share of income or consumption held by poorest 20%	..	..	3.1	..
Prevalence of child malnutrition (% of children under 5)	16.6	16.9	7.5	..
Population below minimum level of dietary energy consumption (%)	5.0	5.0	5.0	..
2 Achieve universal primary education	<i>2015 target = net enrollment to 100</i>			
Net primary enrollment ratio (% of relevant age group)	100.0	100.0	99.4	..
Percentage of cohort reaching grade 5 (%)	79.5	85.6	88.5	..
Youth literacy rate (% ages 15-24)	95.2	96.2	96.6	..
3 Promote gender equality	<i>2005 target = education ratio to 100</i>			
Ratio of girls to boys in primary and secondary education (%)	98.5	98.2	101.3	..
Ratio of young literate females to males (% ages 15-24)	98.4	98.9	99.7	..
Share of women employed in the nonagricultural sector (%)	35.3	35.9	37.2	..
Proportion of seats held by women in national parliament (%)	..	14.0	..	..
4 Reduce child mortality	<i>2015 target = reduce 1990 under 5 mortality by two-thirds</i>			
Under 5 mortality rate (per 1,000)	46.0	36.0	30.0	29.0
Infant mortality rate (per 1,000 live births)	37.0	30.0	25.0	24.0
Immunization, measles (% of children under 12 months)	78.0	90.0	95.0	96.0
5 Improve maternal health	<i>2015 target = reduce 1990 maternal mortality by three-fourths</i>			
Maternal mortality ratio (modeled estimate, per 100,000 live births)	..	..	83.0	..
Births attended by skilled health staff (% of total)	..	85.7	..	..
6 Combat HIV/AIDS, malaria and other diseases	<i>2015 target = halt, and begin to reverse, AIDS, etc.</i>			
Prevalence of HIV, female (% ages 15-24)	..	..	0.1	..
Contraceptive prevalence rate (% of women ages 15-49)	..	65.0	..	..
Number of children orphaned by HIV/AIDS	..	..	27,000.0	..
Incidence of tuberculosis (per 100,000 people)	..	..	34.0	33.1
Tuberculosis cases detected under DOTS (%)	..	15.0	95.0	73.0
7 Ensure environmental sustainability	<i>2015 target = various (see notes)</i>			
Forest area (% of total land area)	32.2	..	28.9	..
Nationally protected areas (% of total land area)	..	3.7	3.5	10.2
GDP per unit of energy use (PPP \$ per kg oil equivalent)	4.1	4.7	5.8	..
CO2 emissions (metric tons per capita)	3.7	4.0	4.3	..
Access to an improved water source (% of population)	80.0	..	88.0	..
Access to improved sanitation (% of population)	70.0	..	74.0	..
Access to secure tenure (% of population)	..	..	..	..
8 Develop a Global Partnership for Development	<i>2015 target = various (see notes)</i>			
Youth unemployment rate (% of total labor force ages 15-24)	5.4	9.6	4.1	4.9
Fixed line and mobile telephones (per 1,000 people)	65.6	101.2	354.0	401.2
Personal computers (per 1,000 people)	8.2	25.6	68.7	82.0
General indicators				
Population	83.2 million	91.1 million	99.4 million	100.8 million
Gross national income (\$)	235.6 billion	346.6 billion	551.8 billion	597.0 billion
GNI per capita (\$)	2,830.0	3,800.0	5,550.0	5,920.0
Adult literacy rate (% of people ages 15 and over)	87.3	89.5	90.5	..
Total fertility rate (births per woman)	3.3	2.9	2.5	2.4
Life expectancy at birth (years)	70.8	72.0	73.1	73.6
Aid (% of GNI)	0.1	0.1	0.0	0.0
External debt (% of GNI)	41.1	60.6	23.9	22.6

Investment (% of GDP)	23.1	19.8	20.9	20.3
Trade (% of GDP)	38.3	58.2	57.1	56.4

Source: *World Development Indicators database, April 2004*

Note: In some cases the data are for earlier or later years than those stated.

Goal 1 targets: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day. Halve, between 1990 and 2015, the proportion of people who suffer from hunger.

Goal 2 target: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

Goal 3 target: Eliminate gender disparity in primary and secondary education preferably by 2005 and to all levels of education no later than 2015.

Goal 4 target: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.

Goal 5 target: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio.

Goal 6 targets: Have halted by 2015, and begun to reverse, the spread of HIV/AIDS. Have halted by 2015, and begun to reverse, the incidence of malaria and other major diseases.

Goal 7 targets: Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources. Halve, by 2015, the proportion of people without sustainable access to safe drinking water. By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers.

Goal 8 targets: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system. Address the Special Needs of the Least Developed Countries. Address the Special Needs of landlocked countries and small island developing states. Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term. In cooperation with developing countries, develop and implement strategies for decent and productive work for youth. In cooperation with pharmaceutical companies, provide access to affordable, essential drugs in developing countries. In cooperation with the private sector, make available the benefits of new technologies, especially information and communications.

Source: World bank, country profile

Annex 2.

Questions of interviews

Question for people working in the municipality and non-indigenous producers:

Do you know the RSD law? Have you heard about SD? What is SD for you? What is your major activity for income generation? Do you work in the city or in the town? Would you stay in town if you earned the same as in the city? Do you think you have more spare time for other activities apart from work if you stay here than in the city? What do you think the major problems in Acaxochitlán are? What do you think is needed to change them? What do you think are the potentials of the town in order to develop better?

Questions for people in charge of the RSD in the municipality and of the implementation of the Municipal council:

What are the principal problems you have faced while implementing Municipal councils?

How have the people responds to the program?

How are you promoting a better economic welfare?

How are you promoting the ecosystems conservation?

Annex 3 Full list of principles for Agroecology

(Agroecology principles, 1998)

Use Renewable Resources

- Use renewable sources of energy instead of non-renewable sources.
- Use biological nitrogen fixation.
- Use naturally-occurring materials instead of synthetic, manufactured inputs.
- Use on-farm resources as much as possible.
- Recycle on-farm nutrients.
- Minimize Toxics**
- Reduce or eliminate the use of materials that have the potential to harm the environment or the health of farmers, farm workers, or consumers.
- Use farming practices that reduce or eliminate environmental pollution with nitrates, toxic gases, or other materials generated by burning or overloading agroecosystems with nutrients.

Conserve Resources

- Conserve Soil**
- Sustain soil nutrient and organic matter stocks.
- Minimize erosion.
 - use perennials.
 - use no-till or reduced tillage methods.
 - mulch.
- Conserve Water**
- Dry farm.
- Use efficient irrigation systems.
- Conserve Energy**
- Use energy efficient technologies.
- Conserve genetic resources**
- save seed.
- maintain local landraces.
- use heirloom varieties.
- Conserve Capital**
- Keep bank debt to a minimum.
- Reduce expenditures.

Manage Ecological Relationships

- Reestablish ecological relationships that can occur naturally on the farm instead of reducing and simplifying them.
- Manage pests, diseases, and weeds instead of “controlling” them.
- Use intercropping and cover cropping
- Integrate Livestock**
- Enhance beneficial biota**
- In soils

- mycorrhizae
- Rhizobia
- free-living nitrogen fixers
- Beneficial insects
 - Provide refugia for beneficials.
 - Enhance beneficial populations by breed and release programs.
- Recycle Nutrients
 - Shift from throughflow nutrient management to recycling of nutrients.
 - Return crop residues and manures to soils.
 - When outside inputs are necessary, sustain their benefits by recycling them.
- Minimize Disturbance
 - Use reduced tillage or no-till methods.
 - Use mulches.
 - Use perennials

Adjust to Local Environments

- Match cropping patterns to the productive potential and physical limitations of the farm landscape.
- Adapt Biota
 - adapt plants and animals to the ecological conditions of the farm rather than modifying the farm to meet the needs of the crops and animals.

Diversify

- Landscapes
 - Maintain undisturbed areas as buffer zones.
 - Use contour and strip tillage.
 - Maintain riparian buffer zones.
 - Use rotational grazing.
- Biota
 - Intercrop.
 - Rotate crops.
 - Use polyculture.
 - Integrate animals in system.
 - Use multiple species of crops and animals on farm.
 - Use multiple varieties and landraces of crops and animals on farm.
- Economics
 - Avoid dependence on single crops/products.
 - Use alternative markets.
 - Organic markets.
 - Community Supported Agriculture (CSA).
 - "Pick your own" marketing.
 - Add value to agricultural products.
 - Process foods before selling them.
 - Find alternative incomes.
 - Agrotourism
 - Avoid dependence on external subsidies.

Use multiple crops to diversify seasonal timing of production over the year.

Empower People

Ensure that local people control their development process.

Use indigenous knowledge

Promote multi-directional transfer of knowledge, as opposed to "top-down" knowledge transfer.

Teach experts and farmers to share knowledge, not "impose" it.

Engage in people-centric development.

Increase farmer participation.

link farmers with consumers (CSA).

Strengthen communities.

Encourage local partnerships between people and development groups.

Ensure intergenerational fairness.

Guarantee agricultural labor.

Ensure equitable labor relations for farm workers.

Teach principles of agroecology & sustainability.

Manage Whole Systems

Use planning processes that recognize the different scales of agroecosystems.

Landscapes

Households

Farms

Communities

Bioregions

Nations

Minimize impacts on neighboring ecosystems.

Maximize Long-Term Benefits

maximize intergenerational benefits, not just annual profits.

maximize livelihoods and quality of life in rural areas.

facilitate generational transfers.

Use long-term strategies.

develop plans that can be adjusted and reevaluated through time.

Incorporate long-term sustainability into overall agroecosystem design and management.

Build soil fertility over the long-term.

build soil organic matter.

Add value to agricultural products.

Value Health

Human Health

Cultural Health

Environmental Health

Value most highly the overall health of agroecosystems rather than the outcome of a particular crop system or season.

Eliminate environmental pollution by Toxics and surplus nutrients.

Animal Health

Plant Health