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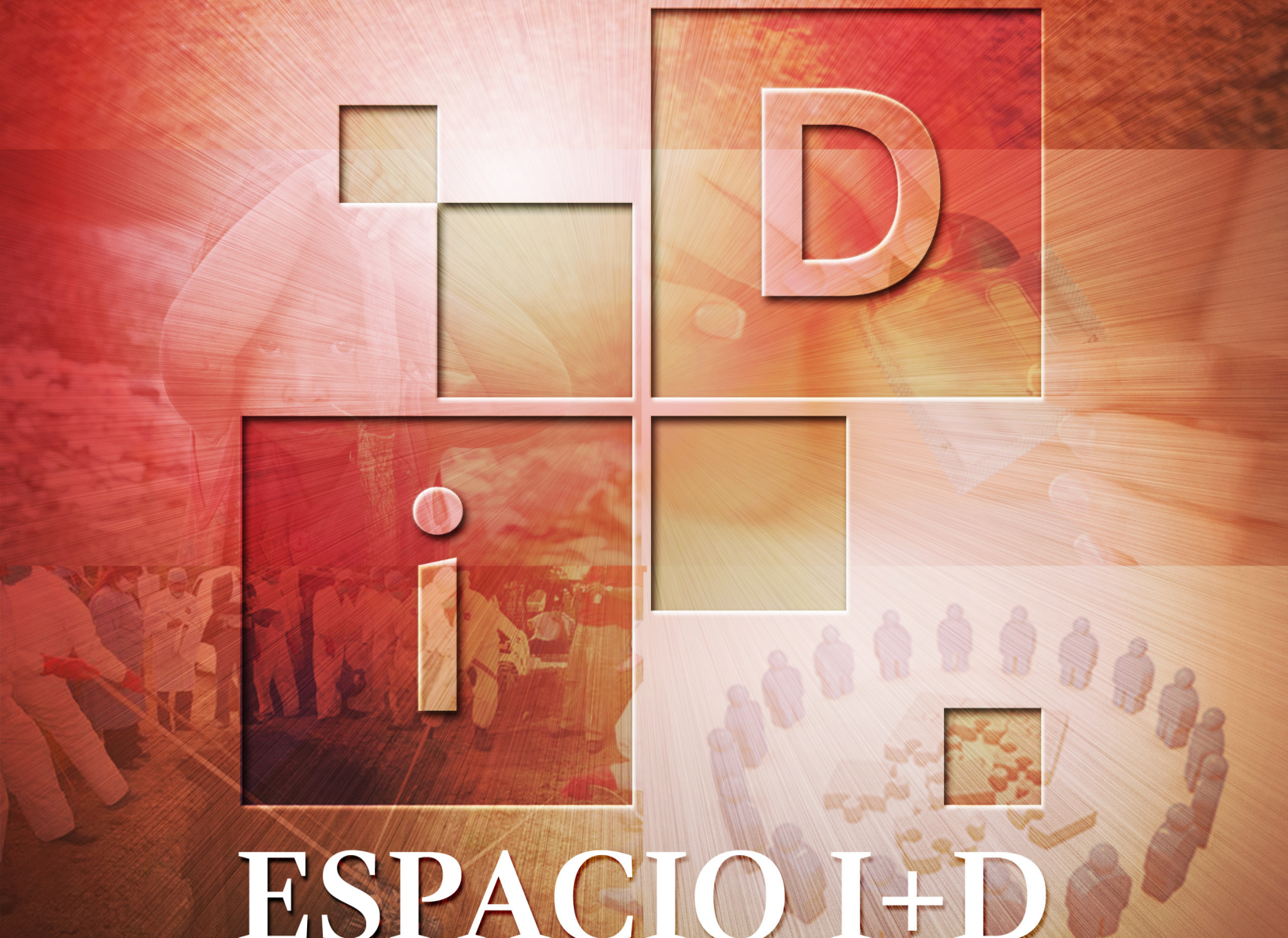

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NOTES FOR THE AGENDA OF CLIMATE CHANGE RESEARCH IN MEXICO

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ABSTRACT

Climate change is a challenge to the academic communities and is an issue at the frontier for very diverse scientific disciplines. Climate change, by itself, necessarily implies changes in the social, economic and cultural policy paradigms. This area of study requires the creation of an agenda of academic research which contributes to the transition from the decoupling of economic growth in emissions of greenhouse gases.

Keywords: *Climate change, climate model, multidisciplinary scientific agenda*

Climate change is a scientifically proven fact and every year data supporting the existence of this phenomenon caused by human activities are added. Therefore, it is necessary that research on the issue is maintained. In this context, climate change has the challenge to build and consolidate its own methodologies, but also promote the realization of multidisciplinary research.

Therefore, climate change research must transcend the realm of the novel and fashionable to become, in the medium and long term, in the central area of economic growth and social development of Mexico. Research in climate change must not only pursue investigations that are replicated elsewhere in the world, but it should seek to become an academic frontier that serves, in itself, as a strategy of social adaptation.

WHAT IS CLIMATE CHANGE?

Climate change can be defined as an imbalance of energy in the atmosphere. This imbalance has been caused by global warming, which in turn has been caused by the excessive concentration of greenhouse gases discharged into the atmosphere since the Industrial Revolution of the nineteenth century.

The greenhouse effect itself is not something that can be seen as negative for the planet, in fact thanks that the atmosphere can fulfill the function of retaining heat and humidity is what, among other things, has allowed this planet to have life. This statement makes sense when you consider that without the presence of the greenhouse effect the actual average temperature of the world would be at least 18 ° C below zero. Thanks to the thermodynamic stability of the atmosphere the temperature differential is 33 ° C as the usual average global temperature is 15 ° C. (Garduño, 2004, p. 28)

While the atmosphere meets many different functions, in the present case, however, we have to focus on the already mentioned ability to concentrate energy because through it temperature, moisture amounts , and rainfall are regulated; so the atmosphere is a determining factor of the weather and climate.

One of the key elements in this global concern for the atmosphere is derived from the timing of climate change affecting the world. It this sense, it is necessary to say that the planet has already undergone changes of its climate in the past, but they were developed and consolidated over a very long time and usually identified with climate transitions in different geological eras. This area of analysis of climate changes in the past, can be documented with various techniques such as the analysis of lake sediments on the banks of rivers and lakes, permafrost, the rings of trees and many other tools of this kind. This area of research is called paleoclimatology and is part of the research agenda of climate change.(Lozano, 2004, pp. 65-76)

In other words, in the natural history of the planet, climate change has been a constant. The difference between natural climate change and climate change spoken about today, according to data we have, is that this new phase of warming has been caused by human activity that have focused on increasing the levels of welfare and development of nations and peoples. The timing of the start of the so-called Industrial Revolution leads directly to the middle of the nineteenth century. This means that in just 150 years on average mankind has induced a change of climate which naturally would have taken the planet thousands of years generate.

In this very short period of time, what mankind has done to the atmosphere is induce a change in the natural balance of its components in an unnatural way; that is, that there has been an excessive concentration of gases with global warming potential whereby the regular dismissal of surplus energy into space is prevented and they are trapped in the Earth's atmosphere,

increasing the temperature of the planet. Therefore, there is a direct correlation between the greater amounts of such greenhouse gases in the atmosphere with the rise in global average temperature.

This is why Paul Crutzen, in the middle of an academic debate, suggested the idea of considering the period we live as the Anthropocene. This contribution is moving in the paradigm that climate changes are characterized as transitional stages between very long geological eras and that what exists today has been a result of the change in the energy balance of the atmosphere, so much so that the change is unstoppable given life scenarios that do not have, at least at this time, much certainty. Paul Crutzer formally wrote this dissertation in 2000 and since then has managed a research branch that is slowly increasing. In an of itself, the Anthropocene analysis should be considered as one of the themes of the current scientific agenda not only in the context of climate change. (Crutzen and Stoermer (2000), Duarte Quesada, Carlos M. (Ed) (2006); Di Donato, Monica (2009); Vilches and Gil (2009), Gonzalez, Jose A. and Carlos Montes (2010); Schwagerl, Christian (2011), Fernandez Duran, Jorge (2011), Irwin, Ruth (2011) and Syvistki, James (2012).

EVIDENCE OF CLIMATE CHANGE

The correlation of an increase in greenhouse gases-rise in global temperature is relatively new in the study of the atmosphere (features and functions) and can be traced back to early last century. Three authors can be considered as the pioneers of this area of research. For the first case we can find Svante Arrhenius is the document entitled “Über die Wärmeabsorption Kohlensäure Durch und die auf Ihren Einfluss Erdoberfläche der Temperatur.” but it did not become popular until 1908 when the document was

published in English. (Arrhenius, S. 1901, 1908). After him was Guy Stewart Callendar who published an article called "The artificial production of carbon dioxide and Its influence on climate" (Callendar, 1938). Within this aspect of the pioneers in this area of research we close with Roger Revelle who in 1957 published "Carbon dioxide exchange between atmosphere and ocean and the question of an increase of atmospheric CO2 during the past decades" (Revelle and Suess, 1957).

From that moment, there has been developed an area of research that has been promoted by various academic institutions and bodies belonging to the United Nations (UN). This aspect of scientific and instrumental research can be traced to the results of the World Climate Conference that was organized by the World Meteorological Organization in 1979. The result of that meeting was that the scientific community came out with the task of verifying the existence of climate change, because they already had suspicions that human activities could be causing a mismatch in thermal system in the world (IISD, 2009, p.1).

In that sense thing to note it is that the Intergovernmental Panel on Climate Change (IPCC) jointly created by the Nations for the Environment Program and the already mentioned World Meteorological Organization in the year 1988 Toronto, Canada, which understands the weather, in a restricted sense, as the average weather and more rigorously, as a "statistical description of the weather in terms of the mean and variability of relevant quantities over periods that may range from months to thousands or millions of years. The usual averaging period is 30 years "(IPCC, 2007, p. 78).

Based on the narrow definition of climate, the IPCC understands climate change as a change of state of identifiable climate (for example, using statistical tests) by changes in the mean and / or the variability of its properties, which persists for long periods of time, typically decades or longer. Climate change may be due to natural internal processes or *external forces*, or to persistent

anthropogenic changes in the composition of the *atmosphere* or *land use*. (IPCC, 2007, p. 77).

Based on the definition of climate that the IPCC uses and taking it as a starting point for the research agenda in its task of checking the existence of climate change (a task that has been indicted by the IPCC since its inception to date) then it can be understood that what happened was that the scientific community had, necessarily, to do a search of historical data for both temperature and precipitation to prove or disprove the hypothesis.

In fact the proving of this problem, with 90% confidence (Conde, 2010, p.17), was announced to the world in 2007 with the publication of the Fourth Assessment Report of the IPCC and that certainty has been extended with the appearance of the Fifth Assessment Report of the same organism.

Today, the existence of climate change has not been refuted, and it can even be said that every year confirms its existence as the World Meteorological Organization report published annually by the State of World Climate. The report corresponding to the year 2014 has emphasized that all the years since 2000 are in the range of the hottest 20 years, "14 of the 15 warmest years since records have been taken during the XXI century [...] are maintained, demonstrating, that "global warming is caused by human activity." (WMO, 2015, p. 2)

However, the global concern of climate change not only lies in the fact that the likely adverse impacts that climate change would generate in the world and which has opened a spiral of uncertainty for taking political decisions in the matter. Another element of concern to the academic community dedicated to the analysis of climate change has to do with the timing of the effects caused in the climate system caused by increased concentrations of greenhouse gases.

The premise of these long-term scenarios are simple: if the world's societies implement mitigation and emissions are stabilized by the end of this century, the stabilizing of the global

temperature would still take several centuries to regulate and regulation of sea level would take at least a millennium.

As already stated, the existence of climate change has a high level of scientific consensus. It is that understanding that the correlation of emissions-climate change has sought to be reversed or at least disengaged. What has been proposed is that countries stop looking for increased levels of welfare and economic development, but rather that economic activities disengage from the emission of greenhouse type gasses, for which emissions reduction has acquired a central role in the issue of climate change.

With regard to the increase in temperature, it has been placed by the *international climate diplomacy* in the range of 2 ° C but this threshold must be based on a significant fact: from "1880 to 2012 the average global temperature has increased 0.85 ° C "(IPCC, 2014, p.2)

ACADEMIC CHALLENGES OF CLIMATE CHANGE IN THE WORLD

If climate change is directly related to the form and the ways in which societies around the world have obtained their standards of economic growth and social development, then it becomes clear that societies must change their paradigms. It is, in other words, to imagine a kind of world that is different and in which the existence of the human species is assured in the best possible terms, not only to the current dwellers on the planet, but also for future generations.

In this case, science must provide politicians and decision makers from around the world, as much as possible, the most detailed scientific information on future scenarios that are expected while testing options to the solutions of such problems.

In that sense the most current research agenda is being coordinated by the IPCC. This information was released in its Fifth Assessment Report and has the same structure of the four reports submitted previously: for example, group I is dedicated to increasing knowledge of the scientific basis of climate change, group II is focused on the analysis impacts, threats and adaptation strategies and also features an analysis by continental regions, small island states, the polar regions and open oceans. Finally the working group III is devoted to the analysis of mitigation strategies, but also includes analysis of political criteria decision making in a context of uncertainty and potential funding sources.

The topics reviewed by each of the working groups of the Report were:

Topics of Working Group 1

- Observations: atmosphere and surface, the oceans and cryosphere.
- Information for paleo climatic archives
- Carbon and other biochemical cycles
- Clouds and Aerosols
- Radiative anthropogenic and natural forcing
- Evaluation of climate models
- The detection and attribution of climate change: from the global to the regional
- Climate change in the short term: projections and predictability
- Long-term climate change: projections, commitments and irreversibility
- Sea level changes
- Climate phenomenon and their relevance for future climate change at regional levels

Topics of Working Group 2

Part A: global and sectoral aspects

- Bases for making decisions

Natural resources and systems as an object of management and uses

- Freshwater resources
- Terrestrial and inland water systems
- Coastal systems and low-lying areas
- Oceanic systems
- Systems of food production and food security

Human Settlements, Infrastructure & Industry

- Urban areas
- Rural areas
- Key economic sectors and services

Human health, welfare and safety

- Human health
- Human security
- Life & poverty averages

Adaptation

- Needs and options for adaptation
- Planning and execution of adaptation
- Opportunities of adaptation, restrictions and limits
- The economy of adaptation

Multi-Sectoral impacts, risks, vulnerabilities and opportunities

- Detection and recognizing of observed effects
- Emergent risks and key vulnerabilities

- Resilient climate pathways: adaptation, mitigation or sustainable development

Part B: Regional Aspects

- Regional context
- Africa
- Europe
- Asia
- Australasia
- North America
- Central and South America
- Polar Regions
- Small Islands
- Open oceans

Topics of Working Group 3

Highlighted issues

- Report on political answers implemented in climate change policies under risk management and uncertainty
- Concepts and social, economic or ethical methods
- Sustainable development and equity

Ways to mitigate climate change

- Drivers, trends and mitigation
- The evaluation of transformative pathways
- Energy systems
- Buildings
- Industry
- Agriculture, forestry and other land uses
- Human settlements, infrastructure and territorial planning

Assessment of policies, institutions and finance

- International cooperation: agreements and instruments
- Regional Development and Cooperation
- Policies and national and subnational institutions
- Investment and Finance (Crossover issues)

THE CHALLENGE OF GLOBAL CLIMATE FINANCING AS A RESEARCH TOPIC

At the moment there is no cost estimate consistent enough about how much climate change costs, for example Nicholas Stern said that this phenomenon is "tantamount to lose between 5% and 20% of annual global GDP each year." (Stern, 2007, XV) and on the other hand, the UN Framework Convention on Climate Change (UNFCCC) has indicated that only to mitigate "global additional investment and financial flows between 200 and 210 billion would be required in 2030 "(UNFCCC, 2007, 6) while regarding adaptation the Convention itself has not been able to give an estimate.

Still, climate finance has been occurring since the Framework Convention on Climate Change was established, through the Global Environment Facility and various financial instruments and funds to date. In that sense, this type of financing may be included in the green economy because of "low carbon emissions, efficient use of resources and is socially inclusive" (UNEP, 2011, p. 18)

Climate finance is one that seeks to "reduce emissions and enhance sinks of greenhouse gases , and their goal is to reduce vulnerability and maintain and increase the resilience of human and ecological systems to the negative impacts of climate change." (UNFCCC, 2014, p. 19) but is immersed in a global social and

economic context of free market which is why the environmental benefits of reduced emissions have been placed into debates that go beyond what environmental and benefits of its implementation, so in the context of global academic discussion there can be found discussions dealing about what and how to finance the transition to decarbonized economies (Clapp, Ellis, Benn and Corfee-Morlot, 2012). The role of rapid financing mechanisms have also been reviewed (Nakooda S., et al., 2013), and what kind of institutions should be involved in climate change financing to maintain the principle of a mixed economy and the prevailing global free market from the 80s of the twentieth century has also discussed. (Smallridge D., et al., 2012)

Given this complexity of analysis, and considering that there are over 20 financial funds to which countries can go to and say that, as a research topic, the overall financing strategy is "messy and complicated, with multiple funds, each of which has its own objectives, internal logic and ways of functioning "(ECLAC, 2015, p. 8) which shows that academics can help shape how it should be and make climate finance at global, regional and national scales.

THE CHALLENGES OF CLIMATE CHANGE FOR THE MEXICAN SCIENTIFIC COMMUNITY

Climate change provides an opportunity to do things other than how they have been done so far. So the first thing to be known is what kind of themes will echo in the Mexican scientific community. Secondly, what kind of scientists should be incorporated in this task and finally, what is the importance of such research for the future of Mexico.

In the first instance it is necessary for the scientific community to incorporate the research agenda of the IPCC and suits the needs of Mexico. That is, if the world is looking not only

to improve climate information, the scenarios should be that it permeates every aspect of national scientific research. Not only is necessary to tropicalize the topics of the IPCC, but rather see the reality and climate scenarios for Mexico in a regionalized way. (Conde et al, 2010) Nor is it that the Mexican scientific communities only make a large inventory of research that has already been done in Mexico. It has to do with making climate science form part of the world vanguard on the subject.

In Mexico, the issue of climate change should serve to also answer broader questions and they would have to do with security and integrity of individuals in the context of climate change, when, how and at what cost would the endogenous boost in technological innovation be which allows the country to promote a renewal of its industrial park, using alternative energies developed by Mexican researchers.

We must necessarily enter the global academic debate on low carbon emissions, green economy and green growth to understand what paths they must follow in the coming years on climate change. The economic dimension should venture into the analysis of international cooperation and existing mechanisms for funding to date and the role they will play the Green Climate Fund in the financial architecture for climate change, which will begin operating starting in 2020.

In the context of climate change, the development of the Fifth Assessment Report of the IPCC, Mexico was placed in the region of North America with the United States and Canada. There is the fact that the North American Free Trade Agreement is still in effect, but in the context of international climate talks Mexico does not negotiate with its trading partners of the regional bloc placed by the IPCC. Since both Canadians and Americans are part of Annex I of the Kyoto Protocol (although the United States has not ratified it and Canada has ceased to belong to the instrument) in the climate negotiations, Mexico is part of Environmental Integrity Group (made up by the Repu-

blic of Korea, Monaco, Liechtenstein, Switzerland and Mexico) and therefore no longer negotiates alongside the Latin American regional bloc. Mexico in an international context is not part of the working groups of the American continent. This fact by itself is one of the issues that are part of the research agenda of our country in the context of climate change.

In the Fifth Assessment Report of the IPCC, there are specific accusations against the Mexican case and that in itself involves areas of research to the scientific community. These themes are:

- The weather in North America has changed and some changes are socially relevant that have been attributed to anthropogenic causes (very high confidence). The recent climate changes and extreme single events show both impacts from the tensions and exposed climate-related system vulnerabilities (Very high confidence).
- Many pressures on climate carry risks, particularly those related to intense heat, heavy rainfall, and reduction in snow cover increase its frequency and/or severity in North America in the coming decades (Very high confidence).
- Hydric resources are already stressed in many parts of North America, as a result of causes unrelated to climate change, and is expected that they get even further stressed due to climate change (high confidence).
- Effects have been observed in the modification of the temperature or climactic variability in the yields of the principal crops (high confidence). Projected increases in temperature, reductions in rainfall in some regions, and increased frequency of extreme events can be translated into the reduction in net productivity in the main crops in North America at the end of the XXI century without adaptation, although the rate of reduction varies according to the scenario and model, and in some regions, especially in the north can be benefits (Very high confidence).

- They have been observed effects on human health because of extreme climate phenomena, although the relative trends on climate change and the attribution have not been confirmed to date.
- Observed impacts in livelihoods, economic activities, infrastructure and access to services in urban and rural settlements of North America have been attributed to a rise in sea level, changes in temperature and rainfall, and the occurrences of extreme events like heatwaves, drought, and storms (High confidence).
- Much of the infrastructure in North America is currently vulnerable to extreme climate events and, if investments are not made to strengthen them, they will be even more vulnerable to climate change (Medium confidence).
- Most of the sectors of the economy in North America have been affected by and have responded to extreme meteorological conditions including hurricanes, floods and heavy rains (High confidence). (IPCC, 2014, pp. 1443-1445).

To do this type of investigation it is required to maintain the base of scientists that are already making climate change research, but it is essential that the volume of scientists dedicated to this task increases. This group of specialized researchers in atmospheric sciences can put as a goal working to give a strong impetus to the investigation of the atmosphere and its interactions and even create its own model of future climate.

It is also required to encourage the participation of social scientists to help them analyze the current social conditions of Mexicans and understand how social actors, both individually and collectively, interact before the manifestations of natural climate variability and climate change because this cannot be done through climate models.

In the context of climate change, and because of the likely adverse impacts, it is necessary that the scientific communities

of Mexico learn to work in a multidisciplinary way, but leave behind the participation schemes in which the work is divided and only meet at the end to integrate a final version of a research report. In that sense, it is necessary to create mechanisms of communication and interaction among researchers that have it as a language and process of encoding the issue of climate change.

Climate change must begin to look like a science amalgam, in which various scientific disciplines can raise the possible scenarios in which they will have to generate their processes of social development and economic growth.

Due to its geographical location and its biodiversity, Mexico has been listed as vulnerable to the impacts of climate change (Gay *et al*., 1995; Gay *et al* 1996;. Gay, 2000) therefore climate science and scientists dedicated to this issue must begin to play a more important role in creating the policy options to help the country to be sustainable, despite the adverse climate scenarios. In that sense, the study of climate change should be seen as a strategic element for the future development of Mexico.

The impacts associated with climate change, are expected in the agricultural, water, and coastal sectors, more storms and a severe climate, ecosystems and biodiversity, as well as damages to strategic infrastructure which is necessary to reduce the vulnerability of the population and productive sectors and increase their resilience and strength of the strategic infrastructure ", as well as conserve, restore and manage sustainably ecosystems ensuring environmental services for adaptation and mitigation of climate change. In other words, the research agenda on the issue is guaranteed to exist for a long time.

In this same area of academics there have been made new assessments of impacts on biodiversity (Trejo *et al*, 2011;. Gómez Díaz, JD *et al*., 2011) thermal stress in human populations (Tejeda-Martínez A. *et al*.. , 2011) agricultural productivity (Monterroso Rivas AI *et al*., 2011) fisheries (Martinez Arroyo, A. *et al*., 2011) studies of comfort according to temperature-humidity

index (Hernández A. *et al*., 2011) and water resources (Sanchez-Torres Esqueda, G. *et al*., 2011).

Some areas of research interest can be taken from the *National Climate Change Strategy*. *Vision 10-20-40* as the document considers that climate change represents a great opportunity to conserve and sustainably use natural capital, leverage the huge potential for developing clean energy, correct inefficiencies in the use of energy, create jobs with a green economy, promote sustainable territorial development, increase competitiveness and improve public health and quality of life of the population (SEMARNAT, 2013, p. 9).

This same diagnosis calls for the analysis of climate change with the downscaling at the municipal level. The Government of Mexico, the Special Climate Change Program 2014-2018 identifies 1,385 municipalities vulnerable to various climatic events such as floods, landslides, agricultural drought, decreased precipitation and temperature performance, heat waves and disease transmission (Government of the Republic, 2014) in this case, not only does it deal with climate issues, but how to combat poverty, because from the point of view of governmental logic poverty is the main factor of social vulnerability associated with the impacts of future climate change.

CONCLUSIONS

For many, climate change is a hot topic, from the field of research it is a fascinating subject because it allows the possibility of entering areas that are at the frontier of knowledge. However, climate change, as a scientifically proven fact, is much more than just that, since it has to do with the future of humanity and under what conditions the social and political communities around the world will have to live.

In the case of Mexico, it is necessary to promote research on climate change (monodisciplinary as well as multi and interdisciplinary ways) in order for the results of these investigations to generate alternative actions to implement in the short and medium term both in the field of mitigation and adaptation to the social problem.

Climate science in Mexico must be seen as an investment for the future of the country. This requires funds to diversify funding and the breaking of paradigms that have separated scientific communities. That is, we should think about the social adaptation of our country to the challenge of climate change, and can begin by doing such simple innovations such as those previously mentioned. The future of Mexico requires the formation of climate experts, but also a focused investment in research so that in the shortest possible time there can be generated plausible options to be implemented nationwide. Investing in climate science is an investment in the future of Mexico.

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INFANT MORTALITY AND POVERTY IN THE MUNICIPALITIES OF CHIAPAS

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ABSTRACT

One of the hardest aspects of poverty and inequality is undoubtedly the death of a child. However, relationships and the mechanisms by which the observed levels of poverty shape and determine the deaths of children have not been yet been properly identified and quantified. In this sense, this investigation aims to analyze the association between estimated infant mortality and food poverty as reported by CONEVAL for the municipalities of Chiapas in the three periods where information on municipal poverty is available, namely the years 1990, 2000 and 2010.

Keywords: *poverty, child mortality, Chiapas*

There are significant differences in reported figures on infant mortality in the state of Chiapas. These figures vary according to sources and the time they were consulted, mainly due to the inconsistency between the recorded data on the deaths of children in the state. This situation is even more critical when it comes to analyzing the behavior of infant deaths at the municipal level. Thus, this investigation aims to generate reliable estimates of infant mortality at the municipal level through the application of the Trussell method [U.N. 1990] that has emerged as a variant of the method developed by W. Brass, using information on children born alive and surviving children according to the age of the mother.

The reason it was decided to use the variant developed by Trussell has to do with the fact that it allows for the adjustment of the calendar of the incidence of infant mortality, so the repeated application of the method allows for repeated consecutive census estimates or replicas for a same moment in time, or very close in time. The availability of replicas makes it possible to apply adjustment techniques which are able to interpolate the trend of observed infant mortality and additionally provide a degree of certainty about the estimates.

Moreover, the infant mortality rate, defined as the number of deaths of children under one year of age per thousand live births, is an indicator that there has been included features that go beyond the purpose for which it was created- quantifying the levels of infant mortality. Among the properties that are assigned are: to be an indicator that reflects the levels of economic and social development of a country or region, as an indicator that measures the efficiency of the functioning of health systems and as an indicator of levels of poverty. That is, there is a significant association between increased levels of poverty and its effects on the observed levels of infant mortality.

Although it is possible to cite a large number of investigations that speak of the existence of a direct relationship between the observed levels of child mortality and poverty, and it is generally

stated that poverty is the main cause of observed child deaths, there are actually very few studies that quantify the effect and intensity of the relationship or offer a theoretical and methodological justification to explain its dimensions and determinants [Boltvinik, 1990].

Thus, this investigation has among its objectives to provide such an explanation, with the intent to quantify the effect that poverty has on observed child mortality levels in the municipalities of Chiapas in three moments of time for which data are available on levels of poverty at the municipal level- 1990, 2000 and 2010.

BACKGROUND

In the literature there exist many studies that talk about the relationship between poverty and child mortality. Some argue that the various dimensions of poverty form a wide range of proximal and contextual infant mortality determinants. However, there are few investigations that give theoretical support or quantify the magnitude and direction of the relationship, especially when it comes to explaining the implications in fine levels of geographical breakdown or in the case of a longitudinal cohort analysis.

Many other studies aim to analyze the levels of association between poverty and child mortality assuming that this is a causal relationship, and that this is direct and known and therefore requires no further inquiry or evidence.Another important part of the literature on the subject focuses on studying the general and specific features of poverty and child mortality separately, without delving much into their relationships. On the same line of research, we can find some studies that aim to analyze the nature of the relationship between poverty and infant mortality with empirical or qualitative elements, which results can hardly be extrapolated.

In other words, the relationship between poverty and infant mortality have not been fully studied, at least, from the perspective of economy or the social sciences despite the existence of a large body of empirical evidence showing from distinct points the presence of important causal relationships between the two phenomenon. It is in this sense, that by reviewing work related to both issues both separately and together, we aim to build a theoretical basis on which it is possible to establish the basic theoretical and methodological basis for the definition of a conceptual model which is capable of modeling and quantifying the influence of poverty on child mortality in order to achieve better explanations of the facts observed in the municipalities of Chiapas for at least the past 15 years.

Most of the research focused on the study of infant mortality in Latin America and in Mexico [Arriagada, 2006], [Aguirre, 1992] and [Yasmin, 2002] have focused on analyzing and quantifying the effect of proximate determinants - at the individual level- because the infant mortality rate (IMR) is considered, as noted, one of the main indicators of the level of economic and social development of a country. Therefore the decline of the IMR is related directly with: increasing levels of education most notably of mothers, and levels of development and levels of access to goods and services especially health services which is indirectly a measure of welfare. It is easy to imagine that the IMR is an indicator sensitive to changes in structural factors such as poverty and marginalization.

Research on mortality in Latin America has revolved around describing the levels and timing of the different stages of demographic transition. They point out that [Aguirre, 1999], [Chackiel, 1984] and [Maceira, 1996] infant mortality continues to decline, albeit at a slower pace than is desirable, despite the sharp reduction in overall mortality rates the last half century. Infant mortality has important differences in the region, dominated by deaths caused by feasibly avoidable causes, mainly due to the uneven application of measures of public policy on health and

education and the existence of important social, religious and cultural differences.

In the specific case of Mexico, there were several different investigations which intended to estimate the influence of proximate determinants of child mortality [Escobedo et al, 1981], [Martinez, 1990], [Gallardo, 1995], [Gomez et al, 2001], [Hernández, 2001], [Lopez et al, 1991], [Jimenez, 1995], [Camposortega, 1992] and [Mina, 1992]. These studies have addressed the issue of causality, limited to making useful qualitative descriptions to establish the presence of social and economic inequality before death [Hernandez et al, 1991], [Campos, 1992] and [Jiménez, 1988]. However, analysis of contextual determinants and the specific role of poverty in the configuration of causes of death of children have lagged in recent years.

In relation to the conceptual framework surrounding the definition of poverty, it should be noted that we will use the conceptualization that exists for Mexico since the theoretical construction leads to how to operationalize the concept, and this paper focuses on an analysis for the state of Chiapas whose regulatory framework depends on the directives issued for Mexico. The review of a broader conceptual framework on poverty remains an interesting exercise, but it is beyond the scope for practical purposes of this investigation.

The National Council for Evaluation of Social Policy (*Consejo Nacional de Evaluación de la Política Social*- CONEVAL) defines the individual condition of poverty as multidimensional for those who "... have not guaranteed the exercise of at least one of their rights for social development, and their income is insufficient to purchase goods and services required to meet their needs."

This definition seeks to meet the requirements imposed by Article 36 of the General Law of Social Development regarding the measurement of poverty. For purposes of identification and measurement of populations in poverty, CONEVAL analyzes two dimensions: (1) the economic welfare, measured in terms of current

income per capita and (2) social rights, measured in terms of access to education, health, social security, food and housing and services. Leaving the analysis of its geographical scope pending, the territory is a function of (3), social cohesion (defined as the analysis of the mechanisms of instituted social inclusion and exclusion), and the responses, perceptions and positions of citizenship before the way these mechanisms operate (ECLAC 2007, quoted in CONEVAL, 2009: 30).

One of the most obvious and simple ways to quantify poverty is precisely through the level of income. However, in Mexico at least two dimensions are measured. Although both dimensions of analysis could be strongly correlated, in this paper we use food poverty defined as food poverty [CONEVAL, 2010], as we believe that it is precisely this measurement that exercises the greatest impact on child survival.

For specific case studies examining the relationship between poverty and child mortality, it should be noted that such a case was presented by Almeida-Filho (1999), who makes a review of work focused on the study of inequalities in access and quality of health services both in general as well as for mother-child according to the conditions of life in Latin America. The work refers to the presence of important limitations observed in the studies that were reviewed, among which highlights problems of design, analysis, quality and availability of information. Deficiencies that compromise the explanatory power of the reviewed studies were made.

Within the Latin American studies that analyzed the relationship between poverty and child mortality we can find the review by Madariaga [Madariaga et al, 2004], in which a theoretical framework of interaction between infant mortality and poverty was proposed for the Great North of Argentina. It describes an analysis model which is validated with data from the provinces of that region. The study seeks to understand poverty from a structural

approach and generate a measure of infant mortality classified by type of diseases associated with poverty.

In other work like that of Alvarez, the post-neonatal mortality rate is related to the percentage of population with unsatisfied basic needs from the application of the Pearson correlation coefficient, which established the degree of statistical association between child mortality and poverty. Moreover Trifiró (2001) analyzed the relationship between structural poverty and the environment in correspondence to the physical habitat conditions and their effects on health and child mortality levels. He analyzed the levels of infant mortality with additional levels and associated the levels of access to health services, housing characteristics, overcrowding, and socioeconomic status of the household head, fertility, literacy, health coverage and unmet basic needs. He found evidence of associations between some variables, however, he could not establish causal relationships due to lack of data.

In his work, Behm Rosas (1962) analyzed the relationship between the living standards of a population and the quality of care they receive, as well as their effect in shaping processes of illness and death in children under one year. He found high levels of correlation between the observed infant mortality rates of the working class and its poor living conditions with regard to non-working class.The results were similar to those found by Spinelli (2000) who shows the existence of a relationship between levels of infant mortality and living conditions. Both articles lay down the conditions in terms of a set of socioeconomic factors that are strongly associated with each other, and that in turn impose restrictions on access and quality of health services. Living conditions are, from a conceptual point of view, an important relationship with the configuration of structural poverty levels that make up the intermediate mechanisms through which determinants of infant mortality are structured.

The most important contribution found in the cited works is to promote living conditions as a determinant that is able to

explain the observed levels of child survival that Latin American societies goes beyond the economic to include factors such as access and conditions of quality medical services, which are essential in explaining the observed levels of infant mortality in the region.

Despite the decline observed in infant mortality levels in Mexico, there are still significant differences in terms of the reductions achieved between municipalities and states which may also be increasing as a result of the concentration of premature deaths, especially in areas with high levels of poverty and among groups living in areas of high or very high marginalization.

In particular, the combined effects of poverty, low education levels and high margination can lead to the generation of inequalities in access to health services, which obviously increases the risk of infant mortality especially among the identified groups and in dispersed geographic areas.

DATA

The data used comes from two main sources: the population censuses of 1990, 2000 and 2010, and the 2005 population count for the case of data on live birth children and surviving children by age of mothers. This is crucial to indirectly estimate the rates of infant mortality at both state and municipal information.

In relation to data on poverty, official estimates reported by CONEVAL were used. Although they have long series of data on poverty at the state level, the availability of information at the municipal level for Chiapas is reduced to only three years:1990, 2000 and 2010. This is why it was necessary to limit the study to these points in order to obtain the desired geographical dispersion.

Historical information on the levels of infant mortality was estimated from census data and the previously mentioned count,

and those that were sought corresponded to the same years in which there was information on municipal poverty levels for Chiapas.

Moreover, even though the information concerning vital statistics, including information concerning the deaths of children under one year, can be found annually for the period 1979-2012 and this page is available System National Health Information (SINAIS), it was decided to not use it due to high levels of under-reporting by other researchers [Aguirre, 1999]. It was therefore decided to calculate the rates of infant mortality at the municipal level, using indirect estimation methods.

The indirect method used to estimate the levels of infant mortality starting from the number of children born alive and children who have died by age of mothers, is a variant of the method developed by W. Brass [1990]. The variant was developed by Trussell [U.N., 1990] and allows for the adjustment to the calendar for incidence of infant mortality, so that the successive application of the method to consecutive censuses can produce estimates for moments in the near future. This feature allows for an adjustment to a curve to soften the tendency of child mortality levels for each of the municipalities of Chiapas for the period 1970-2010.

ANALYSIS OF INFANT MORTALITY IN CHIAPAS AND MUNICIPALITIES

As noted, the IMR is an indicator whose level has been commonly associated with structural causes of poverty, which is currently measured in Mexico from a multidimensional perspective. That is, the concept of poverty tries to capture many facets of reality, making it a very attractive exercise to analyze whether there is a relationship between it and infant mortality especially at the municipal level, where disparities are undoubtedly much more evident and hence quantifiable.

In Graph 1 estimates are presented from 1980 to 2010 of the estimated and adjusted infant mortality, both for Mexico and for Chiapas. The estimates were made using the Trussell method on the information on live births and surviving children by age of mothers and the aforementioned census population counts for both Mexico and for Chiapas and its municipalities.

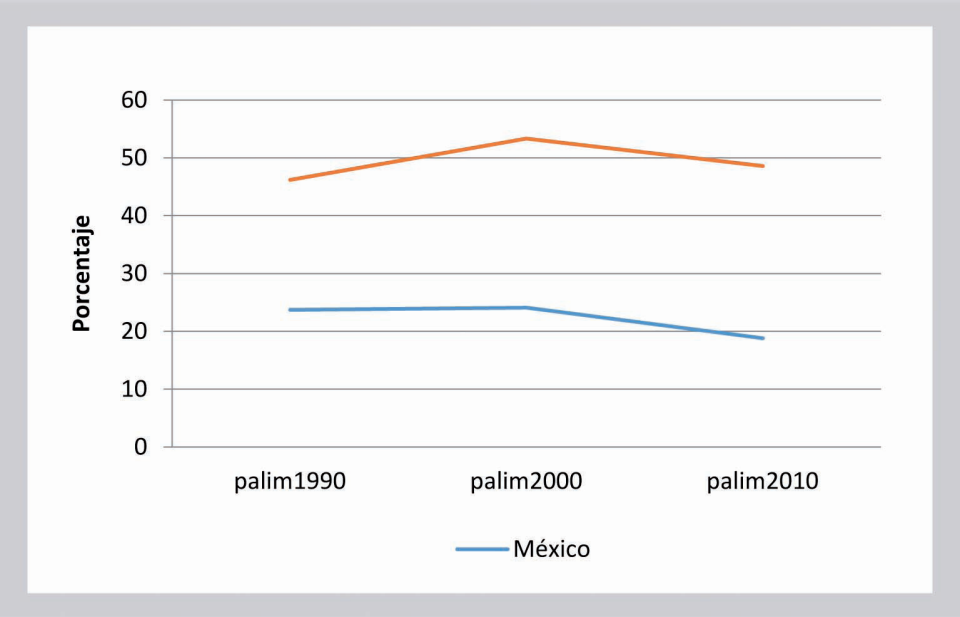
Graph 1. Observed and adjusted levels of infant mortality, 1980-2010 / national

The results shown in Figure 1 are the result of the adjustment of different estimates made from data collected by various censuses and population counts, which under the methodology has been translated into relatively close moments of time so you can check the presence of a downward trend for child mortality both nationally and for the state of Chiapas. This trend is consistent despite coming from sources of information collected in different years.

We can see in Graph 1 the convergence of the trend in infant mortality between the adjusted National levels and of Chiapas, where we see that the gap closes at levels close to 20 infant deaths per thousand live births by 2010.

Meanwhile, food poverty levels reported for Chiapas happen to be well above the national average for the three measures presented by CONEVAL. It can be clearly seen that levels of food poverty in Chiapas are over twice the national average and it seems even more serious that the gap does not seem to be closing, as was the case of infant deaths. See Graph 2.

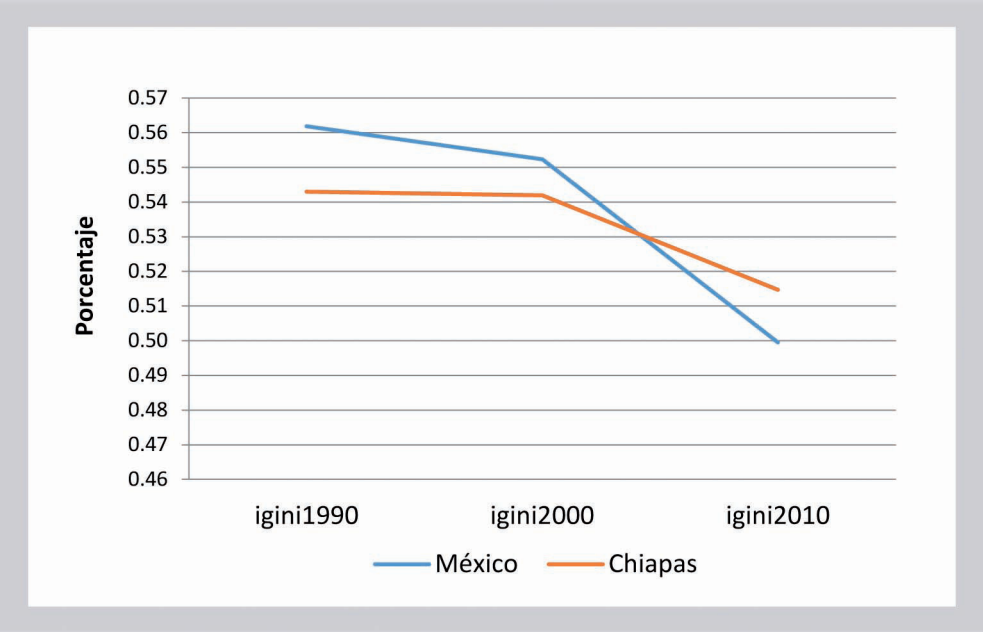
Graph 2. Population in food poverty, Mexico and Chiapas: 1990, 2000 & 2010



Source: own elaboration from CONEVAL data

The trends observed between infant mortality and poverty seem to contradict the initial hypothesis, which states that there are significant levels of association between the two since while child mortality levels are reduced , poverty levels appear to remain constant at least at the state level. This means that child mortality levels are declining, although poverty remains at the same level. One reason may be due to the reduction, albeit marginal at the state level and in Chiapas, of the levels of economic inequality measured by the Gini index. See Graph 3.

Graph 3. Inequality index by GINI, Mexico & Chiapas 1990, 2000 & 2010



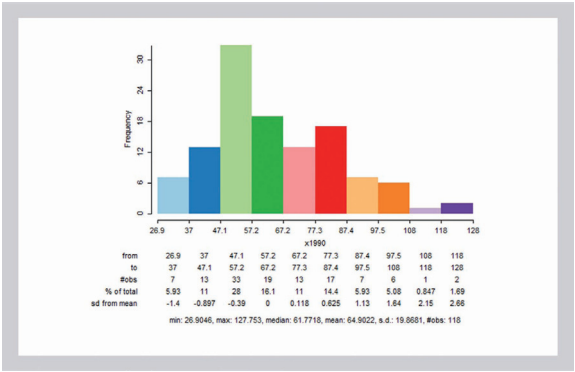
Source: own elaboration from CONEVAL data

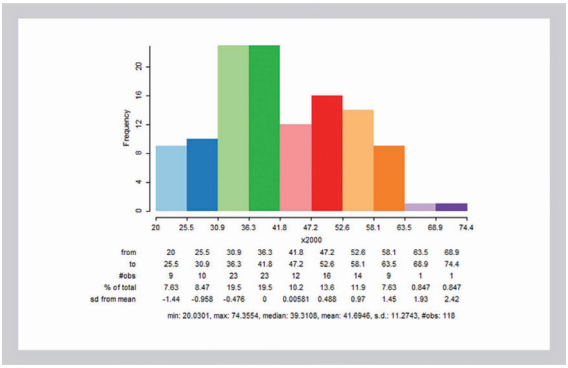
That is, the reduction in the levels of economic inequality means that there is greater equity in the distribution of household income, which would mediate the relationship between poverty and reducing child mortality rates. However, this hypothesis is discarded later, because as is well known, child mortality is modeled by a broad & complex union of proximal, intermediate and contextual determinants which have been analyzed in an infinite number of works.

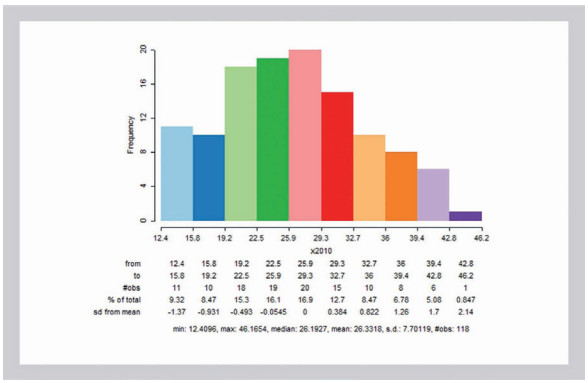
One of the first comprehensive schemes to explain the levels of infant mortality in a society is the one developed by Mosley and Chen (1984). The model is conceived as a process that incorporates structural determinants on the micro and macro (individual, household and community) levels. Within these the educational levels of the mother, traditions, norms and attitudes, power

relations, income, food, economic policy and health systems among others are analyzed.

Figure 4. Infant Mortality Rates municipalities of Chiapas 1990, 2000 and 2010.





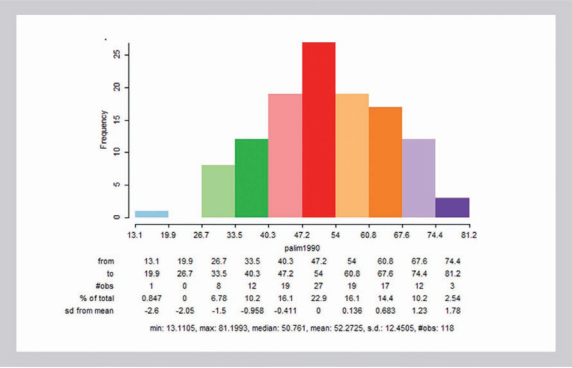


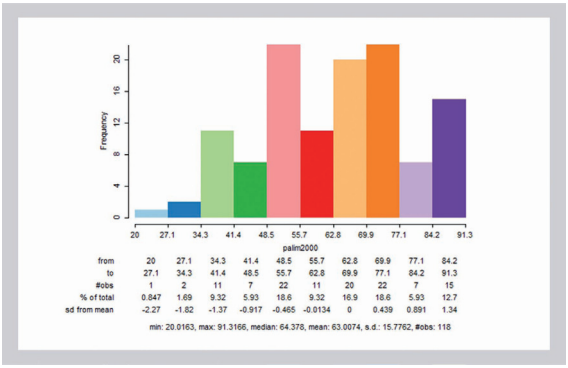
At this point, it is important to note that poverty is a contextual determinant formed by a broad number of factors. The same can be found in the definition given by CONEVAL [2009], so it is expected that poverty is a good indicator of the evolution of infant mortality as stated in the initial hypothesis.

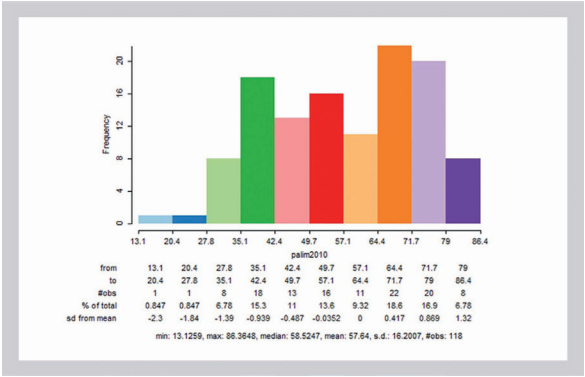
The evolution of infant mortality at the municipal level can be seen in Graph 4 and Map 1, where there is clear evidence of the reduction in the number of deaths of children, but also the reduction of the variance of these deaths which clearly indicates that the reduction is real and continuing for a period of at least 30 years.

Food poverty in the municipalities of Chiapas for the indicated years has remained at the same level, or at about 50 percent of the statewide population (see Figure 2) and is stable at levels above 50 percent of the population in just over half the municipalities in the state. In at least 8 municipalities (see Graph 5), food poverty reaches levels above 80 percent of the resident population of the municipality. This figure makes Chiapas one of the states with the highest levels of poverty in Mexico, and is the main reason it was chosen for the study.

Figure 5. Municipal Food Poverty, Chiapas 1990, 2000 and 2010







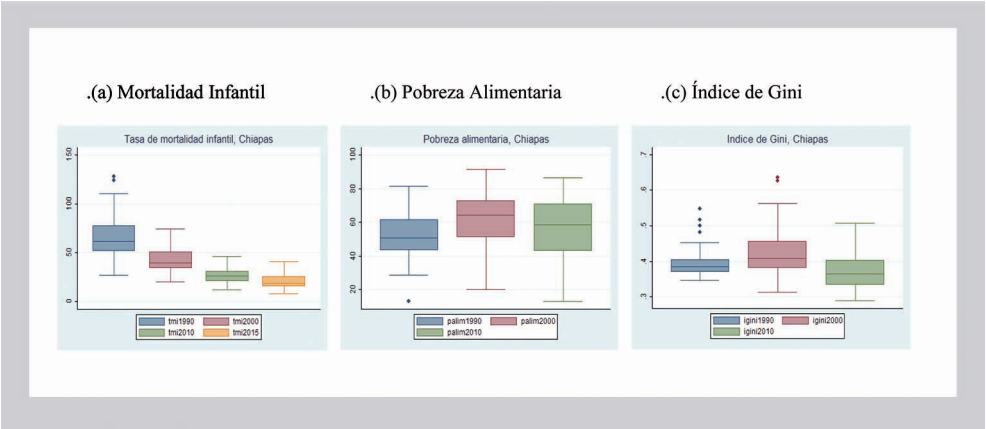
In the graph 6 (a), it can be seen that not only has the average level of infant deaths gradually reduced between the municipalities of Chiapas since the year 1990 until 2010, but a real reduction of the variance observed in interquartile terms, i.e., at the top of the box, which is getting smaller, resulting in fewer deaths for a greater number of municipalities.

In the graphs 5 and 6 (b) the average levels and dispersion of reported poverty in the municipalities of Chiapas in 1990, 2000 and 2010 is municipal poverty levels appear to have not only declined, but the poverty has increased in some municipalities and has spread to more of them. It is easy to see (see Graph 5) that the variance of the phenomenon has grown significantly during this period.

Income inequality as measured by the Gini index, whose behavior can be seen in Graph 6 (c), and seems to follow the same

behavior as poverty, that is, greater inequality in a growing number of municipalities, which can also be reflected in the map.

Figure 6. Evolution of the mortality indicators, poverty and inequality in the municipalities of Chiapas, 1990, 2000 and 2010



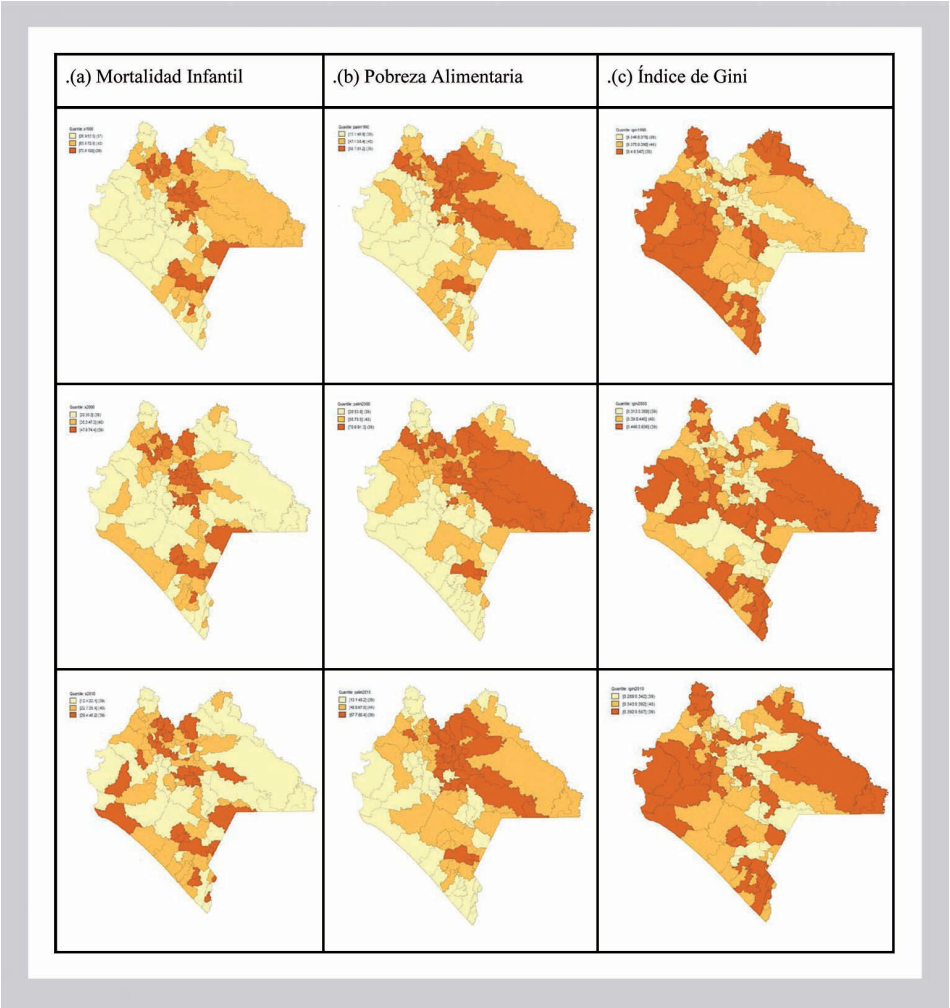
SPATIAL DISTRIBUTION OF FOOD POVERTY AND INFANT MORTALITY IN THE MUNICIPALITIES OF CHIAPAS

The evolution of food poverty in the municipalities of Chiapas shows that both economic growth and the efforts of social policies have had greater impact on poverty reduction between 1990 and 2010, during which poverty level was practically at the same continuous levels.

Poverty indicators disaggregated at the municipal level show some of the most important differences in the spatial distribution of food poverty in Chiapas; in addition to allowing for geo-reference patterns of municipal infant mortality and income inequality (see Map 1).

The maps allow for the targeting of geographic areas with higher levels of poverty, child mortality and economic inequality over time, and identify differences and similarities in the patterns of the same indicators, although it is possible to identify the distinctive features of poverty among different geographic areas particularly between urban and rural environments. It is understood that the location itself can create conditions of spatial marginalization of the poorest people in scattered areas of the territory or in outlying areas of cities.

Map 1. Child mortality, inequality and poverty, 1990, 2000 and 2010



To better understand the effects that poverty exerts on infant mortality it is necessary to continue advancing in the geographical breakdown of the phenomena, and thus refine the geographic dimensions of poverty and mortality levels that allow for a better focus on the association between phenomena.

Maps of infant mortality, inequality and poverty are key instruments to analyzing the geographical dimension in terms of its spatial heterogeneity, not only in terms of space, but in a growing body of determinants and sociodemographic variables associated with it that identify areas of high concentrations of poverty, infant mortality or inequality.

INFANT MORTALITY AND FOOD POVERTY IN THE MUNICIPALITIES OF CHIAPAS

To analyze the extent of the relationship between infant mortality and food poverty two statistical models as well as plot graphs were used. The basic way to estimate the level of relationship between two variables is through correlation analysis and the type of graph to represent it through a scatter diagram.

Table 1. Coefficient of Pearson

Year	1990	2000	2010
Correlation coefficient	0.39	0.22	0.07

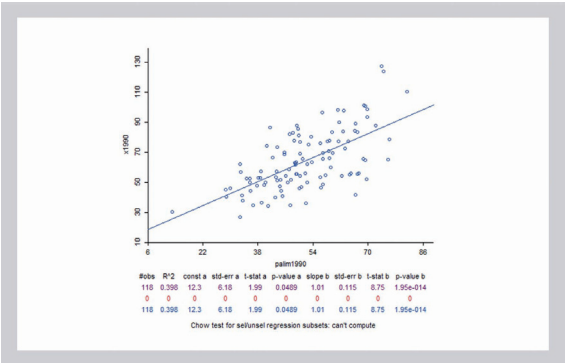
It is important to note that the results observed in Table 1 indicate that there is a positive, moderate but statistically significant relationship between levels of child mortality and poverty levels

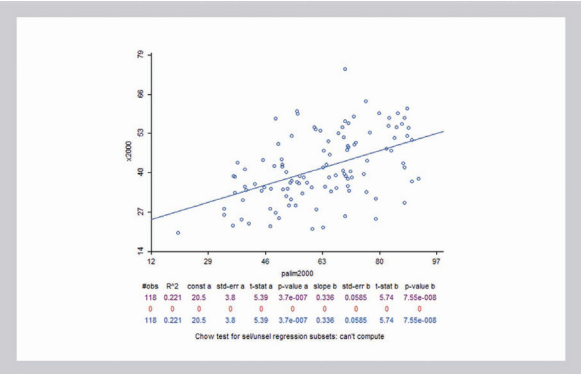
observed in Chiapas municipalities for all of the years that were studied, but also, it is clear the degree of association between the two phenomena has weakened very significantly during the period that was analyzed, which means that food poverty would be in the coming years, ceasing to be a suitable indicator to model the evolution of infant mortality due to among other things that the incidence of deaths of children are events whose explanation is getting more complicated. In other words, it will become necessary to use a greater number of variables to understand and model its behavior, namely socio-economic status, structural variables, access to health and the environment, among many others.

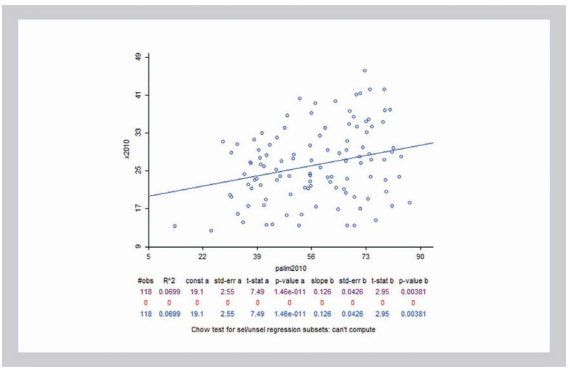
Since it was possible to establish the existence of a significant positive relationship between the variables, you can then proceed to set a linear regression model to estimate the expected value of infant mortality based on observed values of food poverty in different municipalities.

The regression model allows for the determination of the existence of a functional linear relationship between municipal food poverty, as the independent variable and the infant mortality rate as the dependent variable, where the regression coefficient beta indicates not only the degree of association, but what the impact of a one percentage point increase in poverty on child deaths can be expected.

Graph 7: Regression model, food poverty vs infant mortality 1990, 2000 and 2010







In Graph 7 (a, b & c) it shows that the predictive power of the regression model is reduced over time. This also impacts in terms of the variability that the model is able to explain, which was 39.8 percent in the year 1990 and just 6.9 percent in 2010. That is a reduction of just over 30 percentile points. The loss of explanatory power of the regression model can be seen graphically as the gradual decrease in the slope of the regression line between years cited.

It is important to note that a multiple linear regression model was attempted using the Gini index, however the variable measuring income inequality in the home turned out to be statistically insignificant so it was removed from the model.

RESULTS AND CONCLUSIONS

The processes of morbidity and mortality are determined by a set of both biological-individual (proximate determinants) and socio-structural (contextual determinants) situations. These principles apply to both overall mortality and mortality for children, and give rise to the theoretical and methodological conceptualization of the study of the determinants of mortality, which allow for the construction of a comprehensive explanatory framework of infant mortality.

Given the importance that poverty had taken as an element that is often used to explain the observed levels of infant mortality, as if it were a proximate determinant of infant mortality. In this investigation it was considered necessary to evaluate the effect of poverty at the municipal level, which is the level of smaller geographical breakdown for which it is possible to obtain information on the incidence of both poverty and child mortality and thus check the validity of the above hypothesis.

The results are conclusive. Food poverty is a good indicator to model the levels of infant mortality in the municipalities of Chiapas, Mexico, but should be used with caution due to the loss of explanatory power of the indicator. It is very interesting to see how today the phenomenon of child mortality is much more difficult to model, despite having a smaller variance than before, since municipalities with high incidence are concentrated more and more in fewer regions, but these locations concentrate an increasingly complex mix of factors that mediate the occurrence of deaths of children.

Since the definition of poverty as food poverty at the municipal level was available, which is strongly associated with income, it may be reduced to a proximate determinant so that it would be a much more interesting exercise using the new multidimensional definition of poverty, which includes a great number of proximate

and contextual determinants which could be a better predictor of the behavior of infant mortality.

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THE EFFECT OF METHODS OF CONTRACEPTION DURING THE TRANSITION TO ADULTHOOD AMONG YOUNG PEOPLE IN CHIAPAS

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ABSTRACT

The main objective of this study is to advance the understanding of transitions to adulthood among young people in Chiapas and its relation to the use of contraceptives during their first sexual experience. Distinguishing by gender, ethnicity and residency status, the analysis is based on young people born between 1981 and 1998 and is limited to observing the first union as a couple and first child until 29 years of age, with ENJ2010 as the source of information. An event history analysis was applied, a life table model was calculated and a Cox proportional hazards model was developed. The results show that young people from the younger cohorts are delaying the start of married life and the birth of the first child (a) compared to older youth. Also, as expected, it is confirmed that the reduced use of contraception during first intercourse is associated with an increased risk to join as a couple and have their first child

Keywords: *contraception, transition to adulthood, indigenous, youth.*

Both marriage as well as the birth of the first child are key events in the transition to adulthood for young people. While almost all young people experience these events, when they occur, their conditions and consequences vary significantly. Chiapas continues to prevail in early marriage[1] and high fertility among young people (12-29 years), although in the interior of the entity there exists a heterogeneity as a differential result in reproductive behavior between contexts and social groups (Evangelina and Kauffer, 2007 and 2009; Reartes, 2011).

So far there has been limited knowledge about the relationship between contraceptive use during the first sexual intercourse and the delay or advancement of marriage or as a couple and parenthood, mainly due to the shortage of sources of information on youth.

The objective of this investigation is to advance the understanding of transitions to adulthood among young people in Chiapas and its relation to the use of contraceptive methods. To achieve the above we consider three specific objectives, a) examine trends in fertility between 2000 and 2010 and contraception among young people; b) calculating the calendars of sexual initiation, marriage and first child for young people according to their gender, age, ethnicity and context of residence; c) estimate the effect of the use of contraceptive methods in the first relationship in the probability of the occurrence of a first marriage or first child.

It is suggested that an assumption to the transition to adulthood, including the first marriage and parenthood, depends on the context and social group that young people belong to and the use of contraception during the first sexual experience.

The investigation is structured into three sections: The first examines trends in fertility and contraception among young people; in the second, the results of the life table show how they vary by cohort, gender, ethnicity context and the events of interest are

1. Throughout the text the terms marriage and couple will be used indistinctively.

discussed; in the third, the effect of contraceptive use at first intercourse in the risk of occurrence of the first couple or birth of first child for different social groups is analyzed.

METHOD

The primary data source is the National Youth Survey of 2010, which includes questions on age at first marriage and first child. The analysis is based on young people born between 1981 and 1998, which also examines the transition to the age of 29. There is a comparison of men with women, those born in the years 1981-1986 with those from 1987-1998 cohort, the groups who speak an indigenous language with those who do not, and those living in an urban context with those residing in non-urban areas[2].

The study is based on a theoretical and methodological approach over a lifetime. Event history analysis models are a strategy that do not require assumptions of proportionality and enables the use of fixed variables and time variables (Allison, 1982). The unit of analysis is the year / person since the answers to the duration of the events are usually in years. This approach ensures the appropriate estimates of standard errors and significance tests (Petersen, 1991).

Based on the above the estimates of the life table were made, in particular the survival function using the method of Kaplan and Meier in order to determine how to vary the timing of the first marriage and first child of young people from each one of the social and cultural groups. The Log-Rank test and Wilcoxon (Breslow) tests were also applied to examine the equality of survival functions and

2. The urban locations are those that have more than 15,000 inhabitants, while the non-urban areas are defined as those with less than 15,000 people.

determine if there is a significant difference (P <0.05) between the survival curves (Hosmer and Lemeshow, 1999).

A Cox proportional hazards model was developed to estimate the probability of having used any contraceptive method at first intercourse and the risk of first marriage or the birth of the first child (a) for different social groups.

RESULTS

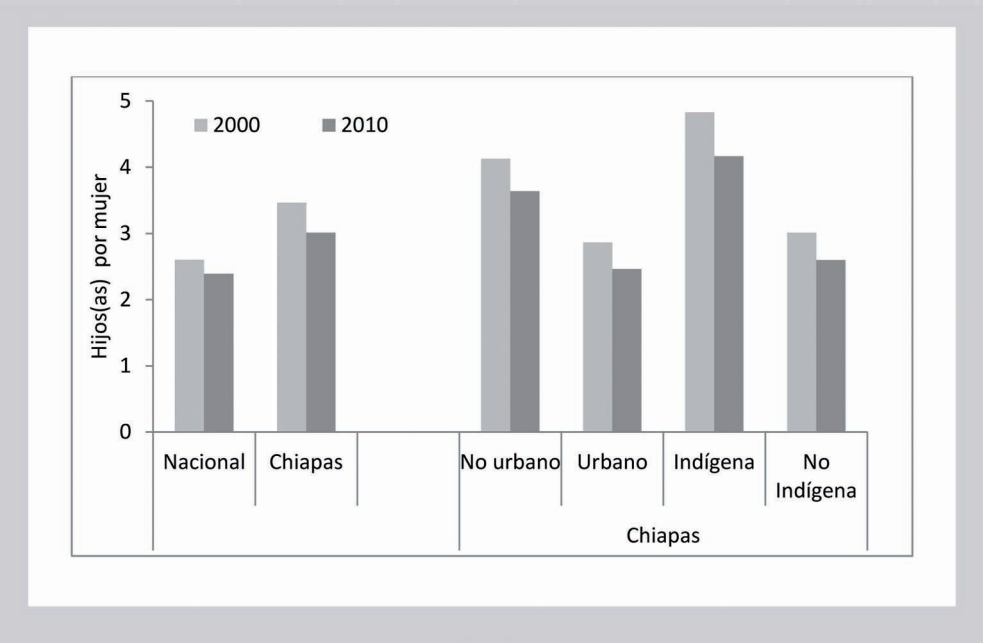
Fertility trends and contraception

Chiapas is at an early stage of the fertility transition along with Oaxaca and Guerrero (CONAPO, 1999), although it is still higher than that of Mexico as a whole for 2010 which was 2.4 children per woman. Through the diversity of reproductive patterns presented by women it can be noted that within Chiapas there are differences in the speed and magnitude of fertility among different social groups, so we can say that Chiapas is still a model with at least two transitions of fecundity, which have urban and non-indigenous women showing a low level of fertility and the other, followed by rural and indigenous women with an incidence of high fertility (see Figure 1). Thus, urban women register a total fertility rate (TFR) in 2010 of 2.5 children and 2.6 for non-indigenous children, a figure that rises in non-urban women to 3.6 children to 4.2 children among indigenous women.

Because the TGF in Figure 1 indicate that each of the social groups is at various stages of fertility transition, it is important to consider the route that each social group has made to reach this stage of transition which in interaction with other processes, have brought profound changes in the organization of the course of life of women in Chiapas although in an uneven way for certain social groups, linked to differential access to education, work, health

and methods to limit fertility. According to the census of 2010 in Chiapas, indigenous women have only 3.7 years of schooling while for non-indigenous women this amounts to 6.4 years. This gap is also apparent between urban women at 7.8 years for nonurban women at 4.6 years. This is why there persist enormous social and cultural inequalities that affect the fertility of women.

Figure 1. Total fertility rate according to different areas and social groups



Source: Own calculations based on the XII and XIII Population and Housing Census, INEGI.

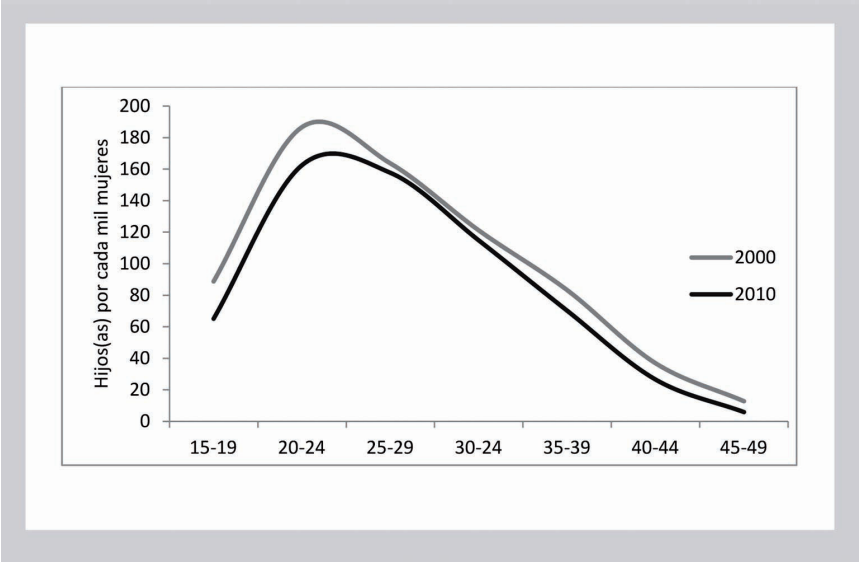
Chackiel and Scholnick (2004) point out that it is necessary to know the extent of delayed marriage or the birth of the first child because both behaviors are conducive to the falling birth rate in accordance with the principles of the fertility transition.

Specific fertility rates in Figure 2 show evidence of both behaviors. There is a slight increase in the age at first birth but adolescent fertility remains high and women in Chiapas continue to

have their children at young ages, between 20 and 24 years of age , and then use some method of birth control, in some cases permanently.

According to the ENADID 2009, the method of bilateral tubal occlusion is the method most often used by women in Chiapas. 55% of women have used it to prevent future pregnancies, which is why on the left side of the graph representing the last stage of the reproductive lives of women, there seems to be little change between 2000 and 2010.

Figure 2. Specific fertility rates by age for Chiapas, 2000-2010.

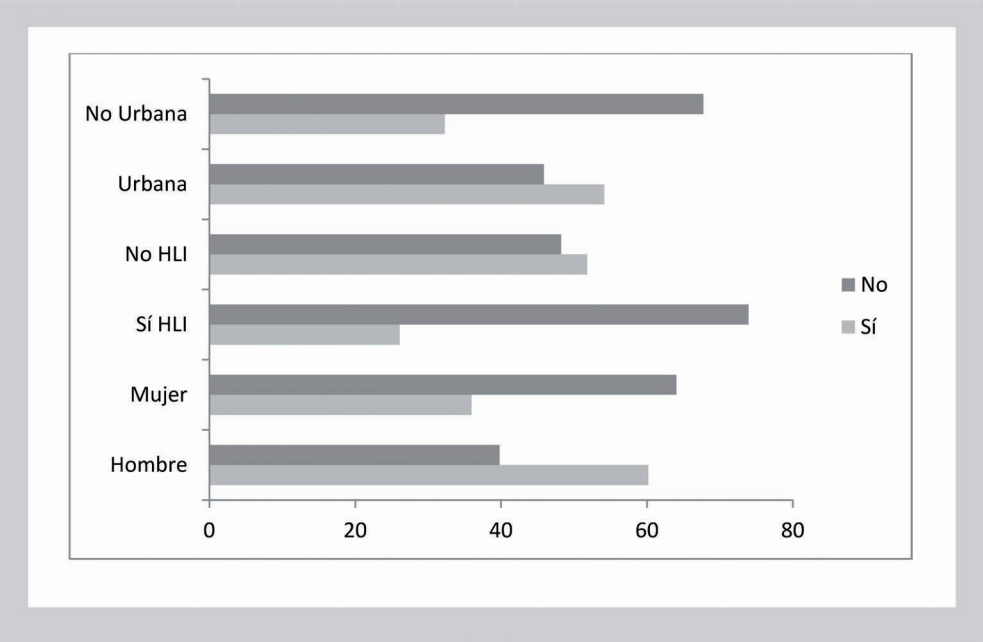


Source: Own calculations based on the XII and XIII Population and Housing Census, INEGI.

For young people who have had sex according to the National Youth Survey 2010, 48.1% have used some form of contraception for their first sexual intercourse while 51.9% did not. As for sex, Figure 3 shows that men used contraception in a greater proportion compared with women during their first intercourse, 60.2% versus 35.9%. The lower use of contraceptives for women

compared to men is associated with gender inequalities, which sets a low bargaining power for women and prevents them from taking preventive measures against early and, in some cases, unwanted pregnancies.

Figure 3. Frequency of use of contraception at first intercourse of young people by gender, ethnicity and background, 2010.



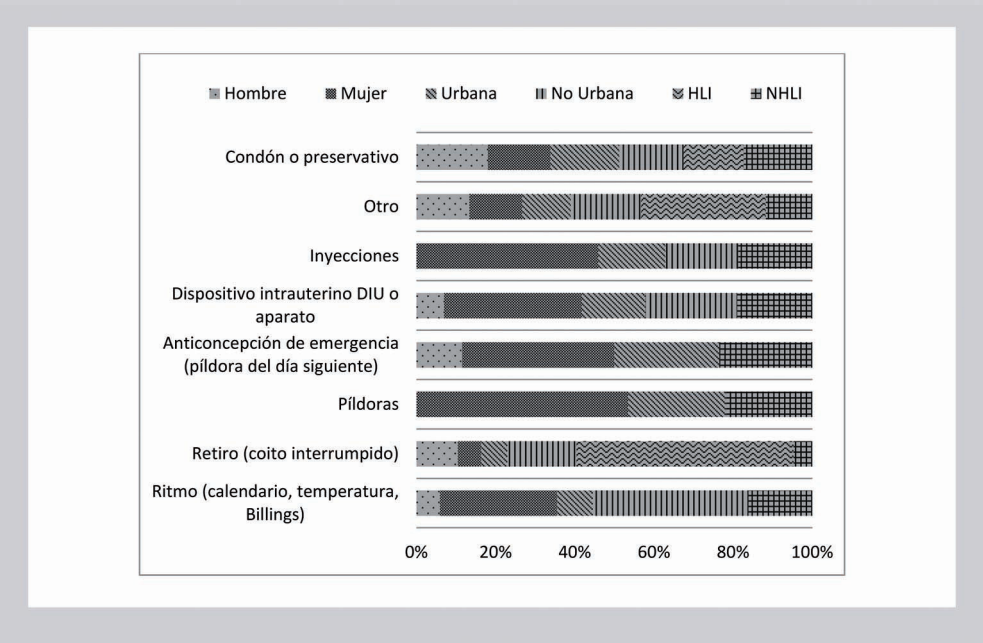
Source: own calculations based on the National Survey of Youth, 2010.

For context, young people living in an urban locality used contraceptives in their first intercourse in greater proportion compared to those living in non-urban areas, 52.1% and 32.3%, respectively. According to ethnicity, the proportion of young people who are not indigenous language speakers who used contraceptives was nearly double that of indigenous language speakers (51.8% and 26.1%, respectively). The unequal power relations between men and women coupled with poverty and other cultural factors influences the non-use of contraception at first intercourse of certain

groups of young people in Chiapas such as the non-urban and indigenous youth, which increases their vulnerability to pregnancy at first sexual intercourse.

Of the young people who used contraception at first intercourse, the type of contraceptive used is shown in Figure 4. Thus, the most frequently used were condoms at first intercourse. This was most mentioned by men (91.1%) than women (79.6%). This was even higher for urban youth (87.9%), followed by non-indigenous (87.6%) and non-urban youth (81.7%). The lowest percentage of condom use corresponded to indigenous youth (76.7%).

Figure 4. Type of contraceptive used by the young people in their first sexual encounter by gender, ethnicity and background, 2010



Source: own calculations based on the National Survey of Youth, 2010

After condoms, traditional methods were the most often used such as the rhythm method (timing, temperature, Billings) mainly

by women and non-urban youth while withdrawal (coitus interruptus) was mentioned by indigenous youth. It should be noted that among young people in Chiapas who used some method of protection there still prevails the use of traditional methods with little or no efficacy in preventing pregnancy and sexually transmitted diseases.

Calendar of entry into marriage and first child

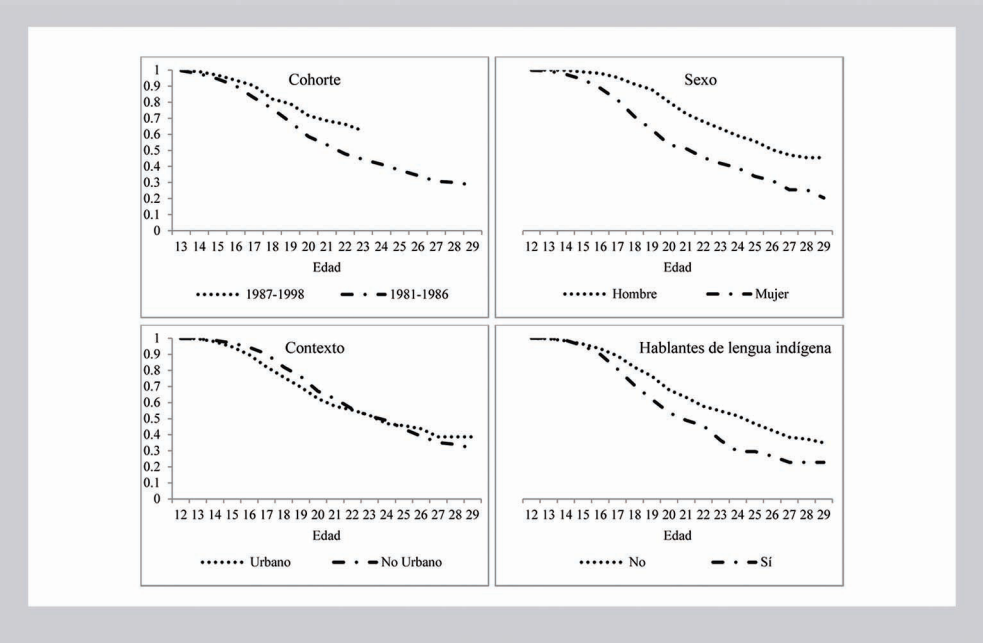
An analysis of the calendar permits us to appreciate the timing of marriage and first child for Chiapas youth (see Figure 5). The ages correspond to the values of 5%, 25%, 50% and 75% of the age distribution of the events according to the cohort, gender, background and ethnicity.

In Figure 5 a small progression to later ages at first marriage can be seen. The youth of the cohort 1987-1998 have a one-year delay in the formation of the union of a couple compared with the 1981-1986 cohort. Meanwhile, a quarter of the youth of the younger cohort presented a delay of two years in relation to the advanced cohort. While half of young people in the latest cohort had experienced marriage or a couple at the age of 21, 50% of the youth of the younger cohort had not yet experienced the event at age 29.

A schedule for the formation of the couple is significantly different by gender, being women more precocious than for men with 25% of women having formed a union at age 18- two years earlier than men - while 75% of women reported their first marriage at age 28 , more than the three-quarters of men who at age 29 had not experienced the event. This shows that despite the increase in schooling, it is possible to see if the proportion of women with post-primary education belong to the generation 1941-1955 that was 4.7% compared with that of 1981-1998 which reached 41.8%, which affected the increase in the incorporation of young women to work. Despite progress in Chiapas society, there continues to

dominate a clear sexual differentiation of work and a strong family and social control, where young women are more inclined to marry early in the life cycle if they want to exercise their sexuality without the social disapproval, but above all to exercise motherhood and parenting, which remains central to the life project of young women in Chiapas.

Figure 5. Age at 5%, 25%, 50% and 75% of young people had their first marriage or couple according to cohort, gender, and ethnicity context, Chiapas, 2010



Source: own calculations based on the National Survey of Youth, 2010.

Note: [1]p= Test Log-Rank;[2]p= Test Wilcoxon (Breslow). *p<.05; **p<.01; ***p<.001.

Ethnicity makes a significant difference in the timing of marriage or as a couple. The speakers of indigenous languages form a junction earlier than that of young people who are not indigenous language speakers. Half joined as a couple for the first time at age 20, four years earlier than non-indigenous youth. This result is

associated with a form of social organization based on a cultural model of traditions and customs, where sexuality is intrinsically linked to the partnership.

The survival curve of the first child shows an early onset of fertility of young people in Chiapas, since 5% had their first child at 16 years of age, a quarter at 20 years old and half experienced the birth of their first child at 24 years of age. In addition, 75% of young people in Chiapas had not had her first child by age 29.

The results from the log-rank and Wilcoxon tests reject the hypothesis of equality for survival curves by cohort, gender and ethnicity. While the hypothesis is accepted for the context of residence, the difference in the calendar for the first child for urban and non-urban youth was not significant in both tests, only in Log-Rank (Figure 5).

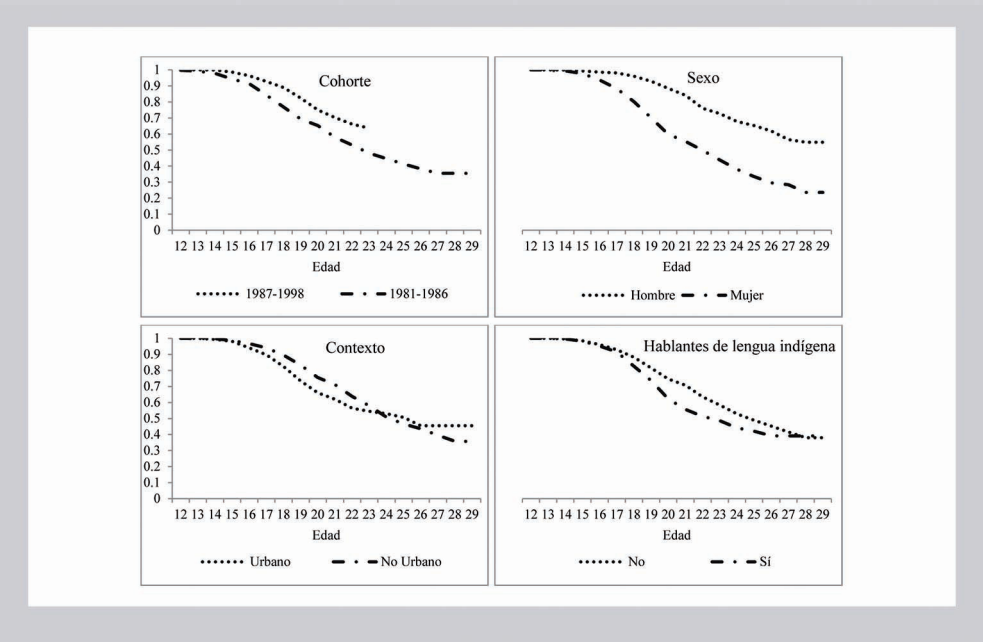
There can be observed an early onset of fertility in the younger cohort and a delay in the calendar of the arrival of the first child as the life cycle of young people (see Figure 5) advances. On the one hand, 5% of the young people of the two cohorts had their first child at age 16, and on the other, a quarter of the youth of the younger cohort have delayed the age at which they have their first child a year compared to the advanced cohort, at 19 and 20 years of age, respectively.

Women enter into reproductive life earlier than men. In figure 6 a gap of three years of advancement of women can be seen in comparison with men. 5% of women had their first child within 15 years of age, half at 22 and three quarters at age 28, while 5% of men had at age 18, half at 22 years and 75% had not yet experienced the event at age 29.

Young speakers of indigenous languages show an entry to an earlier reproductive life compared with non-indigenous youth, with a difference of one year compared with indigenous youth. A quarter of young indigenous people had their first child at age 19 while the same proportion of non-indigenous youth had taken a year later. Meanwhile, half of the young speakers of indigenous

languages had their first child at 23 years old while non-indigenous youth did at age 24.

Figure 6. Age at which 5%, 25%, 50% and 75% of youth had their first child within a couple in accordance to cohort, gender, and context of ethnicity, Chiapas, 2010.



Source: own calculations based on the National Survey of Youth, 2010.

Note: [1]p= Test Log-Rank;[2]p= Test Wilcoxon (Breslow). *p<.05; **p<.01; ***p<.001.

The most important changes experienced by young people in Chiapas of the two cohorts were associated with a slight delay in the entry age at first intercourse, first marriage or as a couple, and the first child between the youth of the younger cohort 1987 -1998 compared to older youth cohort 1981-1986. In addition there was a clear differentiation in the schedules of entry into the three events analyzed by gender and ethnicity which was reflected in an earlier entry to sexuality, marriage and reproduction of women and young speakers of indigenous languages compared with men and

non-indigenous language speakers. It is noteworthy that no evidence of differentiation was found in calendars in both events between urban and non-urban contexts.

Proportional hazards with the Cox model

The proportional hazards of Cox model was conducted for young people who say they used a contraceptive method during their first intercourse. It is important to monitor the effect of the cohort because contraceptive use has increased over time (Table 1). As expected, when the cohort of birth control, contraceptive use, and sexual initiation is controlled, there is an association with a reduced risk of forming a couple or having a first child at each age.

Table 1. Cox proportional hazards model (Relative Risk) of first marriage or couple and first child, Chiapas.

	First marriage	First child
Birth cohort		
1987-1998 (Ref.)	---	---
1981-1986	2.15**	2.73***
	(0.005)	(0.000)
Use of contraception at the beginning of sexual activity	0.472**	0.371***
	(0.003)	(0.001)
Log verisimilitude	-2082.9113	-1899.8983
Prob> chi2	0.0000	0.0000
Wald chi2	139.52	165.87
*p<.05; **p<.01; ***p<.001		

Source: own calculations based on the National Survey of Youth 2010

Contraceptive use reduces the risk of a first child of a magnitude greater than the risk of first marriage or union, therefore young people who did not use contraception during their first intercourse have a 63% higher risk of having a first child and 53% higher risk of joining as a couple, while the birth cohort also has

a significant relationship with the union as a couple and having a first child. There in an increased risk of having a first child and to join as a couple 2.7 and 2.1 times, respectively.

If the effect of contraceptive use in the various transitions to adulthood of each of the different social groups (see Table 2) is analyzed, it can been seen that the effect of not using a contraceptive method during first intercourse and the risk of uniting as a couple according to social categories is in a range of from 56.6% for women and up to 81.5% for younger cohort 1987-1998. Meanwhile , the effect of not having used contraception at first intercourse and risk of having a first child for different social groups increased from 69.9% for women up to 83.2% for the younger youth cohort 1987-1998.

Based on the above, it is confirmed that the non-use of contraception at first intercourse increases strongly and significantly the risk of onset of both reproductive trajectories, but with greater intensity of the first child, compromising the development of a life plan beyond motherhood for all young people regardless of social group, although it is higher for women and young people from the younger cohort (1987-1998), a situation that limits or restricts the life project of these youth in a particularly highly marginalized state such as Chiapas.

Table 2. Cox proportional hazards model (relative risk) contraceptive use at first intercourse at different transitions by social groups, Chiapas.

	First Marriage	First Birth

1981-1986 cohort (No)		
	.360*	.263*
Yes	(0.029)	(0.036)
Cohort 1987-1998 (No)		
	.185***	.168***
Yes	(0.000)	(0.000)
Gender Female (No)		
	.434*	.301*
Yes	(0.044)	(0.023)
Gender Male (No)		
	.367***	.291***
Yes	(0.007)	(0.000)
Non Urban Context (No)		
	.272*	.205*
Yes	(0.041)	(0.018)
Urban Context (No)		
	.380*	.280*
Yes	(0.043)	(0.025)
Indigenous Language Speaker (No)		
	.345*	.221*
Yes	(0.041)	(0.029)
Not an indigenous language speaker (No)		
	.370*	.273*
Yes	(0.036)	(0.023)
Log verisimilitud	-2082.9113	-1899.8983
Prob> chi2	0.0000	0.0000
Wald chi2	151.82	156.38
*p<.05; **p<.01; ***p<.001		

Source: own calculations based on the National Survey of Youth 2010

CONCLUSIONS

The calendar age of first marriage or couple and the birth of the first child appears to be changing in Chiapas. In this manner the risk of experiencing a couple or first marriage and first birth seems to have slowed in the younger cohorts compared to older cohorts.

The formation of the couple and the birth of the first child show significantly different calendars by sex, with women having an earlier age for the first marriage and reproductive life. There is similar behavior to the indigenous language speakers that also show an earlier age of entry into marriage or parenthood as compared with non-indigenous language speakers. It should be noted that according to the statistical tests that were applied, there is no observed significant difference in the calendar of events of interest among young people living in an urban area compared to those residing in non-urban locations.

The hypothesis that the use of contraception during first intercourse has an effect on the risk of occurrence of the first marriage or as a couple and the first child to young people in Chiapas was raised. As expected, when controlling for the birth cohort, non-use of contraceptives during sexual initiation was associated with an increased risk of joining as a couple or having a first child at each age, a risk that increases in the case of women and youth. This helps to show that among young people in Chiapas there continues to predominate asymmetric power relations between men and young women who set a low bargaining power for women in the relationship which prevents them from adopting a conduct of prevention, strengthening their vulnerability to an early and in many cases unwanted pregnancy.

While the case of the youth of the 1987-1998 cohorts are delaying marriage and their first child, it is however in the case of not using birth control during the first sexual intercourse that there is an elevated risk of getting married and having a first child at early ages, demonstrating that age influences vulnerability before situations of reproductive risk.

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VIOLENCE EXPOSED, PHILOSOPHICAL CONSIDERATIONS ON THE PHENOMENON OF THE MASS GRAVE

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ABSTRAC

The article discusses the events of the current violence as a phenomenon of excessive force applied between persons, within a common space, in order to cause irreversible damage to the ontological integrity of the patient of the force. This reflection, developed from the standpoint of social philosophy, is carried out by taking as a starting point the paradigm of *the mass grave*, and integrates analysis (stating from the concept of *the ordinary*) of the *community*, a concept that contemporary philosophy develops; although we propose the analysis of the mass grave and violence in public spaces from key points of thinking about living and suffering in those spaces.

Keywords: *IMass grave, superimpose, space, community, violence*

The phenomenon of the mass grave, although having constant records throughout the history of communities,[1] continues to generate in the daily sequence of shared existence, a crack, a fracture in the way of conceiving relationships and its means of occurrence, because with mass graves a negative testimony of collective death occurs. Whether from those same records, the mass grave is generated by causes of disease, functionalism of mass death or a pragmatic policy to hide the atrocity of excess power to kill (this subjugation before the power of the sacrifice and terror Achille Mbembe (2008) has called "necropolitics"), the fact is that the mass grave-beyond the particularities and instrumentalities- generate the frontal dissolution of individuality, from its spatiality and its singular, unique memory: it is the liquidation of the irreplaceable, unrepeatable and irreversible identity of each I identity that has been arranged in a mass grave in a saturated form, piled, disordered, in expectation of the dehumanization of victims that threatens the self (space) of each one, the same that cultural traditions have asserted through the ancient burial practices and various diverse funeral practices (Coulanges, 1982, pp 36-51).

Today, a growing concern has been given to the data of violence. Thus, interdisciplinary studies on the current violence refer to these acts as instrumental or as absolute. *Instrumental* as they are mediations to accelerate a process with the goal of obtaining a deliberately pursued end. Absolute (or *gratuitous* or *banal*) violence refers to acts whose aim has been suspended to ingratiate in and of itself. In this regard we should refer to acts such as unnecessary violence (cruelty) applied to the inert body without life (see Sosfky., 2006: pp. 88 and ss.)

1. Taking into account the *wells of* Great Britain for the bubonic plague in the XIV century; the graves of the Killing Fields in Cambodia as dynamics of genocide during the reign of Pol Pot (1975-1979); those of Stalinism in the Great Purge between 1937 and 1938; those of Hart Island in the U.S., as a product of imprisonment, and a long *etcetera* (See Joseph Cummins, 2010.)

In this article we will discuss the common grave, dug from an *instrumental* use of violence in order to create an infrastructure to hide the body in the earth. Thus, the theoretical approach on the mass grave is given from the reference framework of violence to the inert body in the common area. This phenomenon is also perceived as an interruption event. A community, before its progress or development, has to go back on itself with the consciousness of a constitutive unhappiness (Nancy, 2005. P.9 & ss.) because the crisis which operates behind a pit, hole or trench full of bodies is the affirmation of a death that is, whether obvious or anonymous, fragmentary and forgettable.[2] What we seek with this article is to expose us culturally and humanly in a different manner to the violence and horror that we live and experience in Mexico and in the world, from the discovery and emphasis of the body's frailty (our human constitution) that can allow access to the consideration of the dead and the living, where human solidarity can excel- the very human trait of condolence. A definition of violence is not enough nor an aseptic categorical scheme if in it the criticism of the human sciences insists on compassion, as well as condolence in our communities and in our entire country.

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Since antiquity violence has been studied and understood, but always denounced as unacceptable, "and perhaps it is precisely for having experienced what could [the Greek] be expressed with such force his rejection and his desire to abolish it" (Romilly,

2. As is emphasized further on, an inertia of the history of Philosophy but also cultural wisdom, presumes that death or ontological destruction (crime), only happens to a real, living person- not to the body, a corpse, or the dead. The absolute or gratuitous violence denounced in the XX century and in the XXI century by Hanna Arendt, Primo Levi, Emmanuel Levinas, Giorgio Agamben, as well as by international organizations and NGO's, allow us to call attention to our categories, referential frames, speeches and pre suppositions that have been overcome by the facticity of an exponentially growing level of violence (there are more agents of violence, more instruments, more victims that suffer not only in "life", but also in their corporal integrity- ontology- until after their death).

2010: pp. 9-18). It was through thought and cultural expressions that sought its regulation, containment or prevention (either by the law, politics, artistic expressions, ethics, or education).

All of this suggests that in the West there is a memory of violence and its forms, an understanding and resistance, which makes it possible, for rationality and scientific work, the pursuit of all efforts towards a culture of nonviolence and against violence, where the human sciences must question themselves- what kind of problem is violence and how must we specify the question about excessive force that kills? From this perspective, it is a matter under consideration here of (absolute) violence in the common, public area.

In a first theoretical approach, the distinction provided by the *World report on violence and health the World Health* Organization suggests it can be functional (Krug, 2002). In that vein, it would be necessary to theoretically consider violence from three areas of action: self-inflicted, domestic and the public. Self-inflicted are those violent actions are those that an individual has on himself; *Domestic* violence concerns the acts of violence in the social core with people who know each other; and violence in the *public domain* (*shared spaces*) indicates the acts in the field of the socio-political relationship of proximity in the public space. Of course, these frames of reference are subject to discussion, but are justified if we consider that in Mexico the high intentional homicide rates take place every day in public spaces.

Definitions of violence may be *broad* or *minimalist*. Spacious in the sense that they refer to an order of rights that the violent act violates: violence or violation of laws, rights, rules, etc. ; *minimalist*, in turn, in the sense that such acts are referring to the relationship of the agent of the action and the damage (see Bufacchi, 2015: pp 13-37.). The mass grave seeks to make a crime invisible, and does not refer only to the damage to those laid there, the violated, but also the transgression of the normative order of our existence and the undoing of a common space, its

un realizing as a space of life. We can then broadly define operationally *violence in the common space as a set of factors, elements, actions, actors, victims, instruments, and effects which are directed in use or threat (latent of their execution) with a harmful force to intervene, alter, force, control, organize, prioritize and / or use provisions and positions of individuals in the shared space, be it a meeting or transit, promoting or causing bodily harm and undesirable pain in those who are directed to receive the deliberate violence*.

The relevance of thought and contribution of the human sciences are relevant in this issue. But how can it be a philosophical problem facing such a devastating situation as violence in the common space? Where can the human sciences find legitimacy when it comes to such heterogeneous and diverse events? We suggest under the general theoretical analysis of violence: highlight their features and the characteristics of acts of intentional homicide under increasing dynamic effect that seems not to be an affect by rather a constituent of this violence: *the mass grave*. So what reconsiderations must be generated from the common space of citizenship and community from the surplus of violence exhibited in the common grave? The escalation of violence and the proliferation of graves-that hybridization between brutality, desire and greed, which made absolute the win and despises life itself puts in question and suspends any space, as a place of life. [3] In this plane philosophy ensures the existence of thinking that this place has: occupying space. The philosophical thought operates in such a way with categories that we call *ontological* philosophy: thinking and articulating speech from the existing being, of how to be next to each other; as it pertains to humans, we think of being in time and space, our constitution,

3. See the irrepressible daily count in Mexico given on *mass graves* , *illegal cemeteries* ,*landfills* and *narco-cemeteries* , which are present in the articles of the national press, for example in newspapers like *El Universal* (Muedano, 2013) and *Millennium* (Michel, 2013).

our relationships and how to be a common being, to be together. So how does ontological thinking develop in relation to mutilated bodies that disrupt the idea of a vital continuity in the geography of the country? How to think not only of those bodies, but of those bodies who were once alive? How to categorize the horror of mass graves, places of horror, of expendable, killable, exceeded lives?

Thus, in principle, we can produce an analysis of the use of the panoramic *concept* "grave" and, above all, *piled bodies* in a pit dug in the ground (*mass grave*) that have a connotation referring to a legal, paralegal or illegal space. [4] Spain, in particular, conducts studies of this so unique phenomenon which denotes an almost political expression, what happens at the time of exhuming a mass grave? For some Spanish scholars, trying to answer the question is to intervene in the core of the memory, pain and suffering of the victims thrown into the graves ; the complexity and dynamism of the process, ranging from political and judicial initiatives of huge public and media projections, which have been called the *law of memory*. (Ferrandiz, 2009.: p 4 and ss) In recent decades these initiatives have led, in Spain, the proceedings before the High Court in order that legal powers are declared to investigate and prosecute alleged crimes of forced illegal detention primarily by the existence of a systematic and preconceived plan of elimination of political opponents through multiple deaths, torture, exile and disappearances (*ibid*.).

It was in this manner that led to the reconsideration of the understanding of the pit as not only the space where they were to

4. Be warned in advance and as a clarification that not all "mass graves" are illegal. Burial spaces are not always individual. What happens is the conceptual change that takes place in political discourse (necro-politics) to ensure that all "mass graves" found in the country are not *illegal* for being where it should not be, but *contain* alleged members of criminal groups. What operates is the device of criminalization that exempts the ministerial, legal and executive responsibilities to clarify the facts and point to the murderer in the self-realization of the crime that contains criminals that the illegal grave is made up of.

take those who did not join the political plan of Franco. It forced you to think about in the term of the *ordinary, beyond* archaic language of legal practices that went unnoticed before the phenomenon of the pit to generate the *common oblivion* (Madrid, 2010: 77 pp.). All that was poured into conceptualizations have become a crossroads for pragmatics and thought about the same politicization of the community since enforced disappearances and mass graves opened in the last ten years. The concepts give pause to reflect on: i) the *common memory* of the damage caused by the sovereign power to the governed, ii) the data from the mass grave from the biological plane (bio-political) to the ceased life, iii) the frontal breach of civil rights and iv) the excess that destroys and seeks to erase the humanity of the victims. All of this loses dimensions of a form of dialectic of the violence settled in the continuity and progress of the history of a nation (Spain), to be converted into an event-the mass grave-that suspends history (its glory and its path to conformation of the great speeches) to show the interruption of the timeline through research and public demand made by relatives of the men and women thrown into the pits. The notion of event, in this sense, is a term of emergency. In other words, it is something that happens in the linear sequence of time without being scheduled to occur, that is has a place. Therefore, the event is the suspension or interruption of the continuity of the normal and customary events of everyday life in the forms of coexistence (Virilio, 2006: pp. 36-41) when it emerges or drastically accelerates processes of injury or death in the integrity of people.

The mass grave, then, as an *event* is an unexpected, unpredictable eruptive event, which involves an unusual destruction of space and integrity of individual victims (reified to be worthy of the violent destruction).

Very different from what happens in Spain, the event of a mass grave in Mexico has not gone through a critical reflection[5] but has joined the analgesic and amnesic practices of the use of

the image, information and the "normalization" of homicidal violence in the common area. The difficulty that we face is that the complex concept of "*mass grave*" is not represented in our collective consciousness as a common problem of violence in the public space.

In the context that organized crime in Mexico has left, violence applied in the mass grave becomes a practice of un-doing in order to break down the body, ending his figure, eliminating their presence, erasing their world. It is a practice from organized crime and is replicated by other commands (police, political, military, community) of public space. These practices differ from those of Franco , because in Spain the graves were dug for political opponents; in Mexico, meanwhile, the violence represented in the pit is in itself a statement of exception, because it does not have to do with bands of political ideals. It has to do with who are those that control the right to death and have therefore the opportunity to manage life (Agamben, 1998: p. 20 et seq), to regulate the space of life, give or take the space of the dead, to submit to oblivion the collectives and individuals.

The phenomenon of the mass grave in Mexico, after the spectacle of violence on the body (such as skinning, butchering, heads lying on the asphalt, incinerated bodies ...) events that were relevant from 2006 to the present - determine that the event of the *pit* is not necessarily a common phenomenon but part of a *culture* that declines before the value of life and began to assimilate the violence on the body in the public space after a trivialization in the media , from nihilistic aesthetics and

5. It is noteworthy that the search for files in Mexico does not result in stopping the problem or issue of "mass graves" in the media of academic and research publications. We have press reports, many of them very valuable, that provide (statistical, graphical and testimonial) documentation, but human sciences have failed to capitalize on a rigorous and thoughtful discourse on the "mass grave". But on the other hand and as the reader can appreciate, the problem in question involves ontological, anthropological, sociological, aesthetic, historical and political reflections with the proper formulation of theoretical frameworks which are precisely those which are lacking so far in Mexico .

anesthetic repetition. The offset is that violent events increase, but the closest concepts to refer to the pits that are found daily show the *other* breached concepts to excess as part of an organized *underground*. That is, before the discursive focus of attention on the concept of a common problem- the inflicted collectively inflicted death, the discursive devices directed towards conceptualizing the conversion of the violated as *criminals* and as a *clandestine* event, where bodies (quantitative representation that generates a sense of anonymity) are counted. All of it seeks the suspension of the damage (the violent act itself) that the deaths list with their own evidence, in their own appearing of not being only a single death but a common problem. Today, counting or cold enumeration of the dead and places that have been identified as areas of horror in Mexico suspends the idea of an area of rights, welfare, and opportunities for development. We are "integral witnesses", survivors of increasing violence that victimizes anyone, anywhere- violence that challenges the *common* space and our quality. The truth is this space can be assumed to be united and integrated, but the truth is that the constant interruption, every mass grave found since the Rio Bravo the Suchiate , confirms the fragmentation of the space by being a territory of horrors. Therefore, the anesthetic machine of violence is complicated, since it is not enough to repeat it by rather there arises the discursive appeal to the enumeration which becomes not only necessary but urgent: the event found 200 bodies (not just 72) in the pit in San Fernando Tamaulipas is nullified to a news accident to the implementation of and abstract number , endless in its sequence and does not give reason or evidence of suffering or pain or causes; so that victims and mimetic violence that runs intermittently in Tamaulipas, Tierra Caliente, Iguala, Boca del Rio, Ciudad Juarez, Culiacan, Tijuana, etc., is counted but not reasoned or imagined.

So, a few years ago, *mass graves* and their public mention suffered a turn in the political discourse: there had to take

off the concept of *the common* (political concept par excellence from the Greek *koinoîa* in the polis to the *communitas ciuitas* in Latin) in an increasingly repeated event and refused a numerical reduction. In this manner it spread through the media, from legal and political levels that stopped speaking of "mass graves" to a place to the newly called *narcofosas* (*narco pits*) and was then consolidated to "clandestine graves" (Lara, 2014). *Clandestine*, with reference to pits full of corpses of criminals and delinquents, which were homologated in conjunction with this sector. Criminals are despicable beings, generating an arithmetic damage: damage to the bonds of community, to interpersonal and institutional trust, to violate all commons (the nation, the city, the country, to *us*). Hence the corpse that was thrown into a pit would have some involvement with criminals, better yet, to organized crime. All corpses in a clandestine grave undergo the aura of criminalization. Hence the *clandestine grave* had no connection with the mass graves (those met by illness or for streamlining public cemeteries) but became a reprehensible whole, because in it the integrity of the excluded, the despicable, the criminal, *the narcos* and the organized. The organization of death: to whom it is applied more than those involved in organized crime? Thus, the exclusion of the *clandestine* operates not only in the media discourse and concurrent development in social judgment, but also in the legal field that has few powers to conceptualize the grave.

Beyond all of the context and the circumstances that may be involved in the event of common or clandestine grave, the evidence leaves and deep mark on which we can introduce to ourselves about this problem which is the space that occupies a site full of bodies in the world; a consistent reconsideration that takes into account the mortality of men and women, their bodies and the places they occupy in the mass graves, repercussions in the concepts and ways of conceiving the space itself that the

WHO *World Report* referred to as a public or common space (Krug, 2002: p. 238)

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The concern that detonates any meditation regarding the grave is not, in principle, nor a space (interior) made to receive, swallow and pretend the disappearance of the dead, nor is it the very idea of *the dead thrown in*. [6] The violence has the imprint of excessive force, of damage. It is perhaps, then, the substantive *violence* that should be restricted to the point where the force is excessive and where the destruction is always articulated. The idea that violence is excessive, absolute and reprehensible power in itself does not seem to extend in Western history to all areas of life as much as you might think. Perhaps, even today, the idea of just or preventive wars that suspend rights , minimum human guarantees, are typical of this straining or forcing to keep its limit to the terrible (Romilly, 2010:.. P 10 and ss) . Indeed, the philosophical reflection on tradition installed by force, conflict, violence, vigor and momentum in the same area which is only discernible by their stories; that is, for what gives meaning to the act of force: the hero, the glory of the state, the defense of the Republic, the integrity of the community, the health of order and so on. The violent act seems to be, at the horizon of meaning, out of that which is followed by the initial and final justification: the loose act, without reason and motive. The violent act, unlike aggression, always seems to need its justification in order to start its agency (Arendt, 2013: p. 105).

6. A hard flowing and swirling speech below the winding serpentine political, or media, or philosophical discourse on the mass grave is the *speech of the perpetrator.* For some time we knew of the esoteric terminology of organized crime, but it became clear in recent days in Mexico about the murder and *round up of* students of the Normal School of Ayotzinapa (September 2014). The mass grave would be, for the perpetrator, *the garbage dump* , unlike the official discourse of *clandestine graves* . As of this writing we are aware of the limited scope of our frameworks (sociological, philosophical, anthropological, cultural and political categories) that make a "controversy of shadows" before a language (political and /or criminal) that agents directly the indolence and analgesia against their own acts or omissions or negligence.

A few centuries ago, especially due to the influence of the Enlightenment, we began to understand the uniqueness of violence, its emerging feature as a resource when reason fails; although this resource, no stranger to reason as we said was absorbed by the stories of history again, for legitimacy, first, conquest, invasion, of the uprising and then came the speeches of emancipation, revolution, decolonization, resistance, revolt ... (Calleja, 2003: p 65 et seq.).. Beyond the punishments that the exile, the heretic, the witch or criminal suffered; that is, those legal, legitimate violence that made men and women invisible, fearful of losing their lives at every turn, of those who were tortured, burned, boiled in oil in public squares, stoned and then taken to the shadow of legal-rational order of the prison or the madhouse (Foucault, 2003: p. 106). Beyond this, a brief review of our modern history makes us realize the surplus of violence that physical force, gushing and overflowing, now systematic, technological, full and strong under which we have been born in the transit of the exceptional regularity of life. In other words, the possibility of being violated, of being a *whatever* (Agamben, 2006: p. 57) tossed, executed, terrified.

Every time you wanted to talk about this mystery that runs through understanding, which overturns, the unspeakable to see those bodies lying, those who left all the passage of history from the force that opens the West such as the *Iliad or the Poem of the Force* (Weil, 2013) and that pass through the violence of yesterday and today, make one understand and put at disposition the arrangement of thought in acquiring concepts to understand what fills a pit: a mass grave is filled by bodies of men and women who are or intend to make forgotten from the omnivorous history, immanent in its own internal resolution that reduces the individual to be part of without forming part part of the realization of the community (Sanchez Cuervo, 2014: 178-179) . In this manner it can be noted that promises, efforts and dreams thrown into the earth, a full community of meaning and well-being, of

progress and inexhaustible resources, has exploded in our time with urgency to question whether these forms of community which we know, which we have inherited and are active, are undoubtedly the only ones possible and whether there will, or better, what we resign to them or precipitate them in themselves to show their constituent darkness. Perhaps we must precisely neutralize or emphasize categories that have overcome life; that have made their own the options in the ways of being that are offered: citizen, being a politician, man, and so on; since these are part of the speeches that cannot, because they fail to account for, the bodies violated in a grave.

We notice that what gravitates to the bottom line is whether we can think of another community where the mass grave is not possible. How must the question be delineated by the community itself? How it will be to live in another community or other possibility? In other words, will there may be other communities or another future? (Agamben, 2006:.. P 26 ff) In any case, we can stop for a moment with this reflection to think about the finding of a mass grave in the world, which requires a reconsideration of our synergy with the other-common, which is thrown into a pit.

If we talk about the *violated body* it is because, as can be seen, we are still far from clearly stating what is the *body* when it is piled among other bodies inflicted with violence , not only beforehand but in that way to make the *body waste*. Ontological unity integrity of the human being is also in its corporeality that everyone is unique and unrepeatable; but, at the same time due to its nature it is vulnerable and its integrity can be fragmented by violent acts. The body is vulnerable: can be injured, damageable. Who would not think that such a violation is stopped when the victim has died violently? However, reduced to a primary situation of a dead, lifeless body, the body is exposed to damage ranging way beyond death. Of this damage, the Italian philosopher Adriana Cavarero called *ontological crime* on the inert body (Cavarero, 2009: p. 58), which means to dishonor what

was created, a lack of sympathy and consideration for the bodily singularity, all of which happens beyond the vital , with the exhibition, dismemberment, acids, fire and so on. So Cavarero mentions:

> *The physics of horror* does not have to do with the instinctive reaction to the threat of death. Rather it has to do with the instinctive revulsion for violence that, not content to only kill because it would be too little of an act, seeks to destroy the unity of the body and is merciless in its constitutive vulnerability. What is at stake is not the end of human life, but rather the human condition embodied in the uniqueness of vulnerable human bodies. Butchers, massacres, torture and other violence is an even more crudely subtle part of the picture (2009: p. 25).

Thus, from the sorrowful, terrifying and horrifying space that has generated violence in Mexico, we are faced with the need to question the community where exists the ordinary and the limit to which the term is extended: the pit.

What is common to the pit? The dead are dead. But how to understand the unthinkable from the dead, not only dead but also *mercilessly* destroyed (as the ancient Greeks had said), without consideration, without humanity.[7] It should be recalled that the concept of death in the West is referred to the *dead* in his space, in recognition of individuality: it refers to the grave, into a space occupied in the soil (*humus*), a space made for the dead human to be accommodated; which, we say, indicates that the dead never share the same grave in disarray. But in the pit the pile exceeds the body, and this is no longer a solitary grave, memorial and

7. One of the most important literary testimonies of the West in relation to the dead (enemies), is recorded in *The pleading of Euripides*. The women, who are asking, begging for the sacred right to bury their children (foot soldiers who died in battle), who cannot be out in the open and face the humiliation of being eaten by scavengers: "Give me back my children, do not let the members of the dead at the hands of death that the members not unleash one as a mouthful for wild beasts" (Euripides, 1978: paragraphs 44-45). Although respect for the dead and requests for funeral rites are repeated in Greek literature: in *Iliad* with the bodies of Patroclus and Hector; Ajax's body on the eponymous tragedy by Sophocles and the same tragic author with Polynesian's body in *Antigone*.

rest, rather it is the mark of how to submit the dead, and the body itself into oblivion, the piling that depersonalizes, because everyone loses spatiality of its own. The uniqueness of this man, woman, child who had a life, a family has no synthesis because it no longer has a place in the world.

Obviously our existence in Mexico has entered a dynamic of death; better yet, to be killable and to kill: a place where anyone can give to the other the commonality of death. To support and provide evidence of this apparent hyperbolic judgment, we can refer to the approximate figure of 75% of the national territory which has been used to build clandestine graves and to abandon the remains of victims. We refer to the 1,243 graves found and recorded from 2006 to 2013 (Lara, 2014), graves have been found in the soil of Mexico, not only in relation to crime and war, and in the fight against them ... but also in shares of acts of the state rigged as the *modus operandi* of organized crime. [8]

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According to René Girard (2005:P 332 & ss.) violence emerges unpredictably and is distributed as a contagion and is unstoppable if resources are not used and instruments are determined to sort out the order of that the violent act has been first been broken down or what enabled its emergence.

8. A few days ago, in March 2015 (while this article for the magazine Espacio I+D was being written), the journalist Karla Zabludovsky requested information from the 32 states of the Mexican Republic and the Federal Government on how many clandestine graves had been discovered since December of 2006 , the date in which President Felipe Calderon took power. It was specified in the application information on how man dead were in the pits, gender, state of decomposition of the bodies and whether they had identified or not. The result of that request resulted in the title story of K. Zabludovsky (2014) "Nobody knows how many graves there are in Mexico, much less the government." The data is in itself relevant because the hidden or inaccurate information due to inconsistencies suggests high rates of homicidal violence has occurred in mass graves for years; but also demonstrates the impracticality in Mexico to take appropriate measures to prevent, contain or eradicate violence, since all the "Recommendations" issued in the *reports* on violence (WHO, the Pan American Health Organization, the World Bank, the Heidelberg Barometer Conflict) indicate that there must be established or must enhance national capacity to collect and analyze data on the magnitude, causes and consequences of violence with the intention of setting priorities and plan concrete actions that have a direct impact.

We can consider that if the power and/or the knowledge to generate links and ties, that is, obligations, commitments and common desires, the violent act, for its part, does not have in its own constitution the ability to generate, but on the contrary, its factual constitution is to break and *tear*, as the Greek called the act that harms the community. [9] The problem then, is how to generate the resources to stop inaccurate violence, away from the primary agent. How, when it is impossible to have a sacrificial or cathartic version that contains and ends with the contagion, the virulence of the violent, but simply exposes the damage, the exposed body, violated, because it is there, for what amount of the fragility of the human condition, the possibility to be exceeded by the force of the strong, the armed, the organized to kill? Will the exhaustion, the resignation, the final possession of territory, power, the market, merchandise, which we experience today, the violence we live in Mexico end? The diversification of the media, the manipulation of their transits of fear, fear and terror seem to offer an incalculable, in adjustable way in the accounts: the quantities thicken, the enumerations and it seems that begins to generate a city, a nation, a remote village, that is, the unqualifiable death toll that Mexico is today.

The thinkers of the XXI century with respect to the subject of life, commit us from the issue of uniqueness and, above all, in an area in which it lies irredeemably linked with space. As we Nancy mentions, space and time is a conjunction, never a dilemma because they are one, but traditionally separated in Modernity (Nancy, 2003: 105), [10] in which a space without bodies, a realm of being conceived without bodies, dumped in the horizon of

9. We cannot say that there is a history of violence, but rather there is a continuity that undermines the relationship of links that are generated in human creations: the conflict brings into play actors; the violence nullifies or places, perhaps, us in a situation of total and absolute asymmetry of the victim and the agent of violence.

10. Jean Luc Nancy (2003) in The sense of the world, looks at the reason why Kant's time, in which everything happens except time itself, is a time when nothing takes place except time, which takes place as a need- a stationary place, like the emergence once and for all of the same stuff of the world.

the timeless; which raised the question of how we construct and build a community that does not consider its spatial bodies that are mutable and finite, the friction, the distances of these existing ... (the moan when you feel the discomfort of the desktop, especially when we hit the table with the knee), a space that does not include the temporary nature of mortals, let alone the *piling* of bodies in a pit.

We can observe that the problem is to understand the common between one *with* the other and the other *with* one: the common is this shared life in a space. What is common is the inescapable space of existence. We now understand *that the question of being in the community becomes the same question of being* (Higuera, 2008: p. 22), [11] of the community questioned from the inscrutable mass grave in the eyes of reason.

We know that metaphysics is not enough to the dead buried or exposed body in pits in Mexico. It is not enough for the dead body but also for the living body. Therefore, we confirm that we need to rewrite a new *corpus* , which also must speak of technological interventions (surgical, aesthetic, genetic) a *corpus* where not only the doctor or philosopher, but also politician and criminal have seen power and the power of intervention; we need to rethink the dematerialization of the body from the violent act and also from the symbolic dynamics exerted on it like information: massacres, cruelties, the most diverse violence trivialized and turned into digital streams of zeros and ones, in painless quantifications, swept by voice or writing that they are piled or over piled, generating forgetfulness. We also need to silence for once the deep abstraction that has distanced the body of what we are, while exposed to the surface as vulnerable fragility. All of this, because the intensification and spread of violence in the public space would not free us to seek alternative and more precise

11. Also see Roberto Esposito (2006) in his book *Categorías de lo Impolítico.*

definitions of violence to think of it as an event, where pain, injury and sympathy are integral elements of its deployment.

Life is common. Death has no reason to be. Life and death involve us all in different ways, not only in our blood relations or relatives, but also politically; and that is, strangely, what politics and political life (this *zoon politikón*) has lost sight. By thinking space as commonplace, what we notice is the evidence that the way of being of existence when humans are born, or before, when the womb is swollen by pregnancy as preceded existence, given to a relationship that is poured into the distance: the child inside the mother is at a distance with her skin and its flesh in her flesh. The child is never the mother, but always keeps an approximation to it. Thus, when the birth occurs, the proximity of the newborn to the world reveal the origin of existence is that of to-live (Esposito, 2009: p. 22). This is the idea of a common area, while inhabiting the livable as giving each of them a place. This is in contrast to ideologies of death that have been perfected in the extermination, dismemberment and disposal of space as new (extended) forms to activate violence such as in a common or clandestine grave that seeks for in a purpose that does not *display* differences and that no visibility of violence that was applied to the previously living.

So what is a mass grave? A mass grave is, in short, that empty place yet as the same time filled: the difference, individuality and uniqueness are nullified in the in distinction of a body against, over, other bodies that have been *thrown* in the same hole. This is not an area that housed pain nor a space between each other (spacing), but a place that is no place- [12] In this vein, it is a space that is not, until it is filled with pain and temporarily suspended; it's not an extended space but a space without extension- in other

12. We refer to that the Greek called Xora : it is a space in which the thing is, but it is not the space without something in it. Xora : the non-space or compartment to the extent that is intervally making space (Algra, 1995: 72-117).

words, a non-place that where the imposition of the disappearance and in distinction occurs. But we make reparation, sideways, in this no-space when we talk about a mass grave: the hole is not a place, because the place *is* things to *be* , are in place as his way of *being in* , or he proper place for each and every one; but in the mass grave what is found *is* the congestion, piling that blurs the uniqueness of those thrown there, who are denied the being of their being denied life; but even more, it is the interval of a pit to another, the horror intensifies a non-place, a common area of pain, suffering and bereaved relatives from Guerrero to Michoacan, from Ciudad Juarez to Tamaulipas. The common space then becomes a shared condition, because the verticality of life at every moment is questioned before the amorphous flatness of the bodies discarded without their own space, as is the common grave (Romero, 2014).

It should be understood that the space that we have considered -for modern mathematics (at least until Bernhard Reimman) and philosophy- as an empty place, always the same: space ready for occupancy, filling; an eternal place without time (Robles, 2000: p 114 et seq.). Thus, understanding the space as an empty space makes it impossible to think the piling of bodies of a mass grave, because only the occupation of the site is able to be seen, the pit occupies and never the piled body that there is-no-place, which has been thrown in the pit.

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However, this event forms an un representable collective stupor: whether the grave is found in Europe in the concentration camps, the pits of Rwanda in Africa, those in all of Latin America, and those found today in Mexico make what is thrown in the pit un representable because the piling of bodies is a prohibited representation, a representation impossible for reason. We are, like it or not, before a spatial and temporal transformation in the forms

of violence, which affects a unrequited dissemination with both categorical, philosophical, ontological and affective experiences.

Violence as events of the pit, the reflection on the figure for the same forms of violence, not only on their narratives or cold indication of their effects, opens a horizon of crucial issues for the understanding of the human in modern times and points directly to what phenomenology in the past century directly stated, the singular irreplaceability, the irreplaceability of everyone, and hence the staggering evidence that objectifies every violent action, removes and deprives of space instead of existence.

In Mexico, the event exposed by piled bodies, leads us to believe our limit: the limit of our self and our history, a way of seeing beyond the plastic body to conceive as a threshold at which happens the inescapable way of being, where we come into contact, where we feel with the other, with the other and ourselves.

The problem we have today in the human sciences is how it will generate the resources to understand and stop imprecise / un representable violence in the common area. The information cannot be stopped in the daily count of losses or the discovery of mass graves because it is not really the dead, the breathless, the speechless, the voiceless; it is alsothe claims that are in the testimony of families, witnesses, evidence: because that's where those who were violated are still making space, claiming its place in the world.

The common life and the common grave are two entirely opposite ways to think of ourselves from the perspective of the community (life and death): While the common life has entered a dynamic of expropriation, the mass grave reveals the crisis of considering fragility, and conversion by the criminal to replace a fragile being, as we all are, for a killable one. Thus, violence in the commonplace, which is the Earth seen from space that we share, therefore comprises, from the intervened and interrupted pain that is caused, the contact that seeks to regulate, rank or annihilate. Violence today is not perplexing. It lets us, in principle,

terrified, landless beings to live, with so much cruelty and anger. We must overcome again and again the echo of violence inflicted because, with everything, we may be questioned by the violence and its uniqueness, which is its occurrence, erasing spaces, un realizing temporality, eliminating life in the common area.

If we consider that the human sciences are handicapped in many ways to ask about violence, because they have failed to generate sufficient categorical system for questioning, we think it is necessary, then, to today deconstruct methods, categories versus unthinkable violent (but repeatable), events to move from fear to question, to challenge what is common to the pit and that is the community in Mexico before so many mass graves.

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ORGANIZATIONAL ENVIRONMENT: MONITORING THE SATISFACTION OF SOCIAL ACTORS IN AN UNIVERSITY INSTITUTION

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ABSTRACT

The environment where a person performs his daily work and his relationships with other actors impacts on the satisfaction of the individual and the community.That is, the organizational climate of a workplace reflects the emotional conditions under which the activities take place daily. Given the characteristics of the academic population of a top level educational institution and administrative population and infrastructure that are available, it is considered important to obtain perceptions that reflect the organizational climate and mark the strategic lines for the improvement thereof, which undoubtedly will manifest in fulfilling the mission, vision and organizational goals. For this reason, establishing a monitoring of the satisfaction of stakeholders involved in an educational institution is a long-term investment, since people who are satisfied generate better results. Considering this, one can detect positive and critical aspects on which plans can be designed for continuous improvement, which are also those that direct individual and collective efforts towards institutional sustainability.

Keywords: *organizational environment, higher education institution, degree of satisfaction*

When speaking of organizational environment, we are referring to the internal environment of an organization and the psychological environment that it describes (Robbins, 2009). Knowing this climate or environment will allow for an understanding of the relatively permanent perceptions and interpretations that individuals have regarding their labor structure, and also will also give an institution its own identity. (Anzola, 2003).

Through conducting a study on perceptions of social actors who are part of the same institution, a number of subjective reactions are reflected. Therefore, monitoring of the organizational climate must be carefully assessed in relation to physical or structural aspects- i.e. You must have elements that allow the objectification of the reality that is being observed. Conducting a study of organizational climate therefore allows for the detection of key issues that are likely to be significantly impacted by the work environment of the organization (Robbins, 2009), in as much as a positive as negative manner, and which provides elements for strategic planning for continuous improvement .

This document bases its analysis on the Gestalt school of thought, considering that individuals understand the world around them based on perceived and inferred criteria, so that they behave according to the way they perceive their world (Perls and Baumgander , 2009). Not putting aside that to every action there is a reaction, the thinking and behavior of an individual depends on the surrounding environment.

We consider that organizational climate is the shared perceptions of organizational members about the organizational processes, such as policies, leadership style, interpersonal relationships, remuneration, cordiality and interrelationships between actors (Rodriguez, 2005).

ORGANIZATIONAL CLIMATE IN AN EDUCATIONAL INSTITUTION

Currently the organizational climate of educational environments, specifically in higher education, becomes an complex integrated by the internal environment, the context, behavior and structural approach of the institution. For this assessment, the study adds three variables: A) environmental variables; size and structure of the organization, management of human resources. B) personal variables; fitness, attitudes and motivations of the subject; and C) resulting variables; satisfaction and productivity, influenced by environmental variables (Brunet, 1999 and Rodriguez 2005).

But what is the main objective of monitoring the organizational climate of a university? The answer is logical. Working with these variables of analysis allows for the strategic planning of the development of the institution. In other words, directing efforts in the search for quality organizational processes that will benefit both the institution and its employees, as well as the individual and the collective. All of this will lead to lifelong learning, in academic and administrative processes (Murillo, 2004), as well as optimizing the potential of each area of development and of each social actor immersed in the same institution.

One of the variables of greater interest in the processes of analysis of organizational environments is communication. It is an essential element of the work environment which impacts workers, productivity and performance. In this regard, Gomez-Mejia et al (2000) considers that the existence of adequate broad-spectrum communication channels is key to achieving its development. It is then that communication helps stakeholders to achieve individual and common goals, coordinate activities and behave in an appropriate manner in order to achieve an institutions objectives, vision and mission (Ivancevich, 2006) .

In these types of studies in educational institutions, they are applicative in nature and allow for the diagnosis of the functioning

of the organizational structure, allowing for the identification of assertive factors or elements and those with deficiencies and inadequacies, facilitating the identification of causes and levels of involvement. For these reasons, Gan and Ferbel (2007) consider that such studies should be used preventively.

Due the previously mentioned factors, there is presently interest at educational institutions in conducting these types of studies that consider the benefits of seeking educational quality. This paper focuses on showing the results of a study of the organizational climate of an institution of higher education, where the process of formation goes beyond the purely academic emphasis on social responsibility- For educational institutions, the formation of quality human capital.

METHODOLOGICAL DIMENSIONS

The model used in this study is one that was developed by Reyes-Guillen et al (2008), a holistic vision for the analysis of perceptions, considering an inter stakeholder scenario, that is, to analyze the perceptions of all social actors involved in the same process .

The model in question allows for the analysis of the perceptions and interactions between actors involved in a determined event or situation and their influence in decision-making. For this case study, the structure and perceptions of this inter stakeholder scenario which allowed for the description in a timely manner the organizational climate of the institution, recognizing the social actors as teachers, students and administrators.

OBJECTIVE

Develop an organizational environment study as a way of monitoring stakeholder satisfaction in a higher education institution.

METHODS

This qualitative and quantitative study was conducted in the period August 2013 to January 2014 in the Faculty of Social Sciences of the UNACH which is located in the city of San Cristobal de las Casas, Chiapas.

The university population is characterized of being comprised of a multi-ethnic population, where the mother tongue of 35% of the students is different from Spanish (18% Tzotzil, Tzeltal 10% and 7% Chol) (Guillen Reyes et al, 2014).

The study population was comprised of stakeholders that include teachers (Full time, part time, and adjuncts), students and administrative staff with equal proportions of men and women.

Sampling was done by proportional allocation in each of the strata classified by the investigator, faculty, staff and students; considering a sample of 10% of the total population by strata and gender.

The survey process included a total of 250 questionnaires which were applied in a personalized manner with the interviewer filling out the format. The evaluated items were:

a) Knowledge of the goals and organizational structure of the institution.
b) Knowledge of the functions, rights and obligations of the organization.

c) Perception of the environment in terms of inter stakeholder relationships, material resources and needs for improvement.

Upon completion, the survey information was captured into computerized databases (Microsoft Office Excel 2013), followed by a statistical analysis of the information obtained through SPSS v 20. The analysis was carried out qualitatively and quantitatively with differentiation for stakeholders.

RESULTS

General information. The study was conducted with a sample of n = 250. Of those interviewed, 34.3% speak a language other than Spanish, the most frequent Tseltal (15.3%) and Tsotsil (8.5%) followed by Chol and English (5.1% in both cases).

Regarding the knowledge of the goals and organizational structure of the institution. 53% of respondents were unaware of the mission, vision and goals of the institution. 66% did not suggest mechanisms to improve their dissemination. 67% of respondents did not know the organizational structure of the faculty; however, 79% recognize the Director of the School as the highest authority. Regarding the administrative functions of the administrative secretary and academic secretary, a high percentage had no knowledge of these roles (43% and 63% respectively).

Regarding the roles, rights and obligations of the organization, 57% of the respondents know their roles, rights and obligations within the faculty.

As for inter stakeholder relations 64% of respondents perceived the existence of limits on the relationship between each individual that makes up the faculty. The existence of apathy, lack of communication, divisiveness, ideological diversity and lack of interest were mentioned which are elements that hinder communication and teamwork by marking inequalities.

Regarding the perception of the material resources that are available, 82% agree in saying that they are insufficient for university life. They claim that this condition would improve if financial resources for infrastructure and training for teachers and administrators were obtained.

When asked about the way in which these resources are available, 80% said that through the negotiations with the university central administration, as well as by way of externally funded projects, with both actions involving teachers, students and administrators.

Regarding the perception of the environment and possibilities for improvement, the most frequent responses were related to infrastructure and academic needs. As for the possibility of achieving these improvements which were identified as necessary, 75% of respondents believe that it is feasible since it is a question of will to propose good projects and to find ways of managing them. To achieve these improvements, they consider it necessary to organize through assemblies, as well as manage and evaluate processes to achieve specific objectives (79%).

If we talk about the results that were obtained with respect to the active participation in the search for improvements to the university faculty, 51% would participate in the search for improvements, mainly by commitment to the institution and society; while 45% would not due to lack of interest and the constant expression that it does not correspond to their functions.

DISCUSSION

In the case of this higher education institution, the work environment is constituted by the interaction between teachers, students and administrators who were interviewed. A picture of a heterogeneous, complex, work environment in a predictable and rigid bureaucratic continuum is visible.

According to Chiavenato (2011), the environment is a direct influence that generate a more or less favorable conditions for the development of activities and emotional health of workers. Institutions adjust and adapt to environmental demands, and survive and grow (Chiavenato, 2011). For the case study, it is clear that efforts must be directed to change the landscape and provide access to opportunities to quality livelihoods.

It is important to refer to the contextualization of the institution. In this case, slightly more than half of Mexicans are comfortable with the type of work they do for a living and a significant percentage do not know or are not comfortable with their job (Diaz-Guerrero, 2005). A criticism of each stakeholder to their environment is also plausible, as well as the unwillingness to propose improvements and to further engage in the process of building and strengthening of the institution. These elements are far from being seen as impediments, and should be seen as elements of attention when strategically planning lines of development in the medium and long term.

When speaking of energy sources for the existence and development of an organization, they can be 1) people (human resources) and 2) material resources. In this case they both energy sources and major findings were analyzed and recorded, such as ignorance of the mission, vision and goals of the institution for more than 50% of the study population. Over 60% are unaware of the organizational structure; however the figure of the director as the highest authority was recognized.

The perceptions of the environment and the inter stakeholder relationships are crucial in the analysis of staff satisfaction in an organization. The results show that communication channels do exist and inter stakeholder relations are generated (45%); but a lack of motivation, apathy, divisiveness, and disinterest are pervasive; elements which, moreover, hinder communication and teamwork by highlighting inequalities (64%). Clearly, this is one of the main interests to be taken into account in the planning of institutional development.

At this point, it is interesting to quote Likert who considers human organization to be directly related to effectiveness at work through variables such as quality of life at work, confidence level and interest, motivation, loyalty, and communication (Likert 1975; Chivenato 2011). In the case of the institution that was studied, we must address these issues in order to achieve an organization with a foundation of development and strengthening.

Efficiency and quality are the result of the way in which activities are done to achieve the objectives of an organization and the effectiveness and satisfaction of the stakeholders of the organization (Chivenato, 2011).

In this document, it is important to make clear the results of monitoring the degree of satisfaction of the stakeholders involved in an educational institution, explaining the results of an analysis of the organizational environment through the modelling of perceptions.

One of the main reasons that justify the lack of cooperation is the failure or lack of material resources. The institution of this study was no exception in this case. Most of those interviewed agree in saying that the available material resources are insufficient for university work, and we recall that students, faculty and staff were interviewed which assists in not bending this perception for the concerns of one group.

Complementing the above, the stakeholders believe that this situation can be addressed with the participation of the university

community, taking into account on the one hand the central university administration and on the other, externally funded projects.

In identifying priorities for development plans, the first related to infrastructure, followed by academic needs.

CONCLUSIONS

From this study and in accordance of the results found after identifying the organizational environment such as the monitoring of satisfaction of stakeholders in an institution of higher education, we conclude the following:

The educational institution where the study was conducted is formed by the interaction between teachers, students and administrators, and a picture of a heterogeneous, complex, predictable work environment in a bureaucratic and rigid continuum can be observed, impacting heavily on the academic productivity of the institution. There is not an environment full job satisfaction since it is perceived as a negative environment, where apathetic, divisive and intolerant of ideological behaviors are perceived.

Those who participated in the study perceived and shared criticism about the conditions regarding the environment, organization and material resources. They also gave suggestions for improving these processes or conditions but, paradoxically, lack the will to actively participate in them.

The designing of a Strategic Improvement Plan for the institution is essential, with the involvement of all of the stakeholders through the facilitation of communication channels, thus making it an assertive process between teachers, academic and administrative directors and students which achieves the goal through teamwork and leadership.

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INTERSTATE MIGRATION FLOWS. ASSESSING TRENDS FOR MEXICO. 1950-2010

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ABSTRAC

This work identifies migratory flows taking place between the states in Mexico in a long-term perspective. Migration within a country is a manifestation of the different production conditions and growth rates of its entities and regions. They identify its imbalances and trends, which, in order to be corrected, require knowledge of their population movements and their determinants. This investigation takes as its main statistical source the Population Censuses from 1950 to 2010. By obtaining the migratory balances by state throughout the period, research institutions identify migration by type of behavior, which analyzes and follows trends. To this end, absolute migratory flows are considered and their importance from the point of view of the total population are then emphasized .Throughout the period, interstate migration flows make up a scenario in which a greater proportion of states behave like population ejectors and a lower proportion as attractors. Of the ejector states, the most important is the Federal District. The state of Mexico is the most important attractors. One central region with great migration activity where only two states interact predominantly as a receiver and ejector is thus formed. In addition to the central region, the investigation identifies attractors and ejecting regions in the north, northwest, northeast, north central, south and southeast. The paper concludes by discussing the importance of intense migratory flows in the central region and its future implications.

Keywords: *migration, population, interstate, region, expulsion, attraction.*

Migration within a country is a manifestation of the different production conditions and growth rates of its various entities and regions. It reflect the spatial interaction of socio-economic relations. For the same reason, we realize its imbalances and its trends. In order to correct imbalances and anticipate trends in whatever form requires first to know the population movements and their determinants. In other words, it means having a statistical basis of such movements associated with socioeconomic variables, to help formulate tentative generalizations that, confronted with existing theories of migration flows, predict behavior and propose policy measures designed to promote stabilizing behavior.

This paper has as its initial purpose, based on the available statistics, to account for the migration taking place between the states on a long-term perspective. Secondly, it tentatively aims to contribute to the identification of relevant economic regions from migration flows.

The substantive part of this work is focused on providing a general outline of migration between states for the period 1950-2010, and to identifies groups of migratory entities by type of behavior, analyzes them and detect trends. To this end, absolute migratory flows are considered and its importance from the point of view of the total population is emphasized. The final section presents the conclusions.

A drawback of this study relates to the analysis of the period that was chosen. Over sixty different events have occurred, both national and international, which have undoubtedly determined the population's behavior. Such behavior has shown variations and trends in interstate flows, but it is clear that sixty years may be a long enough period to contain, in turn, different sub-periods, each associated with a corresponding set of determinants to specific behavior .This means that factors that are valid for one period, are not necessarily true to the other, resulting in migration

although there are undoubtedly underlying determinants that do not always act with the same intensity and are not always similarly combined. In other words, there would be no standing to derive generalizations on the same migration theories being valid for all times and places.

Thus, in this work, our aim is reduced to delineate trends on migratory flows both on the side of the function of a geographical entity as "attractor" populations, such as expellers, but also with a view to identifying economic regions that establish their degree of dynamism and / or delay, in order to predict trends using attraction-repulsion techniques, and / or more sophisticated spatial interaction and therefore enable policy measures most suitable to promote behavior in an environment of economic growth and development at different, local, state and regional levels.

SOME THEORETICAL AND EMPIRICAL BACKGROUND OF INTERSTATE MIGRATION

The phenomenon of migration has focused with different spatial ranges. Some are international, inter-regional, interstate and intrastate. This paper is mainly interested in interstate and marginally the most recent. As for the interstate ranges, long ago several authors have benefited us with their excellent contributions. A classic study is by Ravenstein (1885) who takes as its object of study the UK and bequeathed a set of basic relationships that determine inter-population movements. In his view, these relations reached the category of immigration laws. Another, more recent, interesting study on this type of flow is by Clayton (1977), prepared for the United States. A state study addressing short-term migration having as one of its root causes economic fluctuations, is found in KP Ballard, and Clark GL. (1981). The costs

of interstate migration are addressed by Bayer, C., and Juessen, F. (2008). Less specific but also worth taking into account are the contributions of geographical and interregional characters is Beyers (1980); Rogers (1980); Tobler (1981) and Woods (1982). Mexico has a substantial record due to the work of Greenwood, MJ, Ladman, JR, and Siegel, BS (1981); Partida (1984); Uribe, M. and Caso, A. (1979); and Garrocho (1996).

These studies have adopted different methods according to their particular objectives. For example, the work of Ravenstein qualifies as descriptive statistics, which in no way detracts, especially if it is considered to be a pioneer work. The same is true of the work of Corona (1993) for Mexico. Other works adopt an econometric approach such as Partida, for the short term, or Greenwood, for the long term (1950-1970). Meanwhile, Clayton uses the method of Principal Component Analysis and nodal analysis, which is a theoretical - graphical technique. As a result of this variety of approaches, periods and spatial coverage, the scope of such contributions will also be diverse.

GENERAL INTERSTATE MIGRATION TRENDS IN MEXICO

According to the INEGI and based on the population census published by the institute of 1950-2010, a compilation, systematization and analysis of information on migration flows between

1. The numbers are rounded.

2. As the information on which is based the analysis comes from the census of the population and housing, and these are registered in decades, when we refer to 1950, 1960 etc. we are referring to the census of these years, which, as is obvious, understand and refer to the decades that end in those years. For example, when we say 1950, we refer to the period of 1941-1950, and so on.

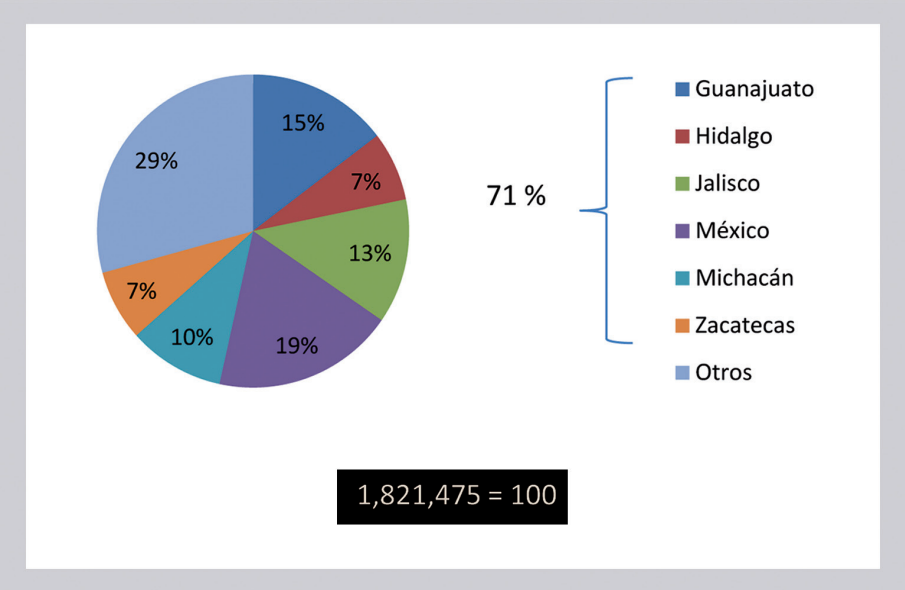
the states belonging to the country took place. Derived from this work, the following preliminary results were obtained.

In 1950, the people who left their birthplace to reside in another totaled one million 820,000 , [1] a figure that rose to pass the decades to reach 9 million in 2010. [2] However, surprisingly, as a proportion of the total population, migration rose only slightly, because in 1950 it represented 7.1%, while for 2010 it was 8.0%, and on average for the whole period from 1950 to 2010, 7.1%.

During the 1970s and 1980s the lower intensity of emigration was recorded as a proportion of the population (6.4 and 6.3% respectively), having risen steadily since 1990.

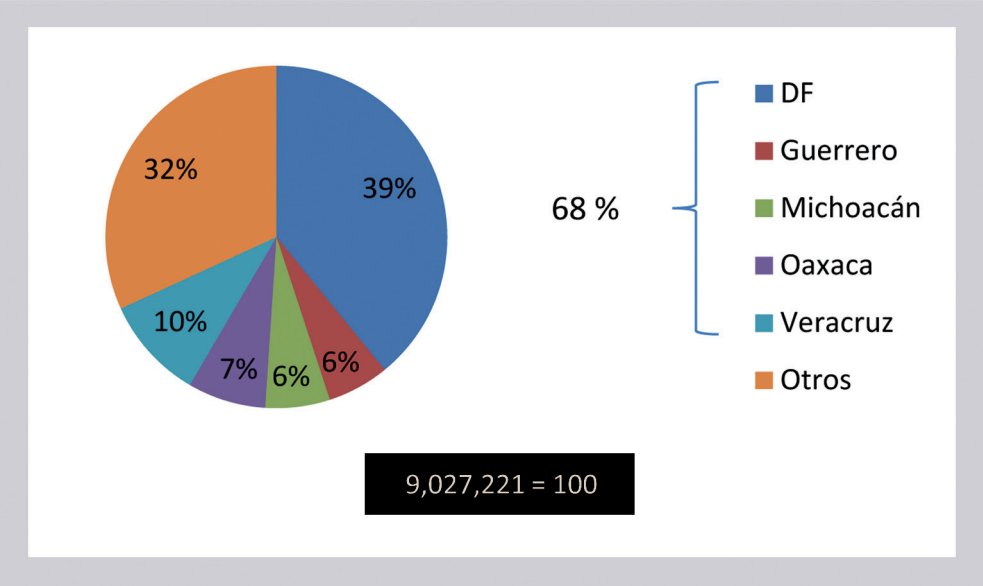
According to the 1950 population census, 6 entities contributed with 71% of people who left their place of birth (Guanajuato, Hidalgo, Jalisco, Mexico, Michoacan and Zacatecas) (see Figure I). By 2010 this composition had changed, because only five institutions contributed 68% (Federal District, Veracruz, Oaxaca, Michoacan and Guerrero), of which the Federal District contributed 39% (see graph 2).

Graph 1. Entities in the Mexican Republic that provide a migrant population 1950.



Source: Own design based on Figure 1 / See Annex, Others thousands

Graph 2. Entities in the Mexican Republic that provide a migrant population 2010.



Source: Own design based on Figure 1 / See Annex, Others thousands.

Migration flows concern both the entities from which migrate people of different age and sex to others, whether they are neighboring or not, and entities that act as recipients from other states; Sometimes referred to as the first ejector population entities, and the latter as attractor entities.

Moreover, migration flows are population movements that have a variable behavior, both in intensity and scale, responding to factors of political, religious, cultural, economic, etc. type. In this exhibition we will not stop for the moment for such factors, since they require a careful and extensive review, but something more immediate, its phenomenal behavior, or in other words behavior and interaction in the period from 1950 to 2010 regardless of their causes. So, first we try to present the facts as they manifest and in another work we will seek to identify the determinants of the most important trends of interstate migration.

Of the systematic information, there have been four clearly detached behaviors of migration flows for the study period. In the first (I), entities throughout the period that showed a constant behavior in their function as ejectors are grouped; in the second (II), entities that, in contrast, showed a capacity to meet population attraction; in the third (III) remain the states that changed their status as first ejector and then attractors; and in the fourth (IV), those entities who first acted as attractors, and later as ejector.

EJECTOR POPULATION ENTITIES (1950-2010)

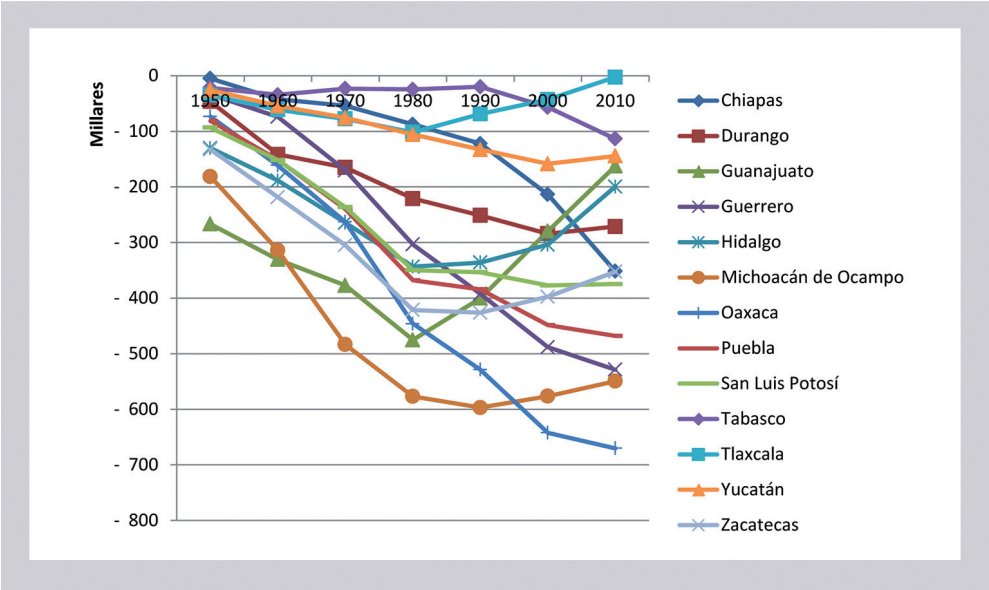
Group I consists of 13 entities (see Figure 3), and we should highlight the first place to Oaxaca. This state expelled 73,000 inhabitants in 1950 to 670,000 in 2010, followed by Michoacán (from 180,000 to 550,000); Guerrero (from 34,000 to 530,000) and Puebla (from 80,000 to 470,000).Three other states (San Luis Potosi, Zacatecas and Chiapas), expelled population in an average range of 75,000 in 1950 to 360,000 in 2010, highlighting especially the ejector dynamism of Chiapas, after 1990, while the other two states they were until 1980, then show a steady or declining ejector behavior. [3]

Of the remaining 6 entities, 5 (Durango, Guanajuato, Hidalgo, Tabasco and Yucatan) on average expelled 98,000 people in 1950 , by 2010 were sending people to other entities by an average of 178 thousand. While it should be noted that Durango, Tabasco and Yucatan maintained a dynamic flow ejector (but from a low level of expulsion: 31,000 people on average

3 In effect, over a much lower base, in 1950 (5,000) where the expulsion in the period of 1950-2000 multiplied by 71.

in 1950), while Guanajuato and Hidalgo reported an upward trend until 1980 (starting a base of more than 100,000 people in 1950) and decreasing the next 30 years. A special case is that of Tlaxcala, which has traditionally been ejector and this upward trend in the period 1950-1980 and decreasing in 1990-2010, on a base of 55,000 expelled on average per decade, having 2010 as its decade of lowest expulsion.

Graph 3. Constant expulsing entities, 1950-2010, Number of migrants

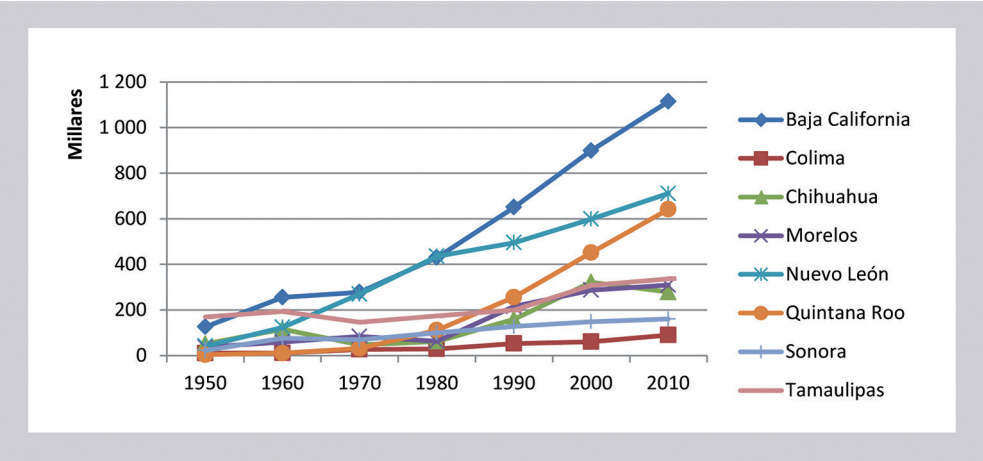


Source: Own design based on Figure 1 / See Annex, thousands.

ATTRACTORS POPULATION ENTITIES (1950-2010)

Group II is made up of eight companies (see Figure 4), of which Baja California, Nuevo Leon and Quintana Roo kept attracting a growing population.

Graph 4. Constant attractor entities. 1950-2010, number of migrants



Source: Own design based on Figure 1 / See Annex thousands

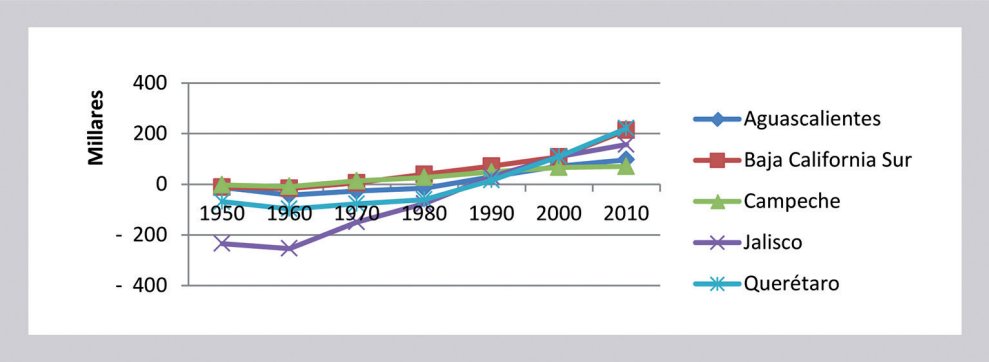
Baja California in 2010 multiplied by 9 (8.85) the number of people who entered their territory with respect to 1950. In turn, Nuevo Leon and Quintana Roo did it for 17 and 156 respectively. In absolute terms, California has played a major role as attractor, but Nuevo Leon and Quintana Roo (especially the latter) have been in terms of dynamism. Chihuahua, Tamaulipas and Morelos in 2000 exceeded the level of receiving 200 thousand people, while Colima and Sonora remained throughout the period below that level, with greater participation, however, from Sonora.

ENTITIES THAT CHANGED THEIR STATUS TO ATTRACTORS FROM EJECTORS (1950-2010)

Group III is made up of six states (see Charts 5.a and 5.b), which immediately highlights the State of Mexico, because of its status as an ejector of population in the censuses of 1950 and 1960,

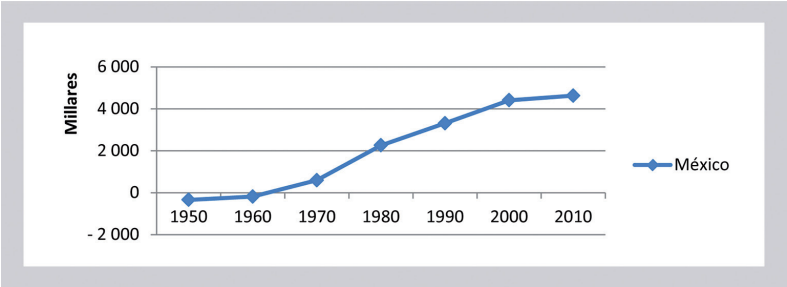
went on to attract major migratory flows , from 600,000 in 1970 to the important figure of 4 million 600 thousand in 2010. Of the other entities, we should highlight Jalisco, which has been driving an average of 180 thousand inhabitants in the decades from 1950 to 1980, it has gone to receive in its territory nearly 100,000 people from 1990 to 2010. The other relevant state is Baja California Sur, because in the last 40 years has increased its attracting capacity, capturing in 2010 over 210 thousand people. Aguascalientes, since 1990, has increased its receiving position to the figure of 100,000 migrants. Queretaro, after having expelled an average of 76,000 people between 1950 and 1980, since 1990 has increased its receptive capacity, and in 2010 received 210 thousand migrants. Campeche, although it was expelling during the period 1950-1960, since 1970 he has been receiving people, although in amounts that do not exceed 75 thousand people, even for 2010.

Graph 5.a Entities that modified their condition from ejectors to attractors. 1950-2010, Number of migrants.



Source: Own design based on Figure 1 / See Annex thousands.

Graph 5.b. Atypical ejector-attractor entities. 1950-2010. Number of migrants

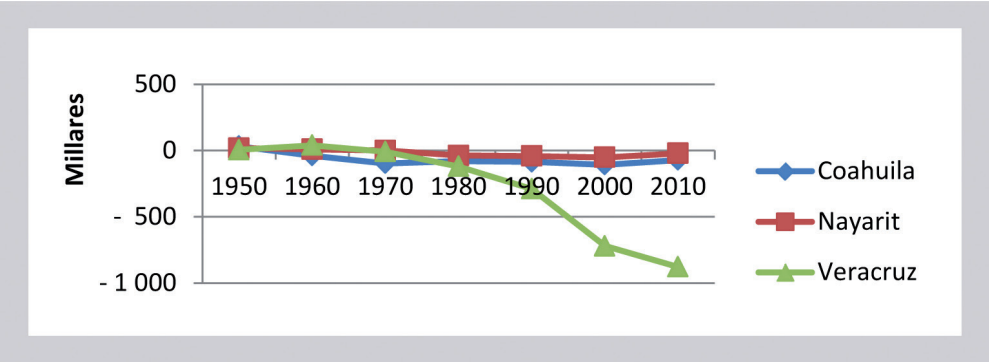


Source: Own design based on Figure 1 / See Annex thousands.

ENTITIES THAT CHANGED THEIR STATUS FROM ATTRACTORS TO EJECTORS (1950-2010)

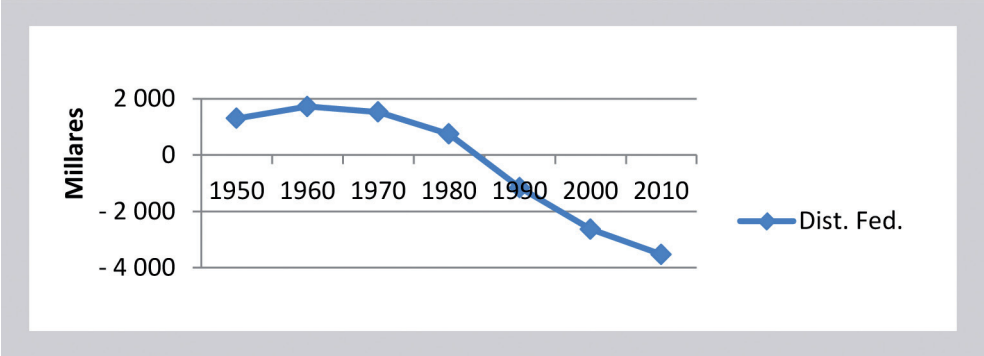
The group IV in turn consists of 4 entities (see Charts 6.a and 6.b). Notable among them are Mexico City, which, after attracting an average population of one million 300 thousand people every 10 years between 1950 and 1980, this situation has reversed since the 1990s, with 2 million 440 thousand ejected on average every decade until 2010. Another state, Veracruz, stands out because since the 1970 census it has been increasing the number of people who migrate to other entities. In the decades of 1990-2010 It has expelled on average 630,000 inhabitants. Coahuila has ejected from its population since 1960 on an average of 80,000 every decade, while Nayarit has done so since 1980 at a lower level (less than 40 thousand people until 2010).

Graph 6.a Entities that modify its condition of attractors and ejectors. 1950-2010. Number of migrants.



Source: Own design based on Figure 1 / See Annex/thousands .

Graph 6.b Atypical attractor-ejector entitites. 1950-2010.



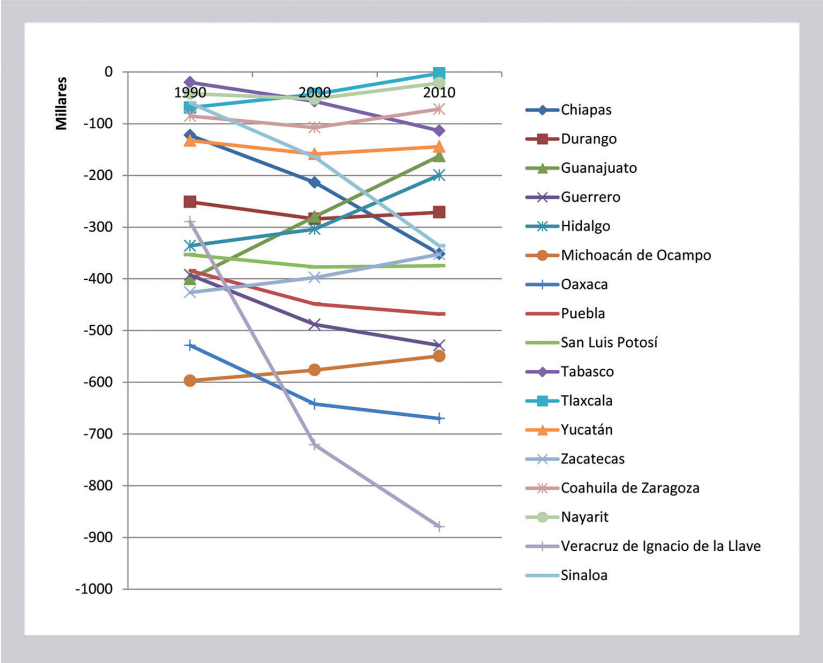
Source: Own design based on Figure 1 / See Annex/thousands

However, considering the fact that in the period 1950-2010 there are states that changed their status to attractors from ejectors (group III), or attractors to ejectors (group IV), when considering these changes as already made, we can reduce the number of groups to only 2 for the censuses from 1990 to 2010, or, for a short time horizon of 30 years. Those groups can be identified as V and VI respectively.

TOTAL EJECTOR ENTITIES (1990-2010)

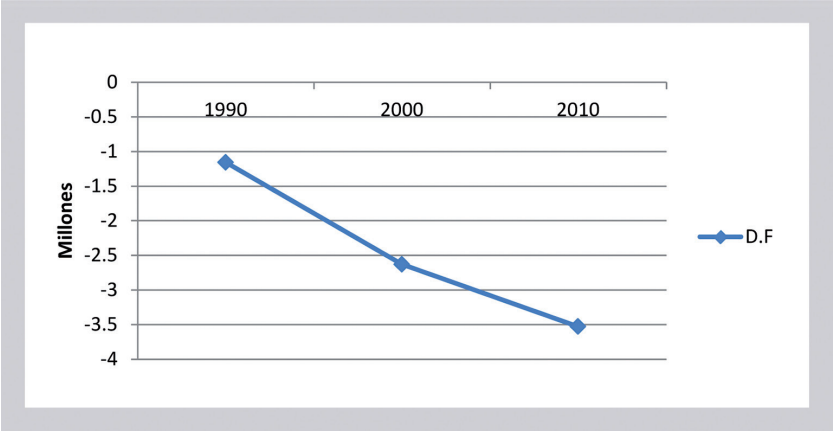
So, on the one hand is the V group of ejectors states, which is made up of 18 states, 5 more than in the expanded horizon (see Charts 3 7.a 7.b). Of these, five entities (Guerrero, Michoacan, Oaxaca, Mexico City and Veracruz) for 2010 were expelling population above 500 thousand, but the first place was for the Federal District, the only entity with an expulsion above 3 million 500 thousand , significantly followed by Veracruz and Oaxaca.

Graph 7.a. Total of ejector entities from 1990-2010 (not including Mexico City). Number of migrants



Source: Own design based on Figure 1 / See Annex / thousands

Graph 7.b. Atypical ejecting entity for 1990-2010. Numbers of migrants



Source: Own design based on Figure 1 / See Annex .

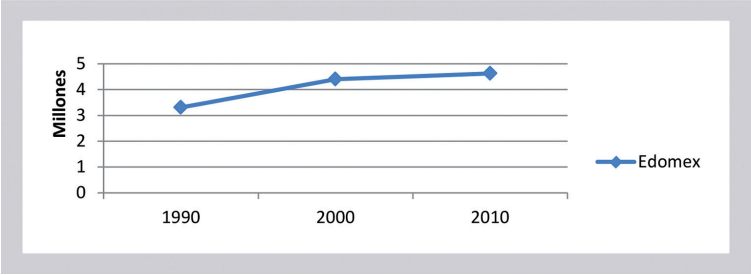
Three other states (Puebla, San Luis Potosi and Zacatecas) expelled populations in a range between 350 and 450 thousand people in the period. Durango and Yucatan did an average of 270 and 150 thousand respectively. Sinaloa and Chiapas expelled populations of 100,000 in 1990 to 340,000 in 2010, while, conversely, Hidalgo and Guanajuato referred population to other entities from 180000 to 350 thousand in the same decades. Tlaxcala, Nayarit and Coahuila were migrant ejectors at an absolute low and declining level (below 100 thousand in the decennial period) -particularly Tlaxcala and Nayarit, in that order. Tabasco, meanwhile, also maintained a low, but growing , absolute level of expulsion.

TOTAL ATTRACTOR ENTITIES (1990-2010)

On the other hand there is the group VI, attractor states, consisting of 14 (versus 8 on an extended horizon, see Figures 4, 8.a

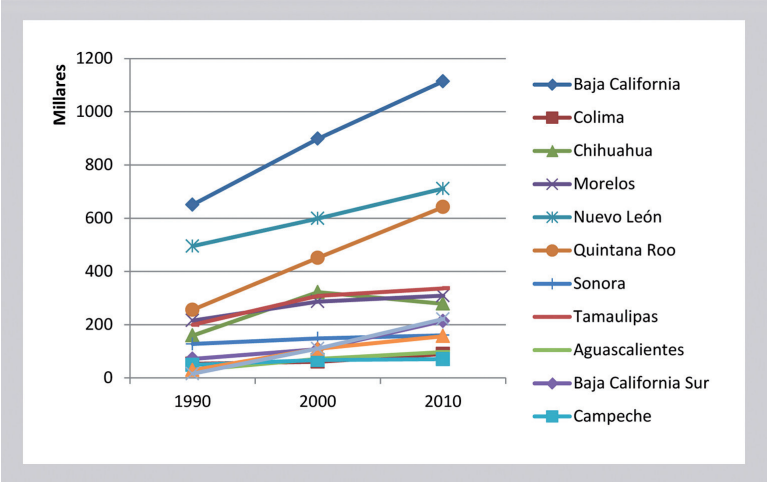
8.b). Of these, 4 are relevant for their attractive capacity. Firstly, the State of Mexico, the single entity with a pull of more than 4.5 million people in the decade 2000-2010. Secondly, Baja California, already surpassing one million people in the same decade, significantly followed by Nuevo Leon and Quintana Roo, with immigrants flows above 600 thousand.

Graph 8.a. Atypical attractor entity for 1990-2010. Number of migrants.



Source: Own design based on Figure 1 / See Annex .

Graph 8.b Total of attractor entities for 1990-2010. Not including the State of Mexico.



Source: Own design based on Figure 1 / See Annex .

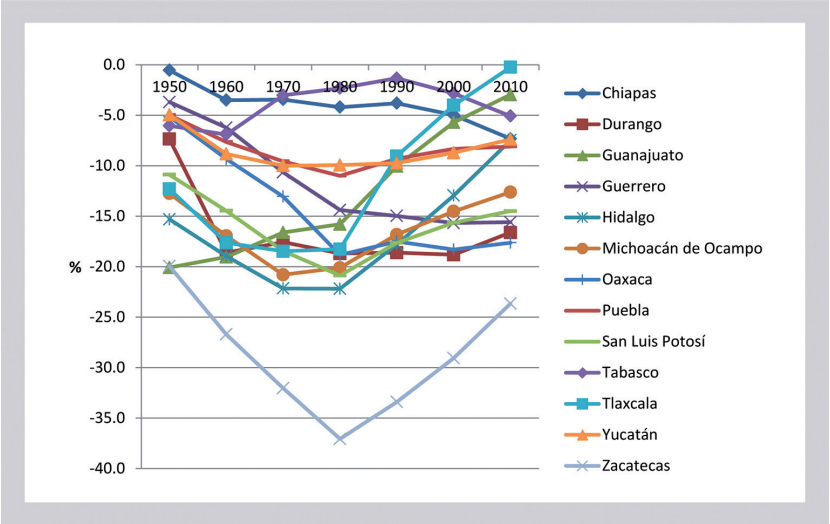
It is followed by a group of three states (Tamaulipas, Morelos and Chihuahua) which attracted an average population of 270 thousand people per decade between 1990 and 2010. Finally, a group comprised of 7 states (Colima, Sonora, Aguascalientes, Baja California Sur, Campeche, Jalisco and Querétaro) captured migrants at an average below 145,000 every decade in the period. Those reporting the lowest levels were Colima, Campeche, and Aguascalientes.

MIGRATION FLOWS AS A PROPORTION OF THE POPULATION

Now, returning to the extended time horizon (1950-2010), it must be emphasized that the results achieved in terms of the evolution of interstate migration change when we focus the analysis in terms of their importance to the population of the entities, instead of considering only the absolute flows.

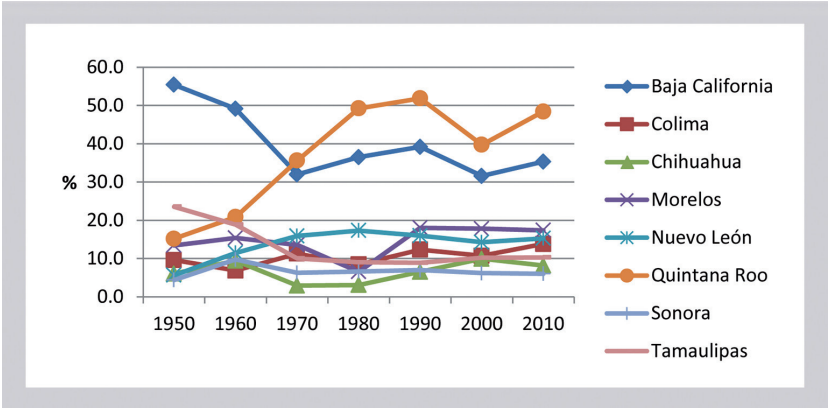
For example, for group I, states like Oaxaca, Michoacan, Guerrero and Puebla, viewed in absolute terms increased the number of people expelled in the period 1950-2010, saw expulsion decreased as a proportion of the population after 1980 denoting the fact that the population grew faster than the speed at which these states expelled migrants. While in states like Tlaxcala, who reported an absolute low level of people expelled in the entire period from 1950 to 1980, the proportion of expelled population was growing until 1980, in other words until this decade the population was growing more slowly than their rate of expulsion. This relation was reversed since 1990. This feature is even more pronounced for Zacatecas state that reported a rate of 37% expelled in 1980, a proportion that decreased gradually by 2010, remaining however higher than for all other states. [4] (See Charts 3 and 9 together).

Graph 9. Constant ejector entities. Migratory balance as a proportion of the population. 1950-2010.



Source: Own design based on Figure 3 / See Annex.

Graph 10. Constant attractor entities. Migratory balance as a proportion of the population. 1950-2010.



Source: Own design based on Figure 3 / See Annex.

4 When we talk about the proportion we refer to the population the emigrated or immigrated during the focus decade, with respect to the existing population in the moment that the census was done. It does not refer to the accumulated migrants.

As for group II, the flow of immigrants captured by Baja California as a proportion of the population was important in 1950 (55.4%), but a downward trend until 1970. After this year and until 2010 it maintained an average share of 35%. That is, in the first half the population grew faster than the rate of expulsion, however it was high, while in the second, population growth kept pace with the rate of attraction. This reveals the growth potential of the state, because it is not only able to retain a growing population, but also attract a large number of immigrants (see Figures 4 and 10). In the case of Quintana Roo, a state that equally attracted people throughout the period 1950-2010, the population growth was slower than the rate of attraction, reflecting as a result an increasing proportion of immigrants with respect to the population.

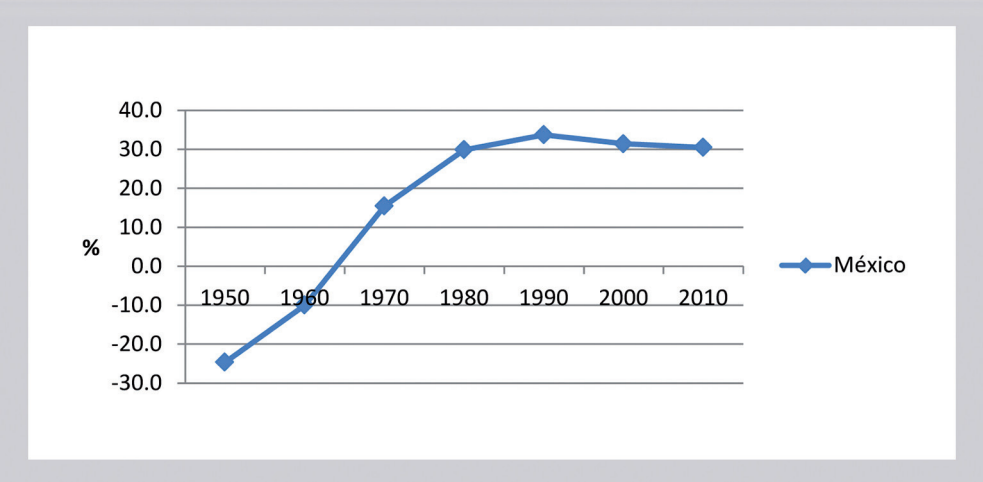
The group of states comprised of Colima, Chihuahua, Morelos, Nuevo Leon, Sonora and Tamaulipas, maintained a positive rate of attraction, but relatively low throughout the period, while the population as a proportion of variations reported below 20%, and some faster population growth and slower in other cases, thus reflecting a lower or higher rate ratio of attraction with respect to the population.

In turn, the State of Mexico (Group III) for 1950 expelled 25% of its population by 2010, 30% of the population were immigrants, but it should be made clear that until 1960 the population grew more slowly than the rate expulsion, and until 1990 the rate of attraction. After 1990 the population has grown faster, even though the rate of attraction was growing, reflecting results in a high proportion of immigrants, but constant in the period 1990-2010 (See Charts 5.by 11).

Another state that is notable for having changed significantly its ejector to attractor status is Baja California Sur. While in 1950 it expelled 20% of its population, in 2010, of every 10 inhabitants, 3 were immigrants. This is explained, in part, that the rate of population growth has been slower, with respect to the rate of

attraction since 1970. In general, for the states of Aguascalientes, Campeche, Queretaro and Jalisco, population growth has been lower than the rate of attraction, but at a relatively lower level than the case of Baja California Sur.(See Charts 5.a and 12).

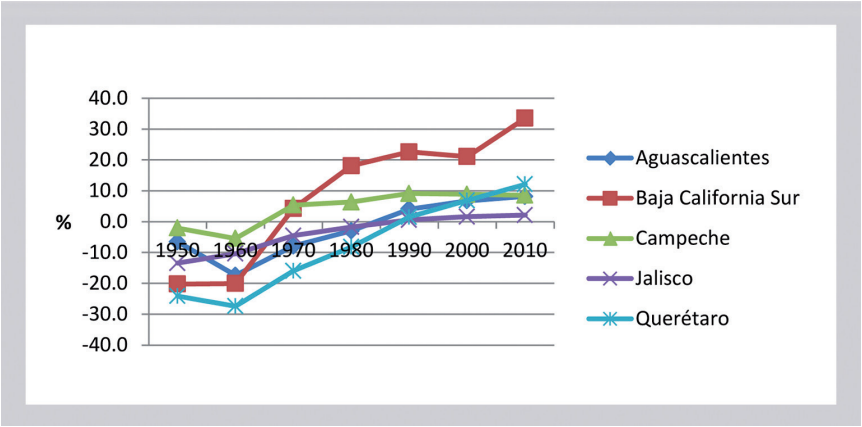
Graph 11. Entity that modified its condition from ejector to attractor. Migratory balance as a proportion of the population. 1950-2010



Source: Own design based on Figure 3 / See Annex.

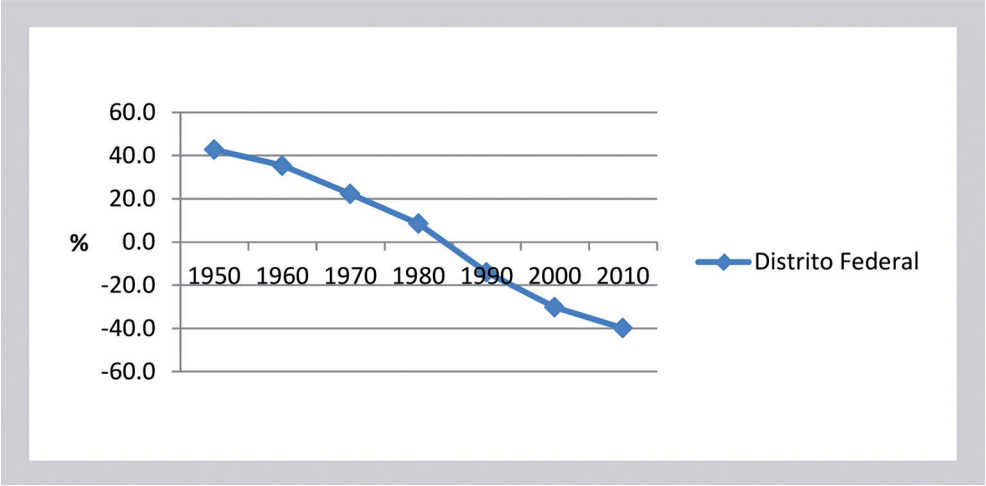
Regarding group IV, the most important of all, both in absolute terms and relative to its population proportion, is the Federal District. In 1950 4 out of 10 inhabitants were immigrants, and by 2010 this situation was reversed, since 4 out of 10 were being driven to other entities. However, until 1980 population growth in Mexico City was higher than the rate attraction, denoting the growth of the urban area, while after 1980 the population growth was offset by an increase in the rate of expulsion, giving rise to a relatively constant population over 30 years (1980-2010). (See Charts 6.by 13).

Graph 12. Entities that modified their condition from ejectors to attractors. Migratory balance as a proportion of the population. 1950-2010.



Source: Own design based on Figure 3 / See Annex.

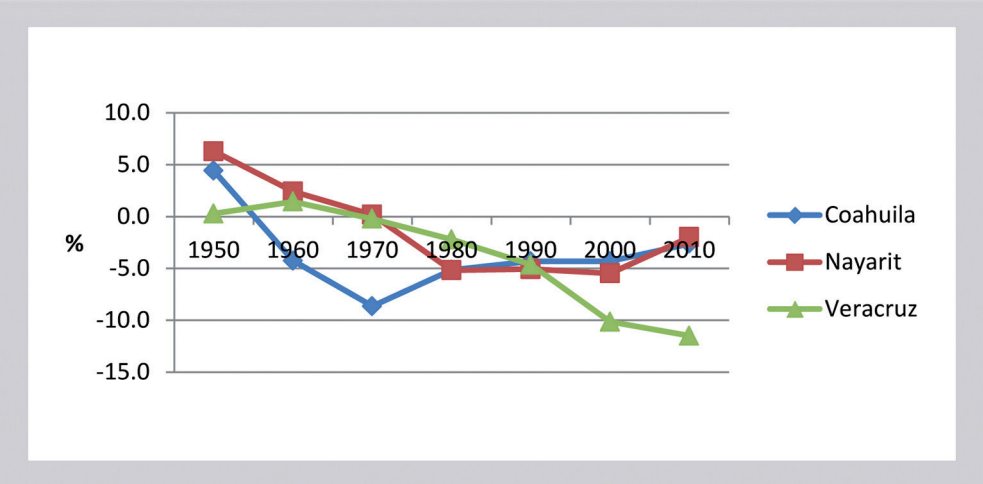
Graph 13. Entity that modified its condition of attractor to ejector. Migratory balance as a proportion of the population. 1950-2010



Source: Own design based on Figure 3 / See Annex.

Another state whose behavior is striking is that of Veracruz, which since 1970 has maintained an ejector activity of its growing population. The proportion of the expulsion with respect to the population which is also growing denotes a slow growth in the population. So the entity is losing population not only by a lower rate of population growth, but by a growing number of those who are expelled. The proportion of the expelled population is less than 15% of the population, even for 2010. Coahuila and Nayarit have been expelling people from 1960 to 1970, but have done so at very low absolute levels, expressing a compatible behavior with growth of the population, which has been slightly increasing (See Charts 6.a 14).

Graph 14. Entities that modified their condition from attractors to ejectors. Migratory balance as a proportion of the population. 1950.2010.



Source: Own design based on Figure 3 / See Annex.

CONCLUSIONS

During the period 1950-2010 the interstate migration flows have formed a panorama in Mexico, so that by 2010, 56% of states were losing populations, while 44% were attractors. The number of expelled as a proportion of the total population was 8% in 2010 (9 million 27 thousand inhabitants). However, of this amount, 6 entities grouped 73% of the number of expelled inhabitants (Guerrero, Michoacan, Oaxaca, Puebla, Mexico City and Veracruz). Of this amount, Mexico City contributes 53% of those expelled. On the other hand, from the standpoint of the process of attracting, 4 states (Baja California, Nuevo Leon, Quintana Roo and the State of Mexico) grouped 78% of the immigrants. Of this percentage the state of Mexico accounts for 65% of the inhabitants that were captured.

In this manner on one hand, a higher proportion of ejectors states is well formed. The expelled population is captured by a lower proportion of states. Of ejectors states the most important by far is Federal District and the most important attractor states is the state of Mexico. It thus defines a central region with high migration activity, where only two entities (state of Mexico and the DF) interact as a receiver and expeller respectively and in a dominant mode.

Moreover, the definition of attracting regions for 2010 cannot be over emphasized: in the northwest, with the 2 Baja California's, Sonora and Chihuahua; Northeast, Nuevo Leon and Tamaulipas; in the center-north, Jalisco, Colima and Aguascalientes; the center, with the state of Mexico, Queretaro and Morelos; and finally south to Quintana Roo and Campeche. (See Fig. 6).

As for sending regions, especially the south and southeast of the country are ejectors, with the exception of Campeche and Quintana Roo. To the north and northwest, half of the states, especially those closest to the center, form a region of ejector

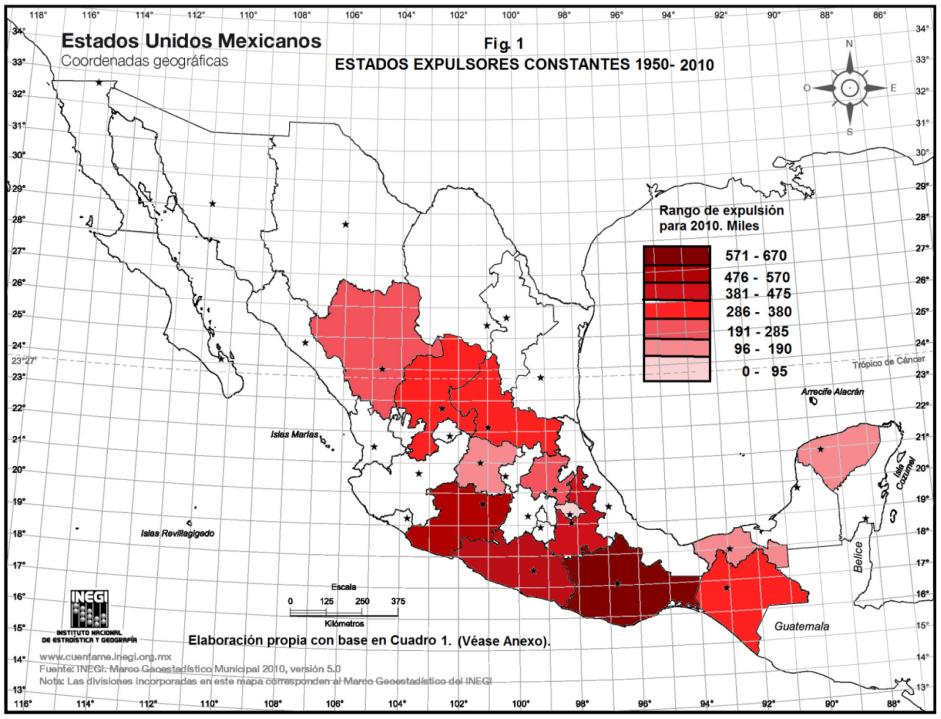
populations, which radiate towards the extreme northwest, to California, Sonora and Chihuahua (in that order); north, Nuevo Leon and Tamaulipas; to the center-north, Jalisco, Colima and Aguascalientes; towards the center, Queretaro, State of Mexico and Morelos; and to the southeast, Campeche and Quintana Roo. (See Fig. 5).

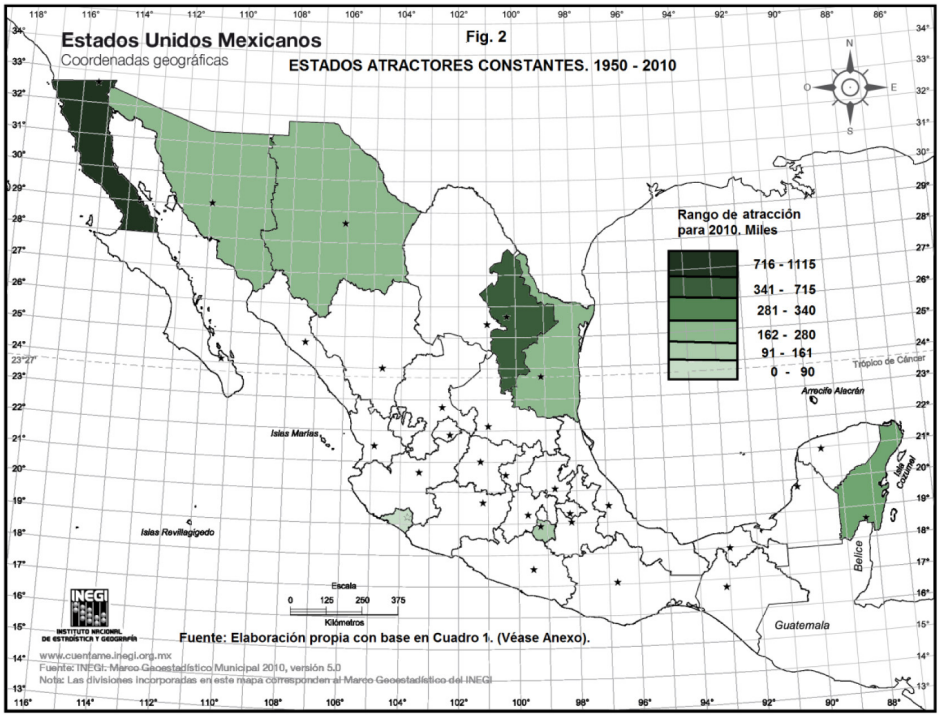
These results should be taken with caution. They only reflect a state of affairs that follows directly from the differences at the level of entities between individuals leaving and entering during a ten-year horizon, For example state migratory balances, which, according to variations present decade to decade (until 2010), end outlining a geography of migration that is embodied in a number of states that show, in a definitive manner, a situation of population expulsion or attraction. Which, in turn, and from a global perspective concludes defining specific socioeconomic regions depending on their condition of attraction to the relevant population. These results must be supplemented and / or verified with information concerning migration according to their origin and destination and in both cases whether they are from rural or urban centers.

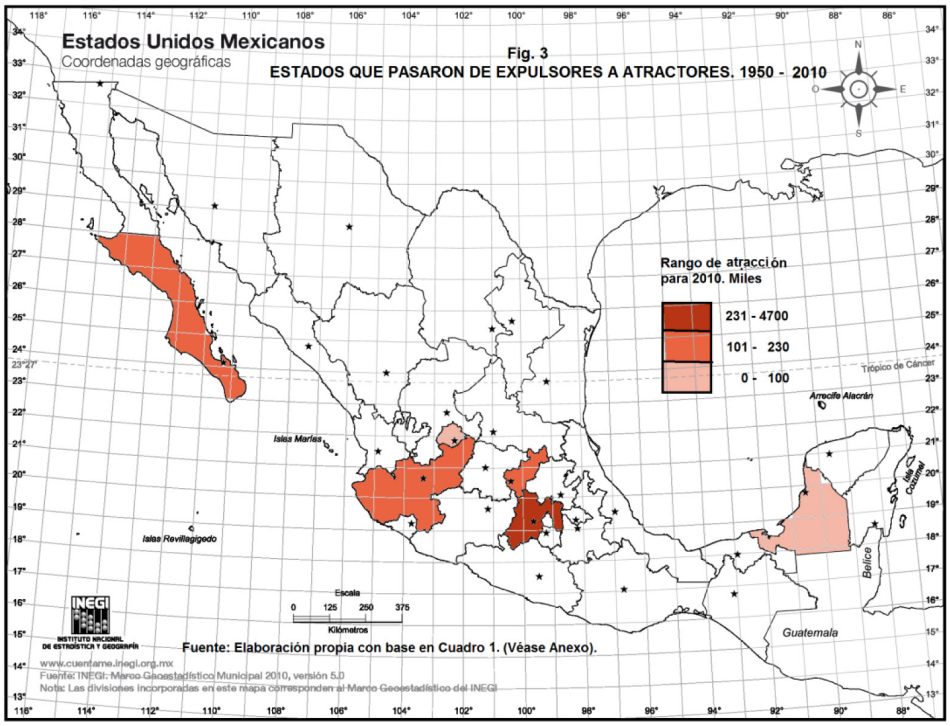
Another important aspect that has some degree of difficulty is that which concerns the central area, in particular regarding the Federal District - State of Mexico interaction. Can it be said that the growing population of the second entity, which for the most part focuses on the Federal District peripheral municipalities, is a population of the entity itself, or do we think that irradiation is but, for the most part, the growth of Mexico City itself, whose limits are narrow? If the answer is in the sense of self and non-irradiated population, then the data on migratory balances in these two entities are not telling the whole truth. The question is relevant from the time that a significant proportion of the population living beyond the periphery of the Federal District, (particularly in the State of Mexico and Morelos) undertakes their economic activity in the city, whether commercial, service,

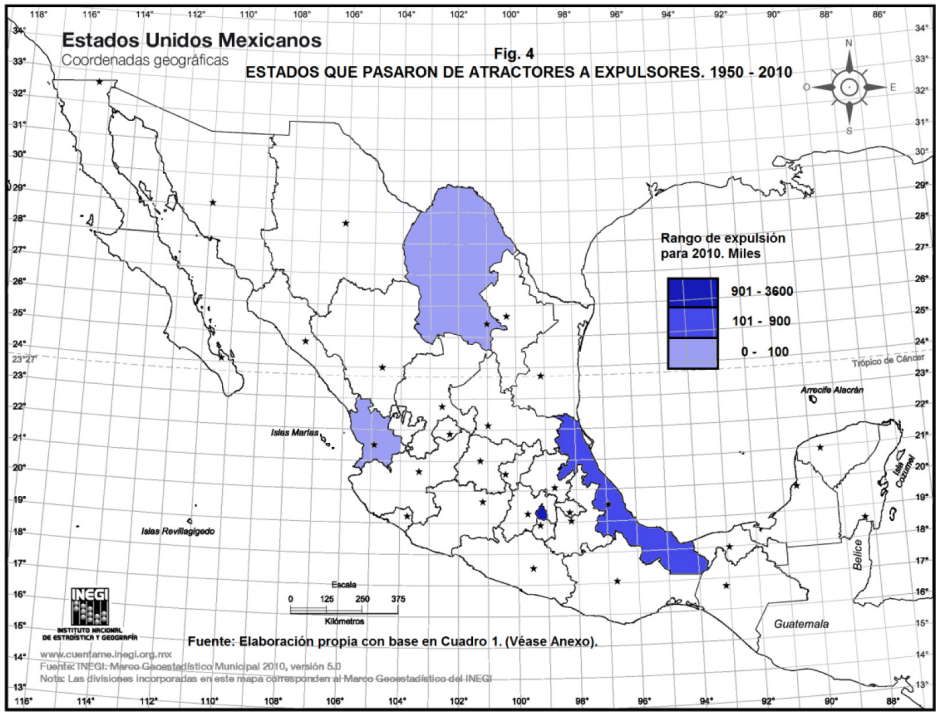
or labor. Thus, from the economic point of view, the city would still have precedence over the state of Mexico. In addition, the state should be considered as an extension of Mexico City, from the moment its territory is relatively small and whose economic expansion and hence population can only be to the state of Mexico, first, and then to Morelos, as it ultimately found by migration to these states.

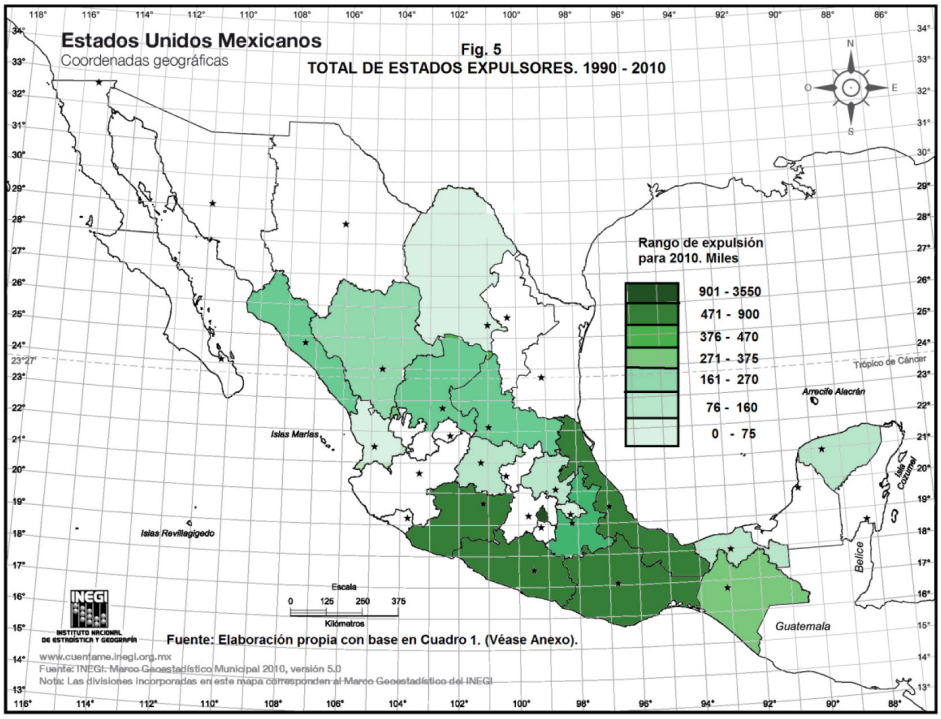
Given this problem, it might be better to focus on these entities in conjunction with Morelos, Hidalgo, Puebla, Tlaxcala and Queretaro, as an economic region whose population movements are distributed within the region (depending on the variations which have economic and cultural conditions) over a complex evolutionary process of economic development.

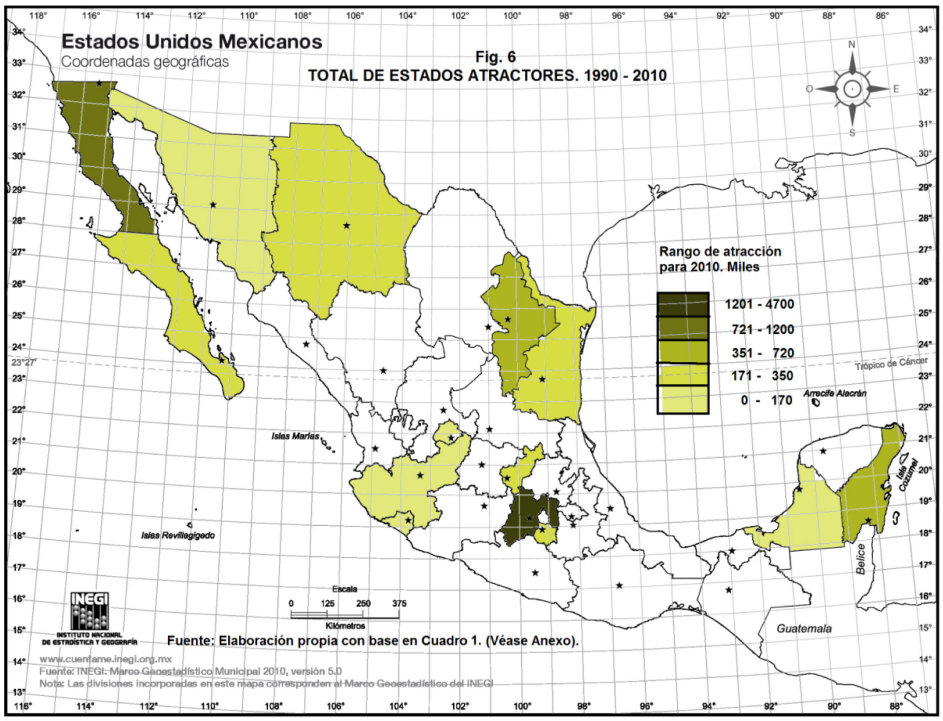

Estados Unidos Mexicanos
Coordenadas geográficas
Fig. 1
ESTADOS EXPULSORES CONSTANTES 1950- 2010
Rango de expulsión
para 2010. Miles
571 - 670
476 - 570
381 - 475
286 - 380
191 - 285
96 - 190
0 - 95
Trópico de Cáncer
Arrecife Alacrán
Islas Marías
Islas Revillagigedo
Belice
Guatemala
Escala
0 125 250 375
Kilómetros
INEGI
INSTITUTO NACIONAL DE ESTADÍSTICA Y GEOGRAFÍA
Elaboración propia con base en Cuadro 1. (Véase Anexo).
www.cuentame.inegi.org.mx
Fuente: INEGI. Marco Geoestadístico Municipal 2010, versión 5.0
Nota: Las divisiones incorporadas en este mapa corresponden al Marco Geoestadístico del INEGI


Estados Unidos Mexicanos
Coordenadas geográficas
Fig. 2
ESTADOS ATRACTORES CONSTANTES. 1950 - 2010
Rango de atracción
para 2010. Miles
716 - 1115
341 - 715
281 - 340
162 - 280
91 - 161
0 - 90
Trópico de Cáncer
Arrecife Alacrán
Islas Marías
Islas Revillagigedo
Belice
Guatemala
Escala
0 125 250 375
Kilómetros
INEGI
INSTITUTO NACIONAL DE ESTADÍSTICA Y GEOGRAFÍA
Fuente: Elaboración propia con base en Cuadro 1. (Véase Anexo).
www.cuentame.inegi.org.mx
Fuente: INEGI. Marco Geoestadístico Municipal 2010, versión 5.0
Nota: Las divisiones incorporadas en este mapa corresponden al Marco Geoestadístico del INEGI


Estados Unidos Mexicanos
Coordenadas geográficas
Fig. 3
ESTADOS QUE PASARON DE EXPULSORES A ATRACTORES. 1950 - 2010
Rango de atracción para 2010. Miles
231 - 4700
101 - 230
0 - 100
Trópico de Cáncer
Arrecife Alacrán
Islas Marías
Islas Revillagigedo
Isla Cozumel
Belice
Guatemala
Escala
0 125 250 375
Kilómetros
INEGI
INSTITUTO NACIONAL DE ESTADÍSTICA Y GEOGRAFÍA
Fuente: Elaboración propia con base en Cuadro 1. (Véase Anexo).
www.cuentame.inegi.org.mx
Fuente: INEGI: Marco Geoestadístico Municipal 2010, versión 5.0
Nota: Las divisiones incorporadas en este mapa corresponden al Marco Geoestadístico del INEGI


Estados Unidos Mexicanos
Coordenadas geográficas
Fig. 4
ESTADOS QUE PASARON DE ATRACTORES A EXPULSORES. 1950 - 2010
Rango de expulsión para 2010. Miles
901 - 3600
101 - 900
0 - 100
Trópico de Cáncer
Arrecife Alacrán
Islas Marías
Islas Revillagigedo
Isla Cozumel
Belice
Guatemala
Escala
0 125 250 375
Kilómetros
INEGI
INSTITUTO NACIONAL DE ESTADÍSTICA Y GEOGRAFÍA
Fuente: Elaboración propia con base en Cuadro 1. (Véase Anexo).
www.cuentame.inegi.org.mx
Fuente: INEGI: Marco Geoestadístico Municipal 2010, versión 5.0
Nota: Las divisiones incorporadas en este mapa corresponden al Marco Geoestadístico del INEGI


Estados Unidos Mexicanos
Coordenadas geográficas
Fig. 5
TOTAL DE ESTADOS EXPULSORES. 1990 - 2010
Rango de expulsión para 2010. Miles
901 - 3550
471 - 900
376 - 470
271 - 375
161 - 270
76 - 160
0 - 75
Trópico de Cáncer
Arrecife Alacrán
Islas Marías
Islas Revillagigedo
Isla Cozumel
Belice
Guatemala
Escala
0 125 250 375
Kilómetros
INEGI
INSTITUTO NACIONAL DE ESTADÍSTICA Y GEOGRAFÍA
Fuente: Elaboración propia con base en Cuadro 1. (Véase Anexo).
www.cuentame.inegi.org.mx
Fuente: INEGI: Marco Geoestadístico Municipal 2010, versión 5.0
Nota: Las divisiones incorporadas en este mapa corresponden al Marco Geoestadístico del INEGI


Estados Unidos Mexicanos
Coordenadas geográficas
Fig. 6
TOTAL DE ESTADOS ATRACTORES. 1990 - 2010
Rango de atracción para 2010. Miles
1201 - 4700
721 - 1200
351 - 720
171 - 350
0 - 170
Trópico de Cáncer
Arrecife Alacrán
Islas Marías
Islas Revillagigedo
Isla Cozumel
Belice
Guatemala
Escala
0 125 250 375
Kilómetros
INEGI
INSTITUTO NACIONAL DE ESTADÍSTICA Y GEOGRAFÍA
Fuente: Elaboración propia con base en Cuadro 1. (Véase Anexo).
www.cuentame.inegi.org.mx
Fuente: INEGI: Marco Geoestadístico Municipal 2010, versión 5.0
Nota: Las divisiones incorporadas en este mapa corresponden al Marco Geoestadístico del INEGI

— ANNEXES —

Table 1 . NET BALANCE MIGRATION [1]

United States of Mexico

People

No.	ENTIDAD/AÑO	1950	1960	1970	1980	1990	2000	2010	Tipificación [2]
1	Aguascalientes	- 12 291	-42357	-26766	-15468	29259	71729	96719	EA
2	Baja California	125 807	255607	278188	429778	650546	898680	1114316	A
3	Baja California Sur	- 12 315	-16352	5469	38925	71758	108045	213611	EA
4	Campeche	- 2 507	-9134	13427	26751	48880	66935	70518	EA
5	Coahuila	31 836	-38631	-96336	-80135	-85166	-107546	-71910	AE
6	Colima	10 801	11255	27179	29262	52908	60915	89786	A
7	Chiapas	- 4 969	-42530	-54118	-87705	-122342	-213689	-351784	E
8	Chihuahua	51 389	115386	47132	62066	159482	322033	278417	A
9	Distrito Federal	1 303 343	1721866	1527952	751139	-1158124	-2630069	-3528862	AE
10	Durango	- 46 416	-141682	-165070	-221077	-251205	-284124	-271306	E
11	Guanajuato	- 266 916	-330633	-377378	-475166	-400345	-279754	-162619	E
12	Guerrero	- 34 078	-73972	-170330	-303650	-392396	-488423	-528711	E
13	Hidalgo	- 130 236	-188638	-264500	-343410	-336058	-303794	-199479	E
14	Jalisco	- 234 629	-253688	-149333	-76538	29430	109100	156829	EA
15	México	- 343 009	-189076	592491	2258673	3309555	4404378	4627444	EA
16	Michoacán	- 181 363	-314041	-483546	-576761	-596939	-576315	-549301	E
17	Morelos	36 693	59471	83625	62240	215602	287039	308807	A
18	Nayarit	18 276	9429	968	-37538	-41785	-51891	-21500	AE
19	Nuevo León	41 796	123747	269423	435427	495059	599000	711084	A
20	Oaxaca	- 73 395	-161250	-263083	-446162	-528675	-642218	-670069	E
21	Puebla	- 81 237	-151141	-240140	-368098	-384235	-448646	-467980	E
22	Querétaro	- 69 030	-97287	-77332	-60751	15803	109935	221039	EA
23	Quintana Roo	4 095	10468	31396	111276	255921	451116	641828	A
24	San Luis Potosí	- 93 266	-151697	-236450	-349551	-353412	-377225	-374789	E
25	Sinaloa	- 20 373	-45995	1565	-8528	-59918	-164839	-336206	E*
26	Sonora	22 392	76421	68978	100411	127554	148473	160333	A
27	Tabasco	- 21 930	-34325	-23307	-24755	-20121	-56709	-113658	E
28	Tamaulipas	169 159	193426	146278	173817	199659	308030	336490	A
29	Tlaxcala	- 35 010	-61142	-77703	-101698	-68882	-42904	-2830	E
30	Veracruz	5 888	39193	-7987	-119416	-289686	-721102	-879188	AE
31	Yucatán	- 25 670	-54245	-75797	-105773	-132708	-158594	-144414	E
32	Zacatecas	- 132 835	-218453	-304895	-421369	-426263	-397566	-352615	E

Source: own calculations based on population censuses:
VII General Census of Population, 1950. Mexico, INEGI.
VIII General Census of Population, 1960. Mexico, INEGI.
IX General Census of Population, 1970. Mexico, INEGI.
X General Census of Population and Housing, 1980. Mexico, INEGI.
XI General Census of Population and Housing, 1990. Mexico, INEGI.
XII General Census of Population and Housing, 2000. Mexico, INEGI.
General Census of Population and Housing, 2010. INEGI.
1 / It is the difference between the number of people who immigrated and emigrated.
2 / E: ejectors States; A: attractors States; EA: States passed ejector attractors;
AE: States that went from attractors to ejectors.

Table 2. TOTAL POPULATION

United Mexican States (UMS). Thousands

No.	Entidad/Año	1950 a/	1960	1970	1980	1990	2000	2010
	EUM	25791.0	34923.1	48225.2	66846.8	81249.6	103263.4	112336.5
1	Aguascalientes	188.1	243.4	338.1	519.4	719.7	1065.4	1185.0
2	Baja California	227.0	520.2	870.4	1177.9	1660.9	2844.5	3155.1
3	Baja California Sur	60.9	81.6	128.0	215.1	317.8	512.2	637.0
4	Campeche	122.1	168.2	251.6	420.6	535.2	754.7	822.4
5	Coahuila	720.6	907.7	1115.0	1557.3	1972.3	2495.2	2748.4
6	Colima	112.3	164.5	241.2	346.3	428.5	568.0	650.6
7	Chiapas	907.0	1210.9	1569.1	2084.7	3210.5	4293.5	4796.6
8	Chihuahua	846.4	1226.8	1612.5	2005.5	2441.9	3241.4	3406.5
9	Distrito Federal	3050.4	4870.9	6874.2	8831.1	8235.7	8720.9	8851.1
10	Durango	629.9	760.8	939.2	1182.3	1349.4	1509.1	1632.9
11	Guanajuato	1328.7	1735.5	2270.4	3006.1	3982.6	4893.8	5486.4
12	Guerrero	919.4	1186.7	1597.4	2109.5	2620.6	3115.2	3388.8
13	Hidalgo	850.4	994.6	1193.8	1547.5	1888.4	2345.5	2665.0
14	Jalisco	1746.8	2443.3	3296.6	4372.0	5302.7	6752.1	7350.7
15	México	1392.6	1897.9	3833.2	7564.3	9815.8	14007.5	15175.9
16	Michoacán	1422.7	1851.9	2324.2	2868.8	3548.2	3966.1	4351.0
17	Morelos	272.8	386.3	616.1	947.1	1195.1	1612.9	1777.2
18	Nayarit	290.1	389.9	544.0	726.1	824.6	949.7	1085.0
19	Nuevo León	740.2	1078.8	1694.7	2513.0	3098.7	4199.3	4653.5
20	Oaxaca	1421.3	1727.3	2015.4	2369.1	3019.6	3506.8	3802.0
21	Puebla	1625.8	1973.8	2508.2	3347.7	4126.1	5383.1	5779.8
22	Querétaro	286.2	355.0	485.5	739.6	1051.2	1598.1	1827.9
23	Quintana Roo	27.0	50.2	88.2	226.0	493.3	1135.3	1325.6
24	San Luis Potosí	856.1	1048.3	1282.0	1673.9	2003.2	2410.4	2585.5
25	Sinaloa	635.7	838.4	1266.5	1849.9	2204.1	2608.4	2767.8
26	Sonora	510.6	783.4	1098.7	1513.7	1823.6	2394.9	2662.5
27	Tabasco	362.7	496.3	768.3	1063.0	1501.7	1990.0	2238.6
28	Tamaulipas	718.2	1024.2	1456.9	1924.5	2249.6	3024.2	3268.6
29	Tlaxcala	284.6	346.7	420.6	556.6	761.3	1068.2	1169.9
30	Veracruz	2040.2	2727.9	3815.4	5387.7	6228.2	7110.2	7643.2
31	Yucatán	516.9	614.0	758.4	1063.7	1362.9	1818.9	1955.6
32	Zacatecas	665.5	817.8	951.5	1136.8	1276.3	1367.7	1490.7

Source: own calculations based on population censuses:
Seventh General Census of Population, 1950. Mexico, INEGI.
VIII General Census of Population, 1960. Mexico, INEGI.
IX General Census of Population, 1970. Mexico, INEGI.
X General Census of Population and Housing, 1980. Mexico, INEGI.
XI General Census of Population and Housing, 1990. Mexico, INEGI.
XII General Census of Population and Housing, 2000. Mexico, INEGI.
General Census of Population and Housing, 2010. INEGI.

Table 3. MIGRATORY BALANCE OF EACH ENTITY AS A PROPORTION OF ITS

No.	Entidad/año	1950	1960	1970	1980	1990	2000	2010	Tipificación
1	Aguascalientes	-6.5	-17.4	-7.9	-3.0	4.1	6.7	8.2	EA
2	Baja California	55.4	49.1	32.0	36.5	39.2	31.6	35.3	A
3	Baja California Sur	-20.2	-20.0	4.3	18.1	22.6	21.1	33.5	EA
4	Campeche	-2.1	-5.4	5.3	6.4	9.1	8.9	8.6	EA
5	Coahuila	4.4	-4.3	-8.6	-5.1	-4.3	-4.3	-2.6	AE
6	Colima	9.6	6.8	11.3	8.5	12.3	10.7	13.8	A
7	Chiapas	-0.5	-3.5	-3.4	-4.2	-3.8	-5.0	-7.3	E
8	Chihuahua	6.1	9.4	2.9	3.1	6.5	9.9	8.2	A
9	Distrito Federal	42.7	35.4	22.2	8.5	-14.1	-30.2	-39.9	AE
10	Durango	-7.4	-18.6	-17.6	-18.7	-18.6	-18.8	-16.6	E
11	Guanajuato	-20.1	-19.1	-16.6	-15.8	-10.1	-5.7	-3.0	E
12	Guerrero	-3.7	-6.2	-10.7	-14.4	-15.0	-15.7	-15.6	E
13	Hidalgo	-15.3	-19.0	-22.2	-22.2	-17.8	-13.0	-7.5	E
14	Jalisco	-13.4	-10.4	-4.5	-1.8	0.6	1.6	2.1	EA
15	México	-24.6	-10.0	15.5	29.9	33.7	31.4	30.5	EA
16	Michoacán	-12.7	-17.0	-20.8	-20.1	-16.8	-14.5	-12.6	E
17	Morelos	13.4	15.4	13.6	6.6	18.0	17.8	17.4	A
18	Nayarit	6.3	2.4	0.2	-5.2	-5.1	-5.5	-2.0	AE
19	Nuevo León	5.6	11.5	15.9	17.3	16.0	14.3	15.3	A
20	Oaxaca	-5.2	-9.3	-13.1	-18.8	-17.5	-18.3	-17.6	E
21	Puebla	-5.0	-7.7	-9.6	-11.0	-9.3	-8.3	-8.1	E
22	Querétaro	-24.1	-27.4	-15.9	-8.2	1.5	6.9	12.1	EA
23	Quintana Roo	15.2	20.9	35.6	49.2	51.9	39.7	48.4	A
24	San Luis Potosí	-10.9	-14.5	-18.4	-20.9	-17.6	-15.6	-14.5	E
25	Sinaloa	-3.2	-5.5	0.1	-0.5	-2.7	-6.3	-12.1	E*
26	Sonora	4.4	9.8	6.3	6.6	7.0	6.2	6.0	A
27	Tabasco	-6.0	-6.9	-3.0	-2.3	-1.3	-2.8	-5.1	E
28	Tamaulipas	23.6	18.9	10.0	9.0	8.9	10.2	10.3	A
29	Tlaxcala	-12.3	-17.6	-18.5	-18.3	-9.0	-4.0	-0.2	E
30	Veracruz	0.3	1.4	-0.2	-2.2	-4.7	-10.1	-11.5	AE
31	Yucatán	-5.0	-8.8	-10.0	-9.9	-9.7	-8.7	-7.4	E
32	Zacatecas	-20.0	-26.7	-32.0	-37.1	-33.4	-29.1	-23.7	E

Source: own calculations based on Table 1 and Table 2.

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XI Censo General de Población y Vivienda. 1990. México, INEGI.
XII Censo General de Población y Vivienda. 2000. México, INEGI.
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YELLOW PITAYA (SELENICEREUS MEGALANTHUS) PRODUCTION SYSTEM IN BOYACÁ – COLOMBIA

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ABSTRAC

The pitaya is a promising fruit for Colombia and the department of Boyacá, considered as one of the important fruits for the export market. Statistics show that the department of Boyacá is the largest producer of yellow pitaya (*Selenicereus megalanthus*). In Colombia. this fruit has been prioritized in policies and programs at the national and local level, among other reasons because it shows potential for the export market. However, the low technological development of crops has been one of the factors limiting the productivity and quality of the fruit, so its production has so far been for unprofitable markets. No technological problems have been identified, nor action taken to bring national and global technological support in order to address these issues. The aim of this study was to establish the state of technology in the production chain in the cultivation of yellow pitaya at each stage of production and marketing. The methodology that was used was qualitative-descriptive based on field visits, interviews and surveys of pitaya fruit growers in the municipalities that were reported as producers. Within the results, the state of technology was identified in the productive chain of yellow pitaya, which has been empirically cultured. This is certainly a species with great potential, for example for its use in agribusiness, and therefore strategies should be considered that support their producers in order to improve profitability.

Keywords: *promising crops, exotic fruit, cropping system, crop management*

In Colombia the pitaya is a key product in the economic lines of fruit for its adaptability to different environmental conditions (ICA, 2012) and for being a fruit considered promising in the country and in the department of Boyacá, being among the most interesting for the export market with potential identified at the regional, national and international levels (MADR, 2006).

Colombia is the largest producer of yellow pitaya worldwide (FAO, 2009) and one of the most important problems is the lack of studies based on scientific research, that enable support and / or improvement to the agronomic practices that producers are developing based on their own experiences (Medina *et al.*,2011). Boyacá department is the largest producer nationwide. Despite being the largest producer of yellow pitaya and based on statistics from Agronet (2011), it can be observed that the Boyacá department has the second lowest productivity in the country (7.5 ton • ha-1) and is below world average, which is 8.04 t • ha -1 (Betancourt *et al.*, 2010).

Its cultivation was implemented on a commercial basis by the National Federation of Coffee Growers in the program of diversification in the early eighties (Delgado, 2010) . Due to inexperience in cultivation, a series of errors were committed such as farming outside the optimal agro-climatic strip, plant health type problems, and a lack of integrated management with consequences on productivity and fruit quality. Added to this, the producers and marketers stumbled onto a domestic market that was unable to absorb the supply of pitaya (MADR, 2005). At the end of the decade the sector had faced various problems in production because the producers did not have a proper cultivation technology package and did not generate the expected return (ICA, 2012).

Pitaya is commercially classified into seven grades, and of these over 50% of production in Boyacá is based on the 4 lowest grades. The price of the latter is less than 20% of the value of the type of fruit for export (CREPIB quality, 2011).

As the largest producer of yellow pitaya nationally, the Boyacá department should develop strategies to promote its cultivation in a technological manner in order to position itself as having the highest quality fruit and to develop a program of Research and Technological Development for closing technological gaps in the production chain.

In the department of Boyacá, its cultivation is concentrated in the hands of small producers, who have developed their own culture technologies and although some of these practices are not the most appropriate, conversion into high modernization may not be the best solution. This investigation was part of the "construction technology plan for the productive chain of the yellow pitahaya (*Selenicereus megalanthus*) in the department of Boyaca" project, developed by the research group GIPSO from the Pedagogical and Technological University of Colombia. Its aim is to build in a participatory manner the "Technological Plan for the Productive Chain of yellow Pitahaya (*Selenicereus megalanthus*) in the Department of Boyacá". In order to do this this a characterization and technological inventory of the production chain of yellow pitaya was done in the department Boyacá. A technological observation was developed on new cultivation and postharvest technologies for pitaya at the national and global level, as well as an evaluation of technologies that was conducted which were monitored against the inventory to determine those relevant to the production chain in Boyacá based on documentation of the experiences of producers. The diagnosis generated here is a basis for the planning of strategies for improving productivity and reducing production costs.

MATERIALS AND METHODS

A Technological characterization was carried out in the department of Boyacá, in the municipalities of Miraflores, Zetaquira,

Chitaraque, Briceño, Tununguá and Buenavista municipalities according to the URPA (2010) report where there were acreages in yellow pitaya (S. *megalanthus*) larger than 20 hectares (ha).

The focus of the study is qualitative-descriptive: not requiring the application of formulas to calculate the sample size or statistical analysis (Hernandez, *et a*l.,2002), implementing field visits, interviews and surveys of producers with the latter to directly study the characteristics of the population (Salkind, 1999) in their practices, technologies, materials and knowledge that are applied at each stage of production.

The methodology focused on obtaining a participatory diagnosis with the producers and gives insight into the issues that they believe affect them.

RESULTS AND DISCUSSION

The pitaya is a species that grows on farms where crops such as sugarcane (*Saccharum officinarum L.*), coffee (*Coffea arabica L.*), citrus (*Citrus sp.*), corn (*Zea mays L.*), avocado (*Persea americana Mill*) are produced, among others. A high percentage of producers are small farmers, whose main economic activity is agriculture and livestock.

The crop farmers who were interviewed stated they had from 500 to 14,000 plants. The average age of plantations varies in a range between 3 and 10 years, although crops planted up to 25 years ago were found. In recent years the planting of pitaya has increased in the municipalities of Tunungua and Briceño, which is why crops less than 3 years of age were encountered.

According to the finding of this investigation, crops in Boyacá thrive in an altitudinal range of 1200-1800 meters in regions with rainfall ranging between 2000 and 2800 mm /year -1 and temperatures between 18-20 ° C. Robolledo, *et al.*, (2001) indicate

that there is no scientific support to document the influence of environmental parameters on crop production, but according to the experience gained in practice by producers of yellow pitaya (S. *megalanthus*), suitable cultivation areas are between 1400 and 1700 meters, with temperatures ranging between 14 ° C and 26 ° C and precipitation between 1500-2000 mm / year -1.

PRODUCTION CHAIN:

a). Propagation material: vegetable material used is of vegetative type (stalk or stake), this material does not go through a nursery stage, but is sown directly in the field and often no disinfection processes are performed. The material is obtained from commercial crops in the same municipality. Producers do not have a standardized length of stalk for planting, which ranges between 50 and 120 centimeters (cm), but Suarez (2011) stated in his research that the stakes of a meter in length develop a greater number of buds compared to 0.5meters.

In Colombia there is no material that has been genetically neither selected, nor established management practices (Caetano, 2010). Cardozo *et al*., (2013) states that the leaves should be taken at least one meter in length and the size of the cutting is directly related to the time the plant enters production. It is also important to select mother plants preferably independent of commercial fruit production batches with optimal phytosanitary and physiological characteristics.

b.) Site preparation and plant support: for the preparation of the land, a general mechanization of the lot was not performed but rather the ground was prepared site by site, by scratching the surface and liming, adding organic matter and in some cases chemical fertilizers. These practices coincide with those published

by Agronet (2003), which specifies that soil preparation is done in a localized manner.

Two types of support are used: A simple trellis with wood or concrete poles and one or two lines of wire or *guaya*.. As plants grow, they are tied to the wire by strips of fabric or plastic. In the municipalities of Miraflores and Zetaquira, due to the conditions of surface stoniness on many lands, some producers use mounds of stone with an approximate height of 120 cm., on which each plant is supported. This situation had already been reviewed by Betancourt in 2010.

In research conducted at the Valle del Cauca with 4 types of support systems (square pen, triangular pen, "T" trellis or double or single trellis), it was concluded that: in the statistical analysis with the comparison test Tukey ($p < 0.05$), there were no significant differences between the structures that were tested, however, descriptive analysis shows that in the pens the most fruit was obtained from the evaluated crops, possibly due to the distribution of the leaves since these structures allow for a greater number of productive branches in the four cardinal directions (Medina *et al.*, 2011)

c) Planting is performed by placing the leaf or stake in contact with the ground. It should not be buried more than three centimeters, because the root system develops superficially. Sandy or loamy clay soils with good drainage and high organic matter content are required. In poorly drained soil conditions root rot occurs and in soils with high salt content crop development (Cardozo *et al.*, 2013) is delayed. Most crops are grown under shade of banana (*Musa sp.*) or native forest species. Experience indicates that growers should manage a balanced level of shade since it improves fruit quality and plant health, but can also reduce flowering and thus production.

d). Watering: Most crops do not have irrigation systems. A small number of producers have systems like sprinklers, micro sprinklers and drip irrigation. Rodríguez (2000), concluded that any proposed commercial production of pitaya should be irrigated. Installing irrigation systems was not initially considered as a technology for the production component, because there is the idea that the pitaya resists long periods of drought. However, it has been found that vegetative buds decrease, stems lose turgor, shoots appear deformed, parts of the plant die and there is no effect on floral induction. On the contrary, irrigation favors plant recovery and resumption of its development.

e). Fertilization is not done based on a soil test, but rather in an empirical manner. The products that are applied are organic, chemical or a mixture of the two. Among organic fertilizers, the most common are manure and compost. Chemicals are simple and compound fertilizers: coffee plantation (24/04/25) ,15-15-15, DAP di ammonium phosphate (18-46-0) and 10-30-10, among others. Some producers stated that the low quality of manure crops have been contaminated with nematodes, bacteria and fungi, so its use has begun to be restricted. The foliar application of fertilizers is not common. Sometimes they are performed in order to help thicken the fruit.

Agronet (2003) says that so far there are no studies that report the nutritional requirements of the crop, however it has been determined that this species has high potassium requirements, medium in nitrogen and low in phosphorus. The plant responds well to applications of organic matter. Fertilization should be split into two applications per year, which should preferably coincide with the end of the rainy season. The application of foliar fertilizer helps the development of the plants growth stage and promotes flowering and fruiting of plants in the production phase.

F). Weeds: weeds can be very harmful for growing Pitaya mainly in the early stages of the plantation, immediately after sowing or transplanting because at this stage the plant is very small and in a period of adaptation and does not tolerate high competition for nutrients (Agronet, 2003).

Weeding is done mainly with scythe (with the cutting head set for stihl trim cut) and machete. Frequency depends on the development of weeds. There are few applications of herbicides (one or two per year).

Weed management must be performed with plating plant practices, mechanical control with machete or scythe, native plant establishment and use of registered herbicides (ICA, 2012).

g). Pruning is performed three ways- for training, sanitation and production. .The first is done to facilitate management and cultivation practices. The second is performed to remove the diseased stalks, and the third to induce the plant to flower and fruit by cutting the tips and stunting of the branches. These three types of pruning are mentioned by Castillo *et al*., (2005), but warn that pruning is necessary to determine whether the "production" affects the productive life of the plant.

h). Phytosanitary problems: According to what producers have said, most limiting diseases are: basal rot of the fruit (.*Meloidogyne spp*), bacterial blight (*Fusarium spp*), and nematodes (*Erwinia carotovora*). Some producers report that if there is not adequate control, the impact of these diseases can reduce production by more than 30%.

In Valle del Cauca baseline fruit rot caused by *Fusarium* spp. is the main limiting factor in production in most commercial orchards. There is a more than 70% incidence rate disrupting the quality of the fruit and making it difficult to market the fruit in domestic and international markets (Riaño *et al*., 2013). In Nicaragua it is reported that the most limiting stem rot disease is

caused by *Erwinia carotovora* pv. (OIRSA, 2000) and in Mexico Ramirez (2011) identified strains of the genus *Glomerella* sp. And *Colletotrichum* in isolates made in cultured red pitaya.

With regard to nematodes, in the investigation made by Medina and Kondo (2012), nematodes (Meloidogyne spp.) were not considered a limiting pest in the cultivation of yellow pitaya, which differs to that mentioned by the producers interviewed in Boyacá previously mentioned by Rojas *et al.*, (2008), who mentioned the susceptibility of the crop to different nematodes being the most limiting factor for its wide distribution (*Meloidogyne* spp.).

The main problem that was mentioned was entomological flower bud (*Dasiops saltans*) *which* coincides with the report of Kondo et al. in 2011 on the flower bud fly as a limiting pest in the production of pitaya, according to Boyacá farmers. When no control on this fly is done, the losses can amount to 80% of production and is similar to what happens in the municipalities of Bolivar, Restrepo and Trujillo in the Cauca Valley, where damage to production reaches up to 80%. (Kondo, *et al.*,2011).

i). Harvest: The ripening of the fruit occurs first in the basal part and goes up to the middle and upper parts. First the thorns are removed and then it is cut. To remove the thorns, brushes, brooms or thick gloves are used. The brushing should be the base of the fruit towards the end (Martinez *et al.*, 2013). The cutting is done with clippers. Immediately after cutting it is placed in plastic baskets with 20-25 kg of capacity. There are 3 or 4 crops a year, with two principal harvests and the rest are known as "*traviesa*" (*naughty* in Spanish) or "*mitaca*" and have lower productivity.

j). Postharvest: the fruit is selected and sorted. Seven categories are used which are given different names: Export, warehouse, first, second, third, fourth, itchy or fungus, Semi, and select, among others.

Post-harvest crop losses according to MADR (2006) reached 8% of production. It is important to note that 95% of Colombian yellow pitaya consumption in the world is given as fresh fruit, with the remaining 5% consumed in other presentations such as dry flakes, frozen and canned in syrup (JRC. 2006).

k). Crop waste management : There are basically two types of waste residues: the pruning material and pesticide packaging. Pruning residues have different destinations: some are left in the field to decompose, others are buried or burned, and others are used in the production of organic fertilizers. If sanitary pruning has been done, it is recommended to bury the waste, apply lime and cover them (ICA, 2012).

The packaging of pesticides generates contamination because there are no clear mechanisms for disposal and sometimes they are left in the planting fields and in other cases, producers burn or bury them.

MARKETING LINK

Regarding marketing, most producers sell to intermediaries who pick up the fruit on the farm. It is common that the broker or buyer makes a reclassification of the fruit. Some producers take fruit directly to the main market of the country in Bogotá - "*Corabastos*". The requirements of the intermediaries in terms of quality of the fruit vary with the existing supply on the market. In times of scarcity all qualities are received, however, in times of abundance only fruit of the highest quality (export, first, and second) are accepted. Payment is usually made 15 or more days after the reception of the fruit by the intermediary.

Caetano, *et al*., in 2006 notes that high returns on export sales are handled, and there is no marketing system that allows

for organized and prompt delivery to put a certain amount of fruit on the domestic and international markets.

This is one of the major difficulties of the producer, as prices placed by intermediaries are low and do not allow for the profitability expected of the crop.

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ACADEMIC

PAPERS

DATABASE MANAGEMENT WITH POSTGRESQL LABORATORY 4. TRANSACTIONS AND STORAGE PROCEDURES

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SUMMARY

The series of laboratories on Database management with PostgreSQL, shows in a practical way the administration of this type of system which is widely used in the software development industry. Databases are the tool required of all companies that need to store the information that they generate and it is in this type of system where it is stored. Hence, there is an importance in understanding and applying the concepts of management standards used in the industry.PostgreSQL system because it provides the mechanisms that are similar to those of proprietary systems. PostgreSQL PostgreSQL is available for use under a license, allowing for, from the point of view of the owner of an information system, avoidance of paying expensive licenses for the use of a database.

Keywords: *Database administration, SQL, stored procedures programming, PostgreSQL.*

This fourth installment in a series of six laboratories on Database Administration (DBA) teaches the use of storage procedures associated with transactions in the database. This work is not intended to teach programming of stored procedures in the database, so the reader should research the topic called procedural language of SQL for PostgreSQL (SQL Procedural Language, better known as PLPGSQL). Regarding this issue, I must mention that we are working with some teachers in the development of three laboratories that teach programming storage procedures, so stay tuned. To implement the experience of transactions using programs developed in the Java programming language it is also required that the equipment used to develop this experiment are connected in a local network. However, it is not the scope of this work to teach the connection and network configuration, nor is it intended to teach concepts of object-oriented programming with Java.

The labs are designed to provide the concepts and skills necessary to know the system in a detailed manner. The "copy and paste" function offered by the operating system is to reduce the effort of the reader in preparing the work environment and for solving problems. The section labeled "additional work" requires the reader to apply the experience gained in solving problems related to the central theme of the laboratory. The section on basic command syntax is displayed and gives some explanation of their use. This material is taken from the manual for the PostgreSQL system which is available on the official website of the tool. In some cases it has been taken from the official site in Spanish. The basic concepts are applied in reference to the same project that we have been using in the series, called "ACME University", which is the product of the author's imagination and therefore a practical solution to the problems that are presented. The books are available in the reference section, and serve as consultation to support some of the concepts that are applied in practicing troubleshooting for database administration.

These laboratories have been prepared to create practical experience for students of the Database Administration in Computer Systems undergraduate degree offered in the School of Accounting (*FCP-Facultad de Contaduria Publica* in Spanish) Campus IV of the Autonomous University of Chiapas (UNACH) . The FCP has at least 14 years of experience in the use of PostgreSQL in the classroom, research projects and systems that have been implemented to automate the daily activities of the FCP. As a result of the academic and industrial experience of these laboratories, they are used in classrooms to train our students. It has also been reported that they are a resource for graduates who work in the business sector.

As previously mentioned, the tool has features and standard programming languages that proprietary systems offer, so that the examples can easily be used in other database systems on the market, or they can be referred to when applying the concepts in industrial projects. They can also serve as consultation to professionals in Computer Science.

OBJECTIVE

The reader will learn how to use the storage procedure and its relation to transactions in the database.

PREREQUISITES

It is expected that the reader has previous experience in the use and conversion of Entity-Relationship (ER) diagrams. The associated database design issues not covered in this document. It is also expected that the reader has knowledge of programming in any programming language. If you need additional information

on PLPGSQL, we suggest you visit the website: http://www.postgresql.org/docs/9.3/static/plpgsql.html , or find this information in the book "PostgreSQL" by the authors Susan and Korry Douglas (ISBN: 0672327562) .

It is also expected that the reader has experience in connecting local networks and the installation and programming of the Java programming language.Oracle, the company that owns Java, offers a guide to installing this language:

https://www.java.com/es/download/help/download_options.xml

Finally, you must install the PostgreSQL database version 9.3 on the Windows or Linux operating system, check the system requirements on the official website of the tool: www. postgresql. org. The system can be downloaded from the website:

http://www.enterprisedb.com/products-services-training/pgdownload#windows

If you have any questions regarding PostgreSQL, it is recommended to visit the official site with information published in Spanish language:

http://www.postgresql.org.es/primeros_pasos

PARTS OF THIS LABORATORY INCLUDE

1. Project to develop
2. Basic concepts
3. Preparation of the working environment
4. Problems to solve
5. Further work
6. References

I. PROJECT TO DEVELOP

The exercise to be performed is a project that describes a business dedicated to providing education services: after reading the text the E-R diagram is generated with the solution to this problem, continuing with the creation of the population tables and tables, and finally working with user and group permissions.

ACME University Project

In UACME, two types of courses in the special summer period are offered : summer courses and extracurricular courses. The first are classes that a regular student pursuing a degree in this period can take. You are allowed to advance up to two subjects. The latter are special training courses offered for regular students or external students who are professionals.

Teachers of UACME, are the only ones who are allowed to teach these courses, which receives an additional payment, paid in accordance with a tab that indicates the cost of the time of these courses according to the academic level of the teacher. Payment is generated from the moment of inscription to the course and it is only allowed to issue a check for each course. In addition, students must go additionally to pay for the cost of the semester.

UACME has two departments involved in the administration of the courses:

A) Department of Administration (DA) and B) Academic Control Department (ACD). The responsibilities that correspond to the DA are to make payment to teachers and receive students fees. The DA is run by the Public Accountant Avila and is assisted by Mr. Cancino. While the ACD is directed by Mr. Barroso and assisted by Ms. Tirado, Ms. Martinez, Ms. Aquino and Ms. Ramos. It is here where which courses you choose are delivered

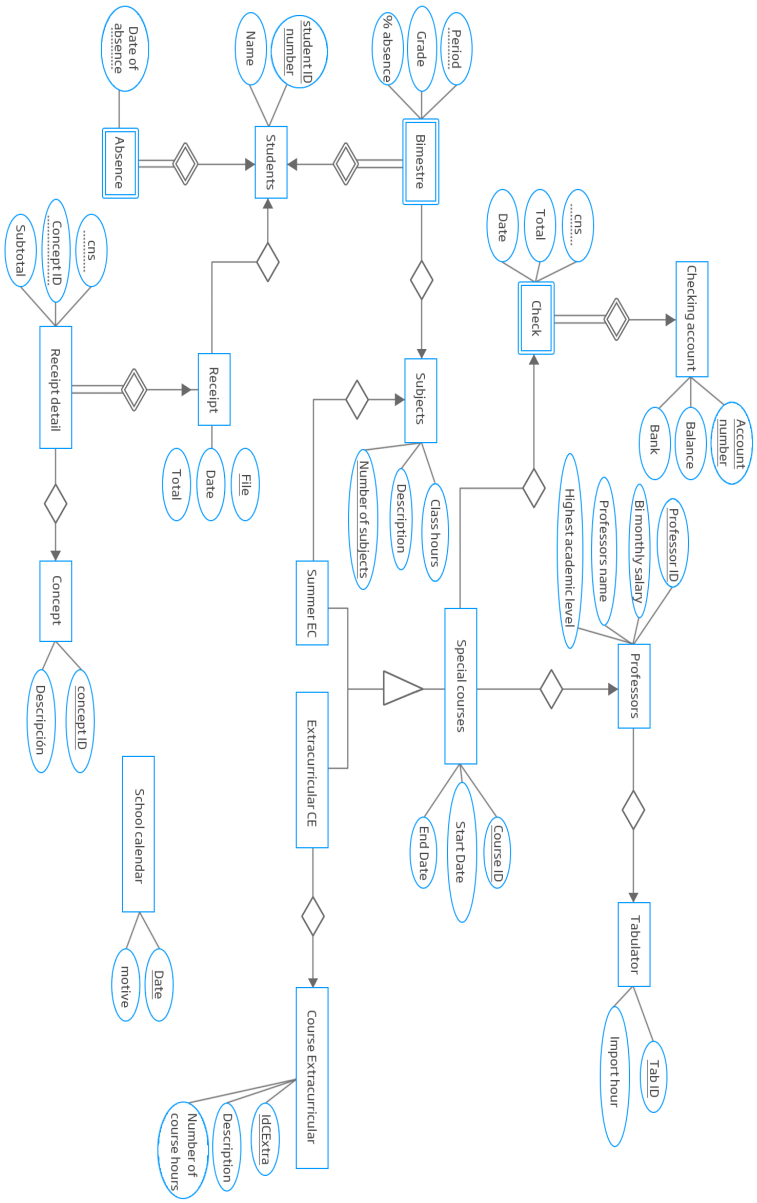
in the period, who imparts them, and decide which applications are accepted students.A special case is that of the teachers, because the DA is the one who can modify their biweekly salary, while the ACD cannot even visualize it. The funny thing is that, it is the ACD that accepts teachers and logs them into the system, but the DA where the salary is captured. It is important to the management of the UACME that this policy is applied to the letter, and is implemented directly on the DB. The following describes in detail the tables that are allowed access by the staff of the Administrative Secretariat:

CheckingAccount, Check, Tabulator, Teachers, Concept, Receipt, and Receipt Detail.

As special cases, the department will have access to consult the tables of Special Courses, Special Summer Courses, Special Extracurricular Courses, Extracurricular Courses and Subjects. They are explicitly not allowed to change any field or record.

Tables that are allowed access to the School Secretariat staff: SpecialCourses, ExtracurricularCourses, Subjects, ECSummer, ECExtracurricular, Students, Bimester, Abscences, SchoolCalendar

Figure 1. Diagram E/ R which solves the above problem.



II. BASIC CONCEPTS

Transaction

A transaction is an execution of a user program, seen by the DBMS as a series of *read* and *write* operations, which access the database that is shared by multiple users simultaneously. It is a collection of actions that make changes in the states of preserving the *consistency* of the same system. A database is in a *consistent* state if it obeys all integrity constraints defined on it. State changes occur due to updates, insertions, and deletions of information. Of course, we want to ensure that the database never enters an inconsistent state. However, during the execution of a transaction, the database may be temporarily in an inconsistent state. The important point here is to ensure that the database returns back to a consistent state at the end of the execution of a transaction. What is sought with the use of transactions is on the one hand to have adequate transparency of concurrent actions to a database, and on the other have adequate transparency in the management of faults that may occur in a database.

Consistency

A transaction is a correct program that takes the database from a consistent state to another state with the same feature. Thanks to this, the transactions do not violate the rules of integrity of a database.

Isolation

A transaction in execution cannot disclose their results to other concurrent transactions before being committed. Furthermore, if multiple transactions are executed concurrently, the results should be the same as if they had been executed sequentially (serializability). Serializability consists of ensuring that the changes follow a proper order.

Atomicity

A transaction is treated as an operating unit. Therefore all shares in the transaction are performed or none are performed .The atomicity requires that if a transaction is interrupted by a fault, their partial results should be undone. All transactions are carried out, but if there is a fault no transaction is performed. It must conclude a committed or aborted transaction. In the case of commitment all updates are installed and for abortion all updates are discarded.

Durability

Is the property of the transactions which ensures that once a transaction takes its commitment, its results are permanent and can not be deleted from the database and you ensure that the results of a transaction survive system failures. A transaction always ends, even in the presence of faults. If a transaction ends successfully it is said that the transaction makes a commitment. If the transaction is stopped without finishing its task, it says the transaction is aborted. When the transaction is aborted, it may be for various reasons related to the nature of the transaction itself, or for a conflict with other transactions or failure of a process or computer, which results in the execution being stopped and all the actions taken so far are undone returning the database to the state before execution. In this operation it is also known as a rollback.

A lock is a mechanism to control concurrent access to data. The data may have locks in two modes:

- Exclusive mode (X). The data can be read and written. A lock in this mode is requested with the instruction lock-X.
- Shared mode (S). The data can only be read. A lock in this mode is requested with the lock-S instruction

Requests for locks are done by the administrator of concurrency control. The transaction may proceed only after request is granted.

- A lock is a mechanism to control concurrent access to data
- The data can have locks in two ways:
    - ◇ Exclusive mode (X). The data can be read and written. A lock in this mode is requested with the instruction lock-X .
    - ◇ Shared mode (S). The data can only be read. A lock in this mode is requested with the instruction lock-S.
- Requests for locks makes the administrator the concurrency control. The transaction may proceed only after the request is granted.
- A lock is granted if the requested lock is compatible with other previously granted locks.
- You can have multiple shared locks on a data point, but only one exclusive lock.
- If a lock can not be granted, the requesting transaction must wait until all incompatible locks are released.
- Putting locks is not enough to guarantee serializability.
- Example: if A is updated after reading B, the sum will be incorrect.
- A locks based protocol is a set of rules followed by all transactions to request and release locks.

Lock protocol in two phases (2PL):
The importance of two phase locks is that it has been shown theoretically that all of the planners generated by concurrency control algorithms which obey the locks of two phases are serializable.

Cascading abortions: These can happen if a transaction aborts after releasing a lock. Other transactions that have accessed the

same data item also abort. To prevent this, lock dispatchers for two phase locks implement what is known as **strict two-phase locks** in which all locks are released when the transaction ends.

SQL commands used in this lab

BEGIN —a transaction in chained mode
Syntax
BEGIN [WORK | TRANSACTION]

Input
WORK
TRANSACTION

Optional keywords. They have no effect.

Departures
BEGIN - This means that a new transaction has been started.
NOTICE: BEGIN: “already a transaction in progress” - This indicates that a transaction is already in progress. The current transaction is not affected.

Description

By default, PostgreSQL executes transactions in unchained mode (also known as “autocommit” in other database systems). In other words, each user statement is executed in its own transaction and a commitment is implicitly executed at the end of each command (if execution was successful, otherwise a restore is executed). BEGIN initiates a user transaction in chained mode, i.e. all user statements after BEGIN command will be executed in a single transaction until an explicit COMMIT, ROLLBACK, or execution abort. Statements in chained mode are executed much faster, because transaction start / commit requires significant CPU and disk activity. Execution of multiple statements inside

a transaction is also required for consistency when many related tables are changed. The default isolation level of transactions PostgreSQL is READ COMMITTED, where queries inside the transaction only take into account the changes committed before query execution. Therefore, you must use SET TRANSACTION ISOLATION LEVEL SERIALIZABLE just after BEGIN if you need more rigorous isolation transactions. SERIALIZABLE mode queries only take into account the changes committed before the entire transaction begins (actually, before execution of the first DML statement in a serializable transaction).

If the transaction is committed, PostgreSQL will ensure that all updates are done or else that none of them is. Transactions have the ACID (atomic, consistent, isolated and durable standard property).

SELECT — Retrieve rows from a table or view. This command is the same as used for consultations.

Syntax

```
SELECT [ALL | DISTINCT [ON (expression [, ...] ) ] ]
expression [ AS name ] [, ...]
[INTO [TEMPORARY | TEMP ] [ TABLE ] new_table ]
[FROM table [alias ] [, ...] ]
[WHERE condition ]
[GROUP BY column [, ...] ]
HAVING condition [, ...] ]
[{ UNION [ ALL ] | INTERSECT | EXCEPT } select ]
[ORDER BY column [ ASC | DESC | USING operator ] [, ...] ]
[FOR UPDATE [ OF class_name [, ...] ] ]
LIMIT { count | ALL } [ { OFFSET | , } start ]
```

The FOR UPDATE clause allows the SELECT statement to perform exclusive locking of selected records

COMMIT — Commits the current transaction.
Syntax
COMMIT [WORK | TRANSACTION]

Entrance
WORK
TRANSACTION

Departure
COMMIT - Message returned if the transaction is successful.
NOTICE: COMMIT: “no transaction in progress” - If no transactions are in progress.

Description
COMMIT makes the current transaction. All changes made by the transaction are visible to other transactions, and is guaranteed to be preserved if a fault occurs in the machine.

Notes
The keywords WORK and TRANSACTION are too informative, and may be omitted. Use *ROLLBACK* to abort a transaction.

Use
To make all changes permanent:
COMMIT WORK;

ROLLBACK — interrupts the current transaction
Syntax
ROLLBACK [WORK | TRANSACTION]

Departure
ABORT - **Message returned if the operation is successful.**
NOTICE: ROLLBACK: “no transaction in progress” - If no transactions currently in progress.

Description

ROLLBACK rolls back the current transaction and causes all the changes arising from it are discarded, i.e., restore the state before the modification.

Notes

Use COMMIT to complete a transaction successfully. ABORT is a synonym for ROLLBACK.

Use

To cancel all changes:
ROLLBACK WORK;

Initialization parameters using the configuration file

One way to initialize these parameters is to edit the file *postgresql.conf*,which is normally found in the data directory (one copy is installed by default when the directory database is initialized). An example of how this file looks is as follows:

```
# This is a comment
log_connections = yes
log_destination = 'syslog'
search_path = '"$user", public'
shared_buffers = 128MB
```

A parameter is specified for each line. The equal sign between name and value is optional. The blank space is insignificant and blank lines are ignored. A # symbol indicates that the rest of the

line is a comment. Parameter values that are not simple identifiers or names should be between apostrophes.

The configuration file is re-read when the main server process receives a signal SIGHUB; This is done by running the *pg_ctl reload* command from the command line or by invoking SQL function *pg_reload_conf ()*. The primary server also propagates this signal to all processes running servers so that existing sessions also get the new value. Alternatively, you can send the signal to a single server process directly. Some parameters can only be configured in the server startup; any changes to those entries in the configuration file will be ignored until it is restarted. Invalid settings in this file are ignored during SIGHUB.

PostgreSQL client authentication

The client authentication is controlled by a configuration file, which is called *pg_hba.conf* and is stored in the directory where the database is installed (HBA means Host-based Authentication). The *pg_hba.conf* file is installed by default when the data directory is initialized by initdb.

The general format of the *pg_hba.conf* file is a set of records, one per line. Blank lines are ignored, as is any text after the # comment character, the records can not continue on multiple lines. A record consists of a number of fields which are separated by spaces and / or tabs. Fields can contain blank spaces if the field value is quoted.

Each record specifies a connection type, a range of IP addresses of clients (if relevant for the connection type), a name database, user name, and the authentication method to be used for connections that match these parameters. The first recorded match: A connection type, client address, requested database, and user name is used for authentication. No further reading

or support: if a record is chosen and the authentication fails, subsequent records are not considered. If no record matches, access is denied.

A record of this file can have one of these seven formats:

local	*database user auth-method [auth-options]*
host	*database user address auth-method [auth-options]*
hostssl	*database user address auth-method [auth-options]*
hostnossl	*database user address auth-method [auth-options]*
host	*database user IP-address IP-mask auth-method [auth-options]*
hostssl	*database user IP-address IP-mask auth-method [auth-options]*
hostnossl	*database user IP-address IP-mask auth-method [auth-options]*

3. PREPARATION OF THE WORKING ENVIRONMENT

Network Configuration

Install the LAN using the mechanism of choice. Assign each computer a static IP address.

PostgreSQL configuration to accept remote connections

In any operating system you are using and look for ***pg_hba.conf*** ***postgresql.conf*** file and make the following changes in them.

Postgresql.conf

Look for the line to contain the following command:
listen_address = ´localhost'

And modify the following settings
listen_address = ´*'

Pg_hba.conf

Locate the line where the IPv4 configuration:
IPv4 local connections:

Delete the line below and set the following settings:
IPv4 local connections:
host all all 127.0.0.1/32 md5

It is important to restart the computer running the PostgreSQL server, in order to restart this process to acquire the newly configured settings.

Note: For Windows operating systems and Linux
Windows.
The configuration files are located in the "C: \ Program Files \ PostgreSQL \ 9.3 \ data" route.

Linux
This is often found in the */ **usr** / **local** / **pgsql** / **data** /* directory, but certainly each variety has its own installation path.

Java programs
For this lab at least two networked computers are required, with fixed IP addresses and with only one of them running the database. **Download the project in Java that is provided** on the website of the journal and install it on each of the computers that are part of the network, opening in each case with NetBeans IDE or Eclipse. The connection class (where you configure the JDBC) should be modified on each computer. **Localhost** command must be replaced by the **IP address** of the computer running the database, as shown in the program below.

Class CONEXIÓN.java.

```
{public class Connection
Connection conn;
Statement stmt = null;
boolean b;

public Connection () {
try {
// Creating an object to the JDBC driver
Class.forName ("org.postgresql.Driver");
// Making the Connection: BD IPAddr Server / DBName, Username,
Password
conex = DriverManager.getConnection ("jdbc: postgresql: //
localhost / uacme" "postgres", "password");
System.out.println ("Connection established");
conex.createStatement stmt = ();
b = true;
} Catch (Exception e) {
System.out.println ("Failed to connect" + e.getMessage ());
b = false;
} Finally {
System.out.println ("Database connected");
   }
}
Statement public getConnection () {
return stmt;
   }
}
```

Preparing the data and stored procedures for the exercise. Because of the operations of inscription for special courses high and issuing vouchers are two separate activities and that when the first is made surely the second has not been made, it is necessary to create the table of special courses, eliminating the reference to Checks. This integrity must be made manually. The stored procedure that will control the issuance of checks is also created.

Using the **Postgres user** account from the **application psql of PostgreSQL** run the following commands:

```
--Connecting to the BD uacme
\c uacme

-- Eliminating the table SpecialCourses
drop table SpecialCourses cascade;

-- Creating table Special Courses
create table CursosEspeciales(
idcurso int,
idprofe int,
fini varchar,
ffin varchar,
ncuenta int,
cns int,
foreign key(idteachers) references Teachers,
primary key (idcourse)
);

-- Creating the courses will be taught by
teachers Julio and Samuel
insert into SpecialCourses values
(10,5,20150204,20150204, 0, 0);
insert into SpecialCourses values
(20,6,20150204,20150204, 0, 0);

-- Inserting Data in the specialization of
Special Extracurricular Courses
insert into SECourses values (10, 3);
insert into SECourses values (20, 4);

-- Eliminating the function,  just in case
they need it
DROP FUNCTION EnterCheck (int, int, numbic,
int);
```

```
-- Function that inserts the check register,
updates the account balance check
-- And references check against the
SpecialCourses table.
-- You are only allowed to pay a course with a
check.
-- Parameters: Checking account number, check
number, check amount,
-- Course you are paying for.
```

```
CREATE OR REPLACE FUNCTION EnterCheck (int, int, numeric, int)
RETURNS int AS '
DECLARE

vcta alias for $ 1;
vnchq alias for $ 2;
vcant alias for $ 3;
vcur alias for $ 4;
VREG record;
Vnew numeric (10,2);
vban int;

BEGIN
vban = 0;
- Select the account and decrement the balance
Select into VREG * from CheckingAccount Where AccountNumber =
vcta;
Vnew: = vreg.balance- vcant;
CheckingAccount update set balance = Vnew Where AccountNumber=
vcta;

- Insert the new check
Insert into Check values (vcta, vnchq, vcant, now ());

- Relate check with the course
Update SpecialCourses AccountNumber = vcta, CNS = vnchk Where
idcourse = vcur;
   vban = 1;
   vban return;
END;
'LANGUAGE' plpgsql ';
```

```
-- Check balances on checking accounts, cur-
rent balance of 9000 pesos
Select * from CheckingAccount;

-- Consultation of Special Courses
Select * from SpecialCourses;

--Testing this function to work properly
--Course 10 (design) is taught by Professor
Julio and payment is 3000 pesos
--Course 20 (java) as taught by Professor
Samuel and payment is 1,000 pesos
Select EnterCheck (2, 21, 3000, 10);
Select EnterCheck (2, 22, 1000, 20);


--Consulting the balance of the checking ac-
count, verify that everything is correct
--The new account balance 2 must be 5000
pesos. Does it adequately work?
Select * from CheckingAccount;


--Returning data to the original values
- Course 10 and 20 are not yet paid
Update SpecialCourses  AccountNumber = 0 = 0
Where idCourse CNS = 10;
Update SpecialCourses AccountNumber
AccountNumber = 0 = 0 Where idCourse CNS = 20;

--Eliminating all checks from Checking Account
2
Delete from Checks where AccountNumber = 2;

--Returning the balance 9000 pesos to the
Checking Account 2
Update CheckingAccount set balance = 9000
where AccountNumber = 2;
```

Once you have configured PostgreSQL for remote connections and our environment in the database, we are ready to test transactions and resolve the problem posed by this laboratory.

4. PROBLEMS TO SOLVE

For our exercise we must make some assumptions. It turns out that the two DA employees are generating checks to pay courses from account 2 (with a balance of 9,000 pesos), one for Professor Julio for 3000 pesos and one for Professor Samuel for 1000 pesos, the funny thing is that at the moment of generating them and because the system is operating in a network with a centralized data, they occur at the same time, with the balance of 6000 pesos due as a result (or could become 8000 pesos depending on what check affects the balance first). So first we will make transactions with a storage procedure but without using transactions and after we will incorporate their use to demonstrate their utility.

1st. Case:
We will make the issuance of two checks simultaneously from programs written in Java, one for Professor Julio and the other to Professor Samuel. The Index.java program is run in the IDE of your choice on each computer.These programs must run on different computers to force the database to process data concurrently. Figure 2 shows the data to be captured in the index.java program, **uncheck the CheckBox Transactions** on the screen. It tries to force the PostgreSQL to make a mistake, so after capturing the data you must click on the Send button simultaneously on the two computers that are part of the network. Figure 3 shows the detail of *Index.Java* program that invokes the function EnterCheck when the indicated CheckBox is not selected. You should notice that transactions have not been incorporated.

Figure 2. Data capture on each computer on the network

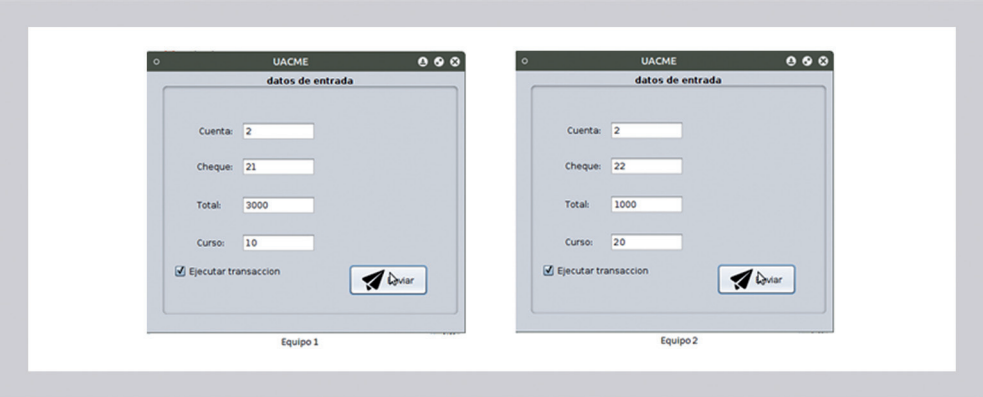


Figure 3. Detail of the invocation of the storage procedure for case 1.

```
Statement t=c..getConnection ();
try {
int x = t.executeUpdate ("Select EnterCheck (" + account +
"," + check + "," + total + "," + course+ ")");
}
catch (Exception e) {
System.out.println (e.getMessage ());
}
```

Finally, consult the balance of Checking Account 2 .What is the balance? It is correct? In order for the balance to be correct, return the settings to their previous state and try again until you find an erroneous result.

Explain why the processes fail or explain why it fails if we invoke from Java.

2do. Case:

Run the section **Returning data to the original values** in section 3. Preparation Work Environment. Java programs run on each computer and capture the same data in case 1 (Figure 2),

only now **select the CheckBox Transactions** of the screen. These programs must run on different computers to force the database to process data concurrently. Figure 4 shows the detail of the program *Index.Java* that invokes the function EnterCheck when the indicated CheckBox is selected, and should note that it has incorporated the use of transactions. It tries to force the PostgreSQL to make a mistake, so after capturing the data you must click on the OK button simultaneously on the two computers that are part of the network. Note that the "for update" command has been added to the body of the call toEnterCheck, and that the "Begin Transaction" command was previously invoked after the "Commit Transaction" command.

Figure 4. Detail of the invocation of the stored procedure for case 2.

```
Statement c.getConnection t = ();
try {
int x = t.executeUpdate ("Begin Transaction");
}
catch (Exception e) {
System.out.println (e.getMessage ());
}
try {
int x = t.executeUpdate ("Select EnterCheck (" + account + "," +
check + "," + total + "," + course+ ")");
}
catch (Exception e) {
System.out.println (e.getMessage ());
}
try {
int x = t.executeUpdate ("Commit Transaction");
}
catch (Exception e) {
System.out.println (e.getMessage ());
}
```

Finally, consult the balance of the Checking Account 2 What is the balance? It is correct? To be the correct balance, try again. Explain why it no longer fails.

5. ADDITIONAL WORK

- Modify the function EnterCheck if there is no balance in the checking account and it is not permitted to perform the insertion of the check and it returns to a value of 0. Also modify the invocation from Java if the function EnterCheck returns a zero, execute a *Rollback Transaction* and in case of a 1 execute a *Commit Transaction*;
- The same problem occurs with the total collected for each course when two tellers charge the same course at the same time to two distinct students. Build the pertinent functions in PL and adjust the program in Java that was developed in Lab 3. Make the changes you consider necessary.
- For the inventory system, update the inventory in a transaction process.

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PROCEEDINGS OF THE REGIONAL SYMPOSIUM

"LINKING, COMMUNITY AND KNOWLEDGE"

Part 1

Compilers

Dr. Jorge Antonio Velazquez Avendaño
Dr. Aníbal Cánchez Cordova

***

— Evaluators and Deciders —

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PRESENTATION

The process of community engagement from the perspective of intercultural universities is shaped as a centerpiece of its paradigm; the spirit that animates it is rooted in the dialogue of knowledge, and is therefore a prerequisite for the Intercultural University philosophy to develop relevant spaces that permit the expression of the wisdom of the indigenous people and academic knowledge.

The Intercultural University of Chiapas, through its Yajalón Multidisciplinary Academic Unit, promotes opportunities for reflection, exchange of knowledge and experiences for linking the different actors interacting in the region, called XIV Tulijá-Tseltal-Chol. This is done in order to generate an exchange of experiences and knowledge between the Intercultural university community with university communities of the region and the diverse communities of local producers, midwives and traditional doctors and the various social actors dedicated to the languages and culture of the region.

The **COMMUNITY ENGAGEMENT, COMMUNITY AND KNOWLEDGE** symposium places a value on the academic and social importance of a regional university capable of creating links with society and communities in the region and encourage the incorporation of more students to vocational training with a university profile who are committed to the natural and social environment from which they come.

This symposium allowed for the first hand expression of social actors who are in the daily life of community engagement, recognizing from the academic viewpoint a such complex reality that allows students and academics to deepen the analysis about the very concept of community engagement .

It is to celebrate the promotion of such academic events that contribute to the educational development of peoples and communities, particularly those who have been excluded and marginalized due to

not having the resources to enter the universities where they could complete their academic and professional training.

Dr. Jorge Antonio Velazquez Avendaño
Dr. Aníbal Sánchez Córdova

THE RITUAL OF THE TSELTAL "MAYAN ALTAR"

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INTRODUCTION

The story that you are about to hear is how people in the community of Aurora Grande in the municipality of Chilon, Chiapas, perform the ritual known as the Mayan altar.The Aurora Grande community consists of speakers of the Tseltal language and they are immersed in the return to the practice of the ancient symbolic knowledge.

It is not enough to only tell the story, we know. But it is important that the knowledge in the communities is shared and the Maya altar is one of them. It is the beginning of the cycle of planting, and it is therefore the blessing of the food to be produced. For Christians it is the day of the Holy Cross.

THE TSELTAL MAYA ALTAR OF AURORA GRANDE

We had to be up at dawn, so this night we went to bed early and slept soundly that night to be on time with the professor and the entire team. This time we were accompanied by all of the team with which we had been working for several semesters. We arrived at the community and immediately moved to the sacred site of the celebration to four kilometers away from the community in the surrounding mountains.

When we arrived everything was ready. In the middle of a clearing covered was the sacred circle covered with pine needles, and the space was divided into four lines by flowers of different colors. Incense smoke permeated the atmosphere.

A line directed to the east where the red sun rises where two candles of the same color. To the north there was another line with white flowers and two white candles at the end. At the other end yellow flowers and two candles of the same color and to the west there were two black candles. In the center of the sacred circle, other smaller lines were formed with green candles and blue symbolizing the earth and sky.

The flowers and red candles symbolize the beginning of life that comes with the sun of the east, and the black candles the sunset of life. At the other extreme, to the north- the place where the cold flows white, while yellow of the south symbolizes the warmth of life.

All around the circle there were flowers, fruits and seeds of various colors. The red ones were directed to the Far East to coincide with candles of the same color, the white to the part of the circle that had white candles, yellow corresponding with yellow candles, and black prepared in a similar fashion.

The women stood to the north and the men stood around the circle. The principal ordered that all of those present should move towards the sunrise and raising his hands he asked that the ceremony be accepted, that their requests were taken into account, he said prayers in Tseltal and finally thanked the eternal. We squatted down in a moment of meditation and then kissed the ground.

Then the group of musicians played a tune as we turned north where they proceeded to follow us. Another melody and then we turned south and finally we found ourselves to the west where a cross and incense burners had been arranged which symbolize the gateway to the circle of death. In each rotation the conch was blown.

CONCLUSION

The community is predominately Catholic. The believers of this religion perform rituals such as "The Holy Cross" and the "Mayan altar," where you give food to mother earth as a form of thanksgiving for the harvests during the year. They also do this to ask for good harvests. Those who follow the Christian religion commented that do not engage in these ceremonies, because they were instilled into another ideology.

An important reflection that emerges from these rituals is that the thousands of years that humanity was practicing their rituals, whether pagan or not, in the end religions of the world are trying to serve as guides in the development of humans.

But what is more important is the dialogue of knowledge that is promoted in the Intercultural University of Chiapas, which teaches to understand that no one carries the absolute truth, even science, that while the latter is based on evidence to support its statements, in the world of beliefs it is not necessarily the case and a dialogue of knowledge allows us to understand that human wisdom collects and combines both into a whole- nothing is exclusive.

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THE SOCIO-NATURAL CALENDAR OF THE INDIGENOUS COMMUNITIES: (A) TERRITORIAL LITERACY (B) SPIRITUAL LITERACY

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INTRODUCTION

Speaking of indigenous peoples is to talk about their lifestyles and the way how they conceive their own environment in which they live. It is to speak about the cultural territory and spiritual development. It is to talk about a way of life and how death is conceived. The socio-cultural calendar of indigenous peoples registers the depth of these forms of life. It picks up the sentiments of the indigenous people. Therefore when we speak of the indigenous calendar we talk about the deep being in the people living in villages and towns dating back to the Mesoamerican peoples.

TRADITIONAL KNOWLEDGE

There has been the idea that someone with a high level of education is superior to an illiterate indigenous person, but in fact that is not true since they have their own traditional knowledge in communities.

In the community, the indigenous had knowledge and wisdom. This has been hidden and it is not given the opportunity to be heard.

Modernization has caused the neglect of the importance of Mother Nature, the customs and community activities. Technology has played

down the importance of the position of the sun, the moon, the stars, the planets and also the behavior of plants and animals which for the ancestors were indicative of some event, such as planting dates, harvest, seasons of drought, rain, and of abundance. Now we never turn to see the sky, and just see our watch.

Communities retain much of their traditions, despite the devastating attack by all possible means to foster disqualify them to the point of fomenting contempt and condemn them to oblivion. But how you can forget that knowledge transmitted from a parent to a child such as knowledge for survival? How can we forget the ancient knowledge that is everyday practice of Chol communities? It is impossible, because they are now more present than ever despite the onslaught of television, radio and government policies for causing their oblivion.

THE SOCIO-CULTURAL CALENDAR

One of the most important bases for visualizing the knowledge of communities is the socio-natural calendar which punctually expresses the work for each moment, either for economically-productive types or socio-cultural events. Dates and actions of great interest to those who study the production systems and cultural systems are highlighted.

Developing a calendar can be somewhat informal for many, however, when it is made it should not only be the activity related to a date, but should be seen beyond the action. The calendar indicates when an event will occur, or in other words it allows for the visualization of the future to plan accordingly, not before or after the appropriate time. Corn planting has its time; but it also takes time to prepare and not only in reference to the activities of planting, but for cultural activities such as May 3 (Day of the Holy Cross for Christians), day of the new cycle of life.

The farmer knows when is the right time to go hunting, to know the management of different parcels of land, crops and the taking care

of the land. He has not distanced himself from reality. He has the indicators of nature in the present and even, at best, has opted by modern technology, the vision of farm workers remains in many places as mentioned above, of the enormous effort that the communities forget through strategies imposed on television or in movies about killing or pornography which do not reflect the good life, as traditionally conceived in the villages.

CONCLUSION

The socio-natural calendar of indigenous peoples is one of the most important elements that farm workers have in their hands to reaffirm their worldview and their culture. It does not allow them to forget and reaffirms the identity of the inhabitants of a given culture.

THE CURRENT ROLE OF TRADITIONAL MIDWIFERY IN THE INDIGENOUS COMMUNITIES OF THE NORTH

Dra. Martha Moreno y Dra. Alejandra Álvarez

Organization of traditional midwives "Nich Sblej Chichi Romero AC"

INTRODUCTION

The Association of Midwives is an organization dedicated to health care and motherhood in rural communities of Chiapas, particularly in the region of Yajalón. It seeks to highlight the importance of traditional midwifery as a fact of marginalized communities in Chiapas, so therefore requires the necessary attention to assist in strengthening them.

IMPORTANCE OF TRADITIONAL MIDWIVES IN CHIAPAS

Traditional midwifery plays a very important role in the lives of women in an indigenous community. However, sometimes for youth or professionals, midwives are not necessary because of existing medical facilities such as hospitals, health centers and social security, among others.

According to the INEGI, in communities 75% of births are attended by midwives and 25% by doctors. Midwives help relieve most women in labor health centers or other institutions.

In hospitals, doctors have established working hours during the day, and who will serve during the other hours and on weekends? Instead, midwives do not have a specific schedule. They work 24 hours a day, all week.

Sometimes, doctors think they have a great job, a great responsibility, and think they know more. However, those with more knowledge

about midwifery are people who have dedicated a lifetime to help those pregnant women- in other words, midwives.

The work of midwives is not only to keep track of pregnancy and the postpartum period, and childbirth, but also to serve the health of the whole family. They are active participants in solving family problems such as infidelities, venereal diseases or domestic violence, as their role is to give advice.

In the nineteenth and twentieth centuries midwives were famous in Mexico. There were 14 midwifery schools in the country. The is currently only one school called " the house".

WHY DID MIDWIFERY BEGIN TO DISAPPEAR?

Since universities started creating medical programs, everyone began to adopt this new Western knowledge, skills or abilities and thus gradually the traditional knowledge such as traditional midwifery skills began to disappear. Another reason is that the government was creating hospitals and clinics in rural areas, equipped with pharmaceutical medicines, with which was organic knowledge, was lost.

There is much knowledge that the midwives know , or know about traditional medicines, but are not recognized by science because while there is no scientific evidence for them they are useless.

All midwives while doing their job do not charge, however they accept gifts and things voluntarily given by the family of the mother such as chicken, beans, corn, and cacao, among others.

Another reason that traditional midwives are in the process of disappearing is the creation of populist government programs such as "opportunities". When a pregnant woman goes to a traditional midwife and is not attended by doctors the financial support is taken away, so that generates fear and therefore they no longer come with traditional midwives. In other words, intimidation and coercion are the forms used by the institutions to promote their disappearance.

Traditional midwives attend on an average of between 30 and 50 births per month. Mexico has 42,000 midwives, 16,000 are in the health system and 26,000 in the IMSS. However, in our state, there are 5,000 midwives. The association of midwives "Tsoblé Chihil" Yajalón, has 145 affiliated midwives, originating from different communities in the region of Yajalón such as Hidalgo, Yajalón, Tila, Petalcingo Nicolas Bravo and Tumbalá Joshil among others.

WHO ARE THEY?

They are a group of indigenous and mestizo women who are between 20 and 70 years old, some with over 50 years of experience in midwifery.

They began working on their own. Sometimes inspired by dreams, and their dreams guide them.

CONCLUSION

What can be done? Health systems must have a connection and communication with midwives, making new agreements, recognize their work, recognize them economically, train them, and that the doctors also recognize them for their work. There is an urgent need to strengthen their actions because they are the only ones found when labor surprises pregnant women and they are unable to receive treatment with the doctor or clinic. They have no choice but to turn to these men and women who are always willing to help in this noble work.

THE EXPERIENCE OF UNIVERSITY EXTENSION BETWEEN THE ACADEMIC BODY OF THE UNICH IN YAJALON AND THE COMMUNITY OF AMADO NERVO

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INTRODUCTION

Mexico is known for its multicultural composition. It has multiple expressions and manifestations of this great diversity of peoples and cultures, but above all, the need for dialogue between cultures is proposed which in concrete terms share territories which are defined politically by municipalities and / or regions.However, the recognition and preservation of this great wealth, seen in some cases as obstacles to the country's development, has tended to incline more in consideration as stigmas that prevent us from placing ourselves in decent conditions and positions as indigenous peoples.

These premises are the backbone of community engagement that the Intercultural University of Chiapas promotes in the formation of their students as future professionals who will act first with deep respect for indigenous and mestizo communities and peoples, and as a second priority dialogue before exclusion and ruptures. Recognizing that it is in southeastern Mexico, in Chiapas, where 16 indigenous languages are recorded although only 12 are officially recognized, we are conditioned to talk and dialogue with our diversity, but above all, with the entire cultural heritage that exists in each social group.

FIRST CONTACT

The first contact is by far the most powerful action with those who act and live with people of a different culture in order to understand that cultural diversity is particularly our most important wealth because it has thousands of years of existence, it is ancient, and has permitted the existence and survival of our people with their knowledge and expertise.

The first contact can penetrate communities, social groups and people allowing mutual reflection, a true dialogue among multiple actors, with various ways to express, manifest and live life as indigenous peoples, contributing to the strengthening of our cultural practices that give life and sustenance to our country and meaning to our life in community, under the premises of a community sustainability, built on intercultural dialogue.

The Multidisciplinary Academic Unit in Yajalón of the Intercultural University of Chiapas has been enriched by the experiences of community engagement, especially in communities such as Amado Nervo of Yajalón Township which was formed by indigenous Chol who have a deep knowledge of the environment where they live, who have not only welcomed us into their homes, but have spoken with the young students as participative actors in their training, as true partners of their educational training, and have provided them with information that is only transmitted from parents to children.

In that way we can say with certainty that the natural richness that still exists in the vicinity of this town, with its great knowledge and skills, are the responsibility of its inhabitants, Ch'oles and Tseltales, as promoters of biodiversity schemes or production systems that are impressive, as it is use and conservation at the same time, biocultural practices which are unknown to many Mexicans living elsewhere in our territory.

CONCLUSIÓN

Given these considerations, it is worth noting the urgent need to meet to discuss our feelings, knowledge, wisdom and multiple ways of expressing our lifestyles. The significance of our culture, beyond the folklore, a deep sense of shades, colors and sounds in the wind becomes complicit in the ways of expressing and declaring our knowledge.

THE TOJOLABAL TERRITORY AND THE "LEKILALTIK": TWO SOCIOHISTORICAL CONSTRUCTION PROCESSES

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The town's name comes from the same name of the language they speak, the Tojol-ab'al, or, a word that comes from the root meaning "*Tojol*", true or legitimate and *ab'al* that means tongue, language or word. The name of the town is translated as *the true word, the legitimate*. Hence, Carlos Lenkersdorf mentions that "*The Tojol , is the righteous behavior that can be achieved and that can be lost ... one is not born Tojol, but one becomes Tojol. It is a possibility not achieved by all, and represents a pathway and no possessions or property. It is offered to all, under the condition to exclude arrogance which implies the closing out of others*. "(1996: 22).

Tojolabales have settlements in the municipalities of Las Margaritas, Altamirano, Independence, Comitán, La Trinitaria and now also in the municipality of Maravilla, Tenejapa. Taking into account these municipalities, there must be "*today, 90 percent of the 37,667 tojolabales living in southeastern Chiapas are located mainly in the municipalities of Las Margaritas and Altamirano*" (Cuadriello and Megchún, 2004: 5) .

For some authors, the Tojolabal territory is divided into three ecological zones in which a great amount of communities are based. It is a cold region, which is also known as Cañada Tojolabal, a second area is that of the valleys and finally, the third zone is the region of the canyons of the Lacandon Jungle.

Each of these areas has their own characteristics that make them unique and allows for differentiation between them. Thus, the cold region has been one of the regions most jealously preserved for some of the important traits that identify the Tojolabal, which can be seen in the typical dress, in the language, in ritual practices such as pilgrimages, the memory of the time of the *baldio* (wasteland) that is so fresh and alive in the minds of this period of sacrifice and domination.

Unlike the valleys and the rainforest, the latter was one of the regions that had a strong impact on the migration of the group during the 50s, although migration began in the 20s towards the sector of the mountains, as mentioned by Martinez Lavin "*after the recently triggered Revolution , various Tojolab'al groups went here [mountain region] to search for their" nationals ": their "ejidos". Colonization was from the early 20s, but by the forties it became saturated and they began to send people to the jungle* "(1974: 4). Undoubtedly, migratory movements have been present throughout the history of the contemporary Maya people.

TERRITORY, DETERRITORIALIZATION AND PARTY BETWEEN TOJOLABALES

To speak today of tojolabales as a people, it is essential to talk about a process of territorial reconfiguration. We start therefore from the central hypothesis which postulates that the Tojolabal people as such, linked to the notion of territory, is in the making. That is, it is a people that have gone through a number of socio-historical processes that have led to maintain a constant territorial reconfiguration beginning from the multiple processes of colonization in some cases, and the social disintegration in other case, and that therefore in the XXI century territoriality begins to become more visible in terms of position in social spaces for more than a century they considered Ladino or *kaxlanes* spaces or,

as in the case of the indianization of municipal seats of Las Margaritas, Comitan, Altamirano starting from the armed conflict of 1994.

Starting from this hypothesis, and from a number of socio-historical processes that have marked the life of this people, it is intended here to present the Tojolabal territoriality as a building process and not a territory already built like many Chiapas towns. It is noteworthy that this paper is written with humility and in a simple way so that it is accessible to any non-specialist in the field without thereby losing its scientific character.

Today the geographic and spatial territorial delimitation of the Tojolabal people is limited to five Chiapas municipalities: Las Margaritas, Altamirano, La Independencia, Comitan and La Trinitaria, although there are beginnings to arise population centers in the municipality of Maravilla Tenejapa. However, political boundaries and even more so political frontiers do not correspond to language barriers, but rather, it is necessary to remember that "the current line between Chiapas and Guatemala was the product of several international treaties, (Schumann, 1990: 131), including the last of these, the 1883 completion of the signing of territorial boundaries, where "eight municipalities of the Mam speakers became part of Chiapas territory" Ibid.

Likewise, the kojtak'in among Tojolabal communities becomes a ritual of parties. In addition, joy among participants creates a situation of unity and a sense of sharing among those participating in the group throughout the ritual.

The *kojtak'in* is a practice in the vast majority of people in Tojolabal communities and principally takes place in the days of *All Saints Day and Day of the Dead*. It has a sense of offering to the dead. The main offering is a beef stew prepared on October 30th of each year, and it is prepared with the best pieces of meat that was distributed to them during the offering.

The *kojtak'in* involves the purchase, preparation and equitable distribution of beef cattle. Not only is the distribution factor present, but also the collective cooperation links that are established between

the community or among those involved in this practice, which makes it interesting. Each of the participants helps in the process of killing the animal, cutting the pieces of meat, as well as in the distribution; considering that at all times that collective arrangements are made. For example, if the size of the piece of meat is appropriate, Or, when you have to sell a piece of beef, like the legs, head, tail or skin, it agreed between all how much each piece must cost. Therefore it can be seen that both the organization and the community is essential for making agreements. Maybe you think that this practice greatly promotes equality, but it is questionable since in most cases you can see that throughout the process there is some monitoring of the participants , starting with the distribution of the meat, for example, that the pieces of meat are similar size.

MALE MIDWIVES IN CHOL COMMUNITIES. THE CASE OF ARMANDO BALLINAS

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2 Armando Ballinas, indigenous Cho'l , traditional midwife from Cueva Jok Tyäl , Yajalón, Chiapas

INTRODUCTION

Armando Ballinas is a highly respected man by his community since he has dedicated his life to being a traditional midwife. A man and midwife? It is a very rare situation in the region as usual Yajalón is that midwives are women.However, here is living proof of how midwifery has no preference for male or female. He has practiced midwifery since I was very young when he married Maria Cruz Alvaro who is also a midwife.

How does one become a midwife ? How did you learn traditional midwifery? His teacher was his own mother who in turn was a traditional midwife in the community from which they originated. Then there was the need to care for his wife because there were no doctors or clinics where they could go to.

How did he hear of midwifery? Don Armando showed us his experience by saying that "... When I was young I had a revealing dream, where he was taught all about how to accommodate the baby in the womb and other knowledge ...". It is important to note that dreams are one of the central elements in the formation of traditional midwives and the revelation of the "gift" that will allow and facilitate the work to come. When this occurs, the dreamer, sometimes recurrently, tells parents about the dream and they put him in contact with the community midwife who teaches under a teaching method that could be

called permanent tutoring, to who they will reveal the secrets kept by the midwife as it is not only the physical or physiological state that is served but also all the symbolic ritual that this entails.

Armando Ballinas mentions "... I have attended many births, with my family and members of the community. The respect the community has for us is because is mainly due to the work that we do ..." The most respected and listened to members of the community are precisely those engaged in this profession, and respect is earned based on the care they provide to their work.

Curiously, in possibly 100 women midwives one is male, and rarer still is to find many male midwives who can meet and share opportunities for analysis and reflection. Definitely the space of this event made it possible.

CONCLUSION

Traditional midwifery is practiced since ancient times as one of the most prominent and respected activities as it not only refers to the fact of birth as such, but the commitment that the new being acquires with who brought him into the world, that is, an important connection is formed between the two that is for life. Therefore, midwifery is a central element in any community in the region of Yajalón.

MIGRATION AND POVERTY IN THE REGION OF YAJALON*

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In Mexico, as in Central America and the Caribbean, the stories of national states are crossed by several migration processes. There are multiple causes that encourage the migration of entire peoples. Undoubtedly the main causes are economic, lack of employment opportunities, education and violence generated in rural and urban areas, as well as levels of poverty that have both reached the Mexican Republic and the countries of Central America and the Caribbean. To these causes we can also add climate change; for example, hurricanes Stan and Mitch in the last decade that have caused major natural disasters and consequently the disappearance and mobility of communities in the Soconusco and the southern highlands of Chiapas and in the countries of Guatemala, Honduras and El Salvador .

The processes of immigration and emigration of populations occupy an important role in the political agenda not only in Mexico but in the same way in the countries of Central America and the Caribbean. However, as some theorists on migration suggest, the short-term view on population movements between countries is seen as possible causes of multiple social conflicts, especially regarding the prevailing view of the host societies. However, in the long historical period, migratory movements of ethnic groups, rural communities and urban centers are seen as a major engine of transformation and cultural change. Mexico is an example of these historical processes of transformation that have led to migrations (Ariza and Portes 2010).

Currently, it is estimated that more than 12.5 million people of the native Mexican population lives in other countries, with the United States as the principal host country- Mexicans living and working illegally and without any security that allows them to achieve their goals in the host country (Levine 2009). In Mexico it is estimated that four out of ten Mexicans are directly involved or participate in this process: migrants, those who receive money from migrants, banks and their subsidiaries that perform electronic transfers of money, those who work or relate to them, the authorities and institutions of different levels of government, non-governmental organizations, different media, different religious congregations, transport companies, human traffickers, and recently various organized crime groups. All in some way or another live and benefit of the phenomenon of international migration (Herrera-Lasso 2009).

Immigration is a phenomenon that is present in the daily happenings of Mexico, and can also been seen in the countries of the Central American and Caribbean region. The press, television and radio constantly provide information about the steady contingent of Central American migrants who cross the border from Mexico in order to arrive at their final destination: the United States, or Canada. But they also inform us of the mode of operation of different groups of organized crime and ways of defrauding, extortion and violence against migrants in their quest to get legal jobs in North America (Dávila 2013).

As Alejandro Portes (2009) indicates, the links between migration and development are not entirely clear to the various theoretical approaches, since there is no single country that bets on monetary remittances as a driver for local and national economic development. In contrast, the economic development model adopted by Latin American countries has not generated opportunities for economic and social development for the majority of the population. Moreover, they have

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generated negative dynamics of structural adjustment, job insecurity and unemployment, deepening social inequality, loss of skilled workers, stagnation and no public investment to the productive system, inflation and currency devaluation against the dollar, greater economic dependence on the exterior, among many others. As a result the convergence between depopulation and abandonment of productive activities in regions of strong migration is expressed.

CHOL MIDWIVES. THE CASE OF AMADO NERVO

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INTRODUCTION

As we know, in Mexico there is a lack in health care in rural communities and medical professionals prefer to work in urban areas to have access to technology. There are very few doctors who want to go and work in a community. For this reason, for many women the work of midwives is an important alternative for the care of women and newborns, and their work is neither paid nor has a schedule, and they attend women where they feel comfortable or trusting. For many women, the ideal location to be attended during childbirth is at home because for them it is an appropriate place for delivery.

FIRST CONTACT

In order to obtain information to investigate during the first visit we focused on investigating how many midwives there are in the town. To do this we located an IMSS Nurse of Amado Nervo, Estela Perez Capetillo, for a semi-structured interview. She gladly informed us about the 6 midwives who are associated with the clinic: Mary Alvaro Cruz, Fabiana Lopez Mendez, Maria Cruz Arcos, Juana Montejo Alvaro, Margarita Lopez Mendez and Maria Cruz Alvaro.

Depending on the version of the IMSS nurse, the midwives have over 32 years of being associated with the clinic, and they currently receive

monthly training that consists in teaching them how to deliver a baby at a professional medical level to avoid any incidents during labor. They also give information to guide women in planning their pregnancies.

In addition, they are given a kit containing some materials such as: Plastic for tying the umbilical cord, scissors, alcohol, gloves, gauze, and bandages that are used for delivery care. With the information the IMSS nurse gave us, we were able to locate the homes of the midwives.

Later, after knowing the number of midwives in the community, we made the schedule of activities for the semi-structure interview, dialogue and observation for data collection. As a result of this, we have identified that traditional midwives are people who come from the community itself either through vocation, coexistence and tradition, whose job is delivering a baby or addressing health problems according to the habits and customs of the religion where they work. Therefore, midwives become natural leaders who are accepted and recognized by the people of the community because they are service providers. They collaborate in the health care of women before and after childbirth, in the health care of the newborns during the time that is convenient, and provide education to women for family planning.

TRADITIONAL CHOL MIDWIFERY

During the dialogue that took place with community midwives, it was mentioned that this work begins when the woman comes to see the midwife to know if they are pregnant. According to the midwives, a woman is diagnosed as pregnant when presenting vital signs of paleness, weight loss or has sunken eyes. The midwives handle a control status of each of their patients. This serves to make visits to their patients either to measure the woman and to know the status of the pregnancy and to know when it is guided by labor contractions so that the midwives do not make other commitments and are pending of the situation.

The work done by midwives to attend births are as follows: First cardboard boxes are placed down and then a clean sheet covers the cardboard – this is where the delivery will take place (either on the floor or bed depending on how you want the woman). When the baby is born the midwife will cut the umbilical cord. Once the cord is cut , the navel is tied with wire or plastic that is given by the IMSS. Then wrap the baby in a blanket.

Then, the midwife takes out the placenta, the woman is washed and made to rest. Finally, the midwife prepares warm chamomile water, bathes the baby, then dresses the baby, cover it with oil, places cotton on its chest to keep it warm and not caught get a cold. Before laying the baby down it is given water with star anise with sugar to drink.

Midwives are responsible for telling the relatives of the woman about the best food for her speedy recovery and for the production of breast milk. After delivery, they give her to eat: ranch chicken, fruit and vegetable broth. The midwife, after birth, continues to participate in the care of the baby and the woman, massages her, monitors possible contradictions and provides remedies for pain and indicates at least eight days rest.

Some of the midwives use medicinal plants before and after birth, which have different uses and functions. Chamomile is used to control the swelling of the baby and belly pain , fennel serves to offset the pain in the womb after childbirth, basil is used to increase the appetite of the mother, and finally incense is used to protect the baby from evil eye.

To complement the investigation, we interviewed Mrs. Aurora Mendez Alvaro, patient of the midwife Maria Alvaro Diaz. The interview focused on knowing the opinion of women on the work of midwives. The answer was "the work of midwives is very important because you feel more confident to express what we feel at the time of delivery and what our concerns are. Unlike doctors, midwives are always aware of us" . Aurora Mendez Alvaro (personal interview, May 21, 2012)

CONCLUSION

This research experience with midwives in the community of Amado Nervo were somewhat enriching for our training because besides knowing the importance of the work of midwives, we also had a good relationship with the group. Perhaps one of the advantages of this good relationship was that the team was composed of students and the dialogue was in the mother tongue of Ch'ol, generating more confidence with women. It is without saying that some of the midwives were limited to tell us how they work, maybe because they were afraid that their secrets could be shared with other midwives.

But what we were most amazed about the work of midwives is that they have neither timetable nor payment. They simply give a service to the community, because for them the work of midwifery was assigned to them by God to help and serve. It depends on the woman if you want to give a voluntary donation or not.

What we observed is that the midwives feel satisfied with their work, for which they have wide experience and disposition to attend any emergency. For this reason the midwives fulfill an indispensable role in the community because they aren't only women, but are also mothers, grandmothers, neighbors and wives and have responsibilities in their homes.

Midwives are respectful and provide a warm and comprehensive personalized service that takes into account not only the physical appearance of women, but also emotional and mental aspects as well. They also have extensive experience to detect any abnormalities of the baby or the mother. It should be added that midwives are willing to learn and accept the use of pharmaceutical drugs.