

## Alternatives of production and economic development for the small productive units of the first valley of the Selva region of the Municipality of Ocosingo, Chiapas

### Alternativas de producción y desarrollo económico para las pequeñas unidades productivas del primer valle de la región Selva del Municipio de Ocosingo, Chiapas

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#### Abstract

The main purpose of the study and analysis of the production and economic development activities in the rural area of the Municipality of Ocosingo, Chiapas, is to identify existing opportunities for the diversification of production systems in the current productive units, thereby contributing to provide an answer to the existing economic, productive and environmental problems; where it is intended that the production units are self-sufficient and capable of generating a sustainable production where the food is obtained, considering that the surpluses can be marketed to generate direct income to the family; this as a consequence to reduce the dependence of the inputs that come from other places and that are used to satisfy the basic needs and the productive process in the region. For this, in this research its importance lies in conducting the tours and views directly to know what is the true productive vocation and work schemes for the sustainable use of the area and thus define the implementation of alternative activities to its time allows the generation of opportunities to improve the quality of life of producers, but at the same time contribute to the generation of direct and indirect benefits in the locality.

**Units of Rural Production, Sustainable Production, Rural Producers, Production Alternatives**

#### Resumen

El estudio y análisis de las actividades de producción y desarrollo económico en la zona rural del Municipio de Ocosingo, Chiapas, tiene como finalidad principal la identificación de oportunidades existentes para la diversificación de los sistemas de producción en las unidades productivas actuales, con ello contribuir para brindar respuesta a la problemática económica, productiva y ambiental existente; donde se pretende que las unidades de producción sean autosuficientes y capaces de generar una producción sustentable donde se obtengan los propios alimentos, considerando que los excedentes puedan ser comercializados para generar ingresos directos a la familia; esto como consecuencia para reducir la dependencia de los insumos que provienen de otros lugares y que se utilizan para satisfacer las necesidades básicas y el proceso de productivo en la región. Para ello, en esta investigación su importancia radica en realizar los recorridos y vistas de manera directa para conocer cuál es la verdadera vocación productiva y los esquemas de trabajo para el aprovechamiento sustentable de la zona y con ello definir la implementación de actividades alternas que a su vez permita la generación de oportunidades para mejorar la calidad de vida de los productores, pero que al mismo tiempo se contribuya a la generación de beneficios directos e indirectos en la localidad.

**Unidades de Producción Rural, Producción Sustentable, Productores Rurales, Alternativas de Producción**

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## Introduction

The purpose of this research was to carry out a study to identify and justify the impulse in the creation of Rural Production Units with alternative activities, in the Municipality of Ocosingo, Chiapas; and that they are capable of producing everything that allows their own territorial extension, considering the productive vocation, climates, soils, water, accessibility, potential for commercialization and basic services. Being self-sufficient will result in the generation of food security, energy production, rational use of water, seed production, breeding stock reproduction of animal species, care and conservation of ecosystems.

The purpose of this research was to identify the producers that have minimum land extensions, to carry out an inventory of activities they are currently carrying out and to determine the alternative productive activities that can be introduced as the production of organic fertilizers (lombri-compost, humus, biological conditioners), basic grains (corn, beans, peas), raising lesser species of animals (goats, rabbits, chickens), to provide not only food to the family, but through the sale of their surplus obtain income and welfare for the members; (*Martinez, 2010*)

This proposal consisted of taking advantage of small areas of land, through the use of intensive techniques and methods; that in the medium term it will be the life project for the families settled in the countryside, living in harmony with nature, preserving and enjoying the environment that surrounds it, breathing fresh air, avoiding the felling of forests, conserving the births of water and propitiating the improvement of lands and crops. Additionally, the use of appropriate technologies at low cost is encouraged, as well as the employment of many people, which will contribute to the well-being of the rural family, (*Nicholls, 2000*)

The Municipality of Ocosingo, Chiapas; about 30 years ago, it was the most important region for the production of livestock and other products related to agriculture, derived from the diversity of land uses that the region possesses; However, after the social movement of 1994, there was a severe reduction in the production of these species (*Haar, 2000*).

Likewise, the organization of basic crops and the provision of tourist services fell in the same proportion; productive activities that are important due to the economic spillover that has been maintained in this region, which provokes reactions, decrease in the labor supply, productive incapacity to cover in its entirety the basic needs and for the correct migration of people to other Municipalities and States of the Country (*Bobrow-Strain, 2009*)

The reduction of production in a region is incomprehensible, since this area has excellent conditions in climates, soils, sufficient water and productive capacity of the population for the development of different activities. This situation can only be explained by the constant conflicts that have occurred in the region, considered a gray area, where productive development is in crisis. (*Vazquez, 2007*)

In this sense, the need to identify and propose production alternatives in the rural production units of the Municipality of Ocosingo, Chiapas. Derived from this situation, it is possible if a greater productivity of the Rural Production Units is promoted, to develop the production alternatives looking for a better enough profitability and a very important growth in the demand of obtained products, without mentioning that its market value is much greater to be considered by the consumer as highly healthy, nutritious and obtained in conditions of protection to the environment (*Guzmán, 2014*)

The research project identifies the needs and areas of opportunity in relation to the productive activities existing within the demarcation chosen for the study, through the use of instruments and tools that allow analyzing the different production alternatives, seeking to contribute in this way. the improvement of the quality of life of the producers located in the rural area of the Municipality of Ocosingo, Chiapas.

## General Objective

Know the feasibility, profitability and feasibility when implementing the diversification of its activities, in the production units located in the rural zone of the first valley of Ocosingo, Chiapas.

**Purpose**

1. Identification of the production and commercialization activities that are carried out in the different productive units of the rural area of the first valley of the Municipality of Ocosingo, Chiapas.
2. Quantification and enumeration of the organized producers of the rural area of the first valley Municipality of Ocosingo, Chiapas.
3. Conducting participatory planning workshops to learn about the productive vocation of the representative production units in the first valley of the Municipality of Ocosingo, Chiapas.
4. Design and delivery of courses for the development of capacities and improve the skills of the producers of the first valley to make them more competitive in the incursion of new production systems.
5. Development of alternative proposals in terms of production according to the needs of the sector, in order to meet the growing demands of raw materials, as well as the production of products, within the same production units of the first valley of the Municipality of Ocosingo, Chiapas
6. Guidance to the producers of the rural area of the first valley of the Municipality, to the management of economic resources in the different programs of public and private financing.

**Goals**

- Elaboration of a register of 50 producers dedicated to rural activities in the first valley of the Municipality of Ocosingo, Chiapas.
- Classification of the main productive activities of 50 producers located in the rural area of the first valley of the Municipality of Ocosingo, Chiapas.
- Realization of a diagnosis of training needs with the organized producers of the rural area of the first valley in the Municipality of Ocosingo, Chiapas.

- Design of a training program focused on the processes of organization, production and commercialization of the species cultivated by the producers of the rural area of the first valley of the Municipality of Ocosingo, Chiapas.
- Diagnosis and identification of types and / or turns of feasible projects to the needs and opportunities of the production units located in the rural area of the first valley of the Municipality of Ocosingo, Chiapas.
- Dissemination and promotion of information obtained in research in two media, to producers in other rural areas of the municipality, for the development of a model that allows through the demonstration of results, to lead them to this type of diversified production.

**Materials and methods**

For the realization of the present investigation it was necessary to use geo-referencing instruments, which allowed us to have the exact location and exact dimensions of the regions where the production units object of the present study is located, as well as the design of the logs. of records that accumulate information related to the main productive activities to which the organized producers of the communities are dedicated.

Likewise, participatory diagnostic workshops were conducted with the use of the Logical Framework method (Haugland, Gjos, Hagen, & Ronning, 2005), which allowed us to efficiently know the degree of involvement of local producers, regarding their participation in these productive activities; therefore visits were made to each group of organized producers, to know the characteristics and activities that are carried out in the territorial extension of each production unit and in this way said information was integrated for the design of the project, soil study and project execution.

Once the scope of our research was defined, different tools were used for the field study where all the information required and provided by the owners of each production unit visited will be collected; Such materials are described below:

Interviews tool, which allowed us to maintain direct communication with each of the producers, which guarantees the objectivity of the information provided during the study. (Sampieri, 2009)

Tool of the surveys through questionnaires, which were applied to the collaborators of the production units studied to complement the research information.

Observation tool, which allowed us to realize what is the infrastructure, facilities, tools, supplies and processes that each production unit has.

Also during the development of this research, it was necessary to use equipment, materials and supplies to obtain the information, its processing, interpretation and presentation of the results, and these are:

Laptop: equipment used to capture the information obtained from the rural production units that are considered in the development of the project, as well as the integration of the complete project

Printer: used to print documents (trades, work minutes, questionnaires, assembly minutes, routes, technical sheets) to be carried out during scheduled visits to rural production units, as well as the entire project.

Photographic camera: for the capture of images and photographs of the rural production units visited, with the aim of having a clearer and more detailed perspective of said activities.

Video camera: to record the dialogues and interviews that were made to the producers during the visits, where they explain the development of their activities and the importance of sustainable production.

Tablet: to carry the electronic agenda, maps, work routes; with the purpose of doing the practical activities with timely and necessary information in the explanation of the different topics, as well as videos that allow the producers to have perspectives of the activities they develop.

Projector: for the explanation of the project to rural producers, with the aim of adequately socializing the project and thereby achieve their participation.

GPS: for the correct location of the rural production units and the concrete visualization, which allowed us to obtain the geo-reference of each production unit.

Automobile: for the transfer and realization of the visits to the production units, it is indispensable the use of a vehicle that allowed to make the visits.

Stationery: during the execution of the project, stationery and necessary supplies were used to gather necessary information from the rural production units involved in said project.

### Methodology

For the development of this research, we proceeded to collect the information through the following methodology:

The field work was carried out directly in the area of influence under study of this research, located in the rural area of the first valley of the Municipality of Ocosingo, Chiapas; where the logical framework methodology was used, participatory planning processes, work meetings, survey application, interviews, socialization in stays during the period of validity of the research, with the purpose of knowing directly the role played by producers in rural production units regarding the development of productive activities; likewise the realization of community assemblies to know the perception; finally the documentary research and the cabinet work.

The use of the different techniques for the investigation allowed obtaining information of the different activities that are developed in the rural production units; In this way, conducting interviews will help us to record evidence of producers' opinion about the project, suggestions, expectations and other points related to their activities, as well as the use of the direct observation tool, which allowed us to investigate the production processes in the activities developed by the different productive units and especially in those possible activities where it can be successful; likewise with this same tool, we identify the potentials of each of the rural production units.

On the other hand, the use of technical data sheets allows obtaining basic information of the rural production units visited, such as:

Name of the owners, location, main activities in the production units, number of hectares, potential for the development of alternatives of production to be developed in said surfaces, approximate annual production, among other records with a level of importance for the investigation. In order to have data that will help us to carry out the project with greater feasibility, another tool to use is the application of interviews, which is used to obtain more detailed information.

To provide adequate follow-up of the research methodology, we divided the study into three main sections.

### 1. Socioeconomic aspects of the Municipality of Ocosingo

- Socioeconomic characteristics: This section refers to the study of the total population by sex, density, annual growth rate, language, population occupied by sector and the productive activity of each rural production unit.
- Main economic activities: The information of the rural production units will be classified, according to the production of the primary, secondary and tertiary sectors.
- Agricultural Production: reference is made to the climatological factors, amount of land available per producer, labor force and the main basic products produced, area sown and harvested.
- Livestock Production: The main species of livestock produced in the region (cattle, sheep, pigs, poultry, etc.) are identified.
- Trade: At this point we know the different marketing channels and their viability with respect to family income.

### 2. Theoretical considerations about the importance of production units.

- Diversification of production: Active participation in the production units.
- Qualified labor: To know the level of performance of those who work in the activities of the production unit.

3. Analysis of the field study
  - Socioeconomic description of the rural production units of the Municipality of Ocosingo
  - Main economic activities, way of life, economically active population
  - Production process: The main basic products and the quantity of production, the sowing and harvesting times, the means used to produce, and the members of the families involved are identified.
  - Salaried work: In this aspect it is detected the amount of people that sell their work force and representation that it has in the Rural Production Units.
  - Activities that generate economic income in the families of the community: In this section, the main activities of the family nucleus are known, as well as those that have greater relevance and business perspective.
  - Way of life in the regions where the rural production units are located: It is important to highlight the situation in which each of the families currently live, the social stratum to which they belong and the number of people living in housing.

The study of this project consists in knowing directly the daily activities of the producers that at the moment were selected through the statistical sampling method, to identify the behavior related to the participation of the producers in field activities, taking into account The following criteria:

- Size of the Research Universe
- Representative sample for the realization of the study

In this way we know the data of the population under study, for which the following formula was applied:

$$n = \frac{Z^2 Npq}{e^2 (N - 1) + Z^2 pq} \quad (1)$$

Where:

e = Estimation error 5%

n = Sample size ¿ ?

p = Probability in favor 70%

q = Probability against 30%

Z = Confidence level 95% =  $.95/2 = 0.475 = 1.96$  (Valor de Z)

N = Total Population or Universe 50 rural production units

$$n = \frac{(1.96)^2 (50) (0.70) (.30)}{(.05)^2 (50-1) + (1.96)^2 (0.70) (0.30)}$$

$$n = \frac{(3.8416) (50) (0.70) (.30)}{(.0025) (49) + (3.8416) (0.70) (0.30)}$$

$$n = \frac{40.3368}{0.9292}$$

$$n = 43.41$$

$$n = 43 \text{ Rural Production Units}$$

Sample size

In the cabinet work, the capture and analysis of the collected information was carried out, using for it the programs of the Office package, such as excel, word and publisher.

### Infrastructure

For the development of this research project, it is important to mention that computer equipment was used (laptops, printers, projector cannon, scanner), photographic equipment (camera and video), communication equipment (cell phone), geography equipment. referencing (GPS). Likewise, the use of infrastructure, auditoriums of the Technological University of La Selva, for holding meetings, workshops, training and training for rural producers in the first valley of the Municipality of Ocosingo, Chiapas.

### Incidence of the Project in the Institutional Strengthening

For the development of this research project, the participation of students, teaching staff and members of this Academic Body was very important; This being a team that was directly involved in the start-up of the aforementioned study.

The involvement of students focuses basically on the application of knowledge, skills, abilities, attitudes and skills acquired within the classroom, with the aim of encouraging initiative and desire for research, as well as compliance with academic studies, work of research through the development of practices focused on the provision of training services, technical assistance, advice, design and putting into operation of productive projects in rural production units.

On the other hand, the implementation of integrated projects advised by academics and researchers, in the formation of work groups and rural productive organizations of the Municipality of Ocosingo, Chiapas.

In the same way, the researchers, participating teachers and members of the Academic Body, have the possibility of publishing the results of the study, participating in congresses, academic forums, research spaces of a national and state nature.

The research project maintains institutional impact through the creation of adequate conditions for the provision of professional services, continuing education and technological services offered by the Technological University of La Selva. In the same way the creation of guides, manuals, reports and technical reports, for the increase of academic production.

In this way, the results of the research work allow us to build a methodology that is replicated to other scenarios of the different regions of the State and the Country, which have the same socio-economic characteristics and conditions, thus achieving a greater Linkage of our University, with the productive and social sector and thus the formation of collaboration networks between producers and members of Academic Bodies to share experiences focused on improving, updating and renewing production systems that are currently used.

### Results of the investigation

The results of the present investigation, allow us to identify all the potential that exists in each of the areas traced for the study in the ranches and production units visited.

The quality of the soils, the abundance of water, the unbeatable climate, the flat lands in their majority, all these elements very propitious for the establishment of any productive activity focused on agriculture, livestock, fishing, forestry, among others; But an asset that cannot be substituted without doubt is the commitment, will and wishes of the producers who are eager to undertake a project of this nature. Each and every one of the producers, owners, managers and administrators of the production units that were visited. They are aware of the need to increase and differentiate their productive activity by optimizing and taking advantage of each of the parts and space that makes up their property, 90% of the producers of this research universe are mainly engaged in the productive activity of livestock (livestock bovine). Scarcely 10% use their property for the development of activities in major livestock (pigs, sheep). This composition can be appreciated from the need to create integrated farms under a sustainability scheme that allows the greatest use of the spaces to generate higher and better incomes.

The additional and alternative productive activities proposed in this research are: Production of sheep, Production of pigs, Production of rabbits, Production of bees (hives), Production of backyard birds (chickens, turkey, duck), Production of timber species, Production of fruit species, Production of exotic fruits, Cheese making, Bread making, Products derived from honey (sweets, candies, syrups, candles and candles), Industrialization of fruits and vegetables, Meat workshops, Wood furniture factories, Production of earthworms (vermiculture), fish production, production of exotic species (iguana, deer), environmental management units (UMA), production of seasonal vegetables, implementation of nurseries.

## Discussion

It is important to mention that each of these proposals are focused on each type of production unit, that is, according to the nature, size, available resources, location, accessibility, among other factors; the proposal is being made for the establishment of the activities, on the other hand the producers themselves have identified areas of opportunity to increase the supply of activities seeking greater increase of their capacities, knowledge and resources with which they have.

Each production unit has an innumerable list of assets that can be available for the use of these resources in the diversification of productive activities.

### Main assets of the production units visited

Extensions of land suitable for the development of agricultural and livestock activities, Use and disposal of land for crops, livestock infrastructure (pens, feeders, fences), access and communication in good condition, water sufficiency, electric power, staff that works with availability to work.

The total number of production units visited has sufficient capacity to establish productive activities and convert them into ranches or integrated farms, which allow improving and increasing production, income and food security in the region where the project was developed. This research was necessary to identify a universe of study that included a total of 43 production units (ranches), located in the entire periphery of the municipal seat of Ocosingo, Chiapas; distributed in 11 routes; shaped as follows:

Route 1. Ocosingo - Palenque, a total of 6 production units

Route 2. Ocosingo - Barrio Octavio Albores, a total of 2 production units

Route 3. Ocosingo - Technical Sec. No. 16, a total of 4 production units

Route 4. Ocosingo - Campo del CBTA 91, a total of 3 production units

Route 5. Ocosingo - Colonia Magisterial, a total of 6 production units

Route 6. Ocosingo - San Pedro, San Pedro 5 production units

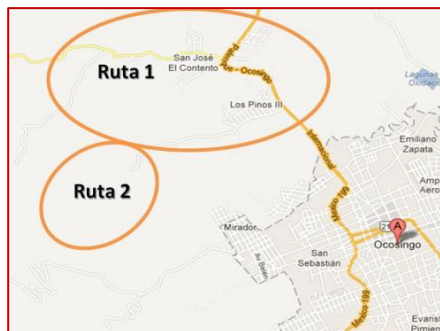
Route 7. Ocosingo - Ejido Balaxté, a total of 5 production units

Route 8. Ocosingo - Rio Jataté, a total of 4 production units

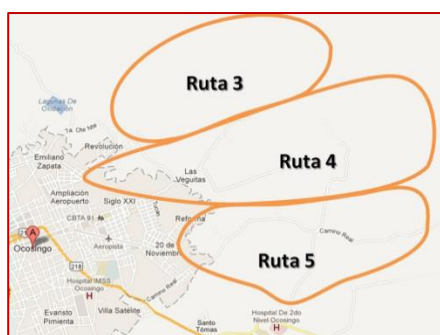
Route 9. Ocosingo - Pomarrosa, a total of 3 production units

Route 10. Ocosingo - San Cristóbal, a total of 4 production units

Route 11. Ocosingo - San Caralampio, a total of 1 production unit



**Figure 1** Route 1 y 2  
Source: Self made



**Figure 2** Route 3, 4 and 5  
Source: Self made



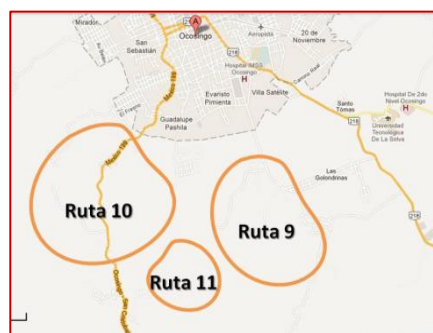
**Figure 3** Route 6  
Source: Self made



**Figure 4** Route 7  
Source: Self made



**Figure 5** Route 8  
Source: Self made



**Figure 6** Route 9, 10 y 11 (Ranchos)  
Source: Self made

In summary, a total of 43 production units (ranchos) were visited, where a range of opportunities is identified for the implementation of activities related to the field that can be used to give the category of integrated farms and ranches, such as:

Livestock and livestock activities:

- Larger livestock
- Livestock
- Backyard Livestock
- Livestock of exotic species

Agricultural activities:

- Crops of fruit species
- Species crops vegetables
- Vegetable crops
- Crops in greenhouses
- Nursery crops
- Productive reconversion

Piscicultural Activities:

- Production of tilapia mojarra
- Production of trout
- Production of river shrimp



**Silvicultural Activities:**

- Production of timber species
- Reforestation

**Agroindustrial activities:**

- Cheese and dairy factories
- Fruit and vegetable agribusiness
- Industrialization of honey
- Meat workshops

**Other activities:**

- Vermiculture production
- Carbon capture from excreta
- Wood workshops
- Handicrafts

**Conclusions**

In summary we can mention that there is feasibility and feasibility in the project of integrated farms for its implementation in this town, being part of a second stage of the project the study of profitability to ensure the success of this project.

During the research process of this project in the Ocosingo region, Chiapas; we could see that the agricultural activity is having less and less impact in this area, derived from the consequences that entailed the social and political problems that led to the beginning of the armed movement in the jungle zone of the State of Chiapas; the great extensions of land that were in few hands and that in turn were productive, at present these large farms and properties no longer generate the same dividends; faced with this situation that has generated slow economic and social growth in the municipality, viable, profitable and feasible alternatives have been sought that can significantly contribute to the development in the communities, with the ejidatarios and small owners of small extensions of land where they can diversify productive activities to satisfy self-consumption needs, trying that the surpluses are taken to the commercialization so that this activity and cash flow is generated in the Ocosinguenses families.

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