

Socio-environmental management and conservation of resources in priority areas of the state of Puebla**Manejo y conservación socioambiental de los recursos en áreas prioritarios del Estado de Puebla**

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Received July 18, 2018; Accepted November 22, 2018

Abstract

Aim: This proposal is Relevant Because of the interdisciplinary and multi-sectoral focus of the socio-environmental management and conservation of the natural resources in critical areas Which characterize the state of Puebla, Which have a strong pressure on the natural resources. Methods: The Interaction Among professors of the university is allowed and enhanced, as well as the complementarity of scientific skills When the dialogue and inter departmental analysis social Between and Natural Sciences and the inclusion social of, political and the cultural variables in a theme Which Has Been ITS predominantly addressed only in physical, biological, ecologic or geographic perspectives. Controbution: The training dimension of human resources Shall Be Actively included not only With under graduate and graduate students, but With social sensitive actors as well, in the face of various Alterations of the environment and culture of the communities, Which strengthens local decision making Processes , democracy, participation, cohesion and articulation soicla With governmental actors.

Environment, education, social, cultural, multidiscipline

Resumen

Objetivos: Esta propuesta resulta relevante por el abordaje interdisciplinario y multisectorial del manejo y conservación socioambiental de los recursos en áreas prioritarias que caracterizan al estado de Puebla, las cuales tiene una fuerte presión sobre los recursos naturales. Metodología: Se permite y favorece la interacción de investigadores dentro de la misma universidad, así como la complementariedad de capacidades científicas al plantearse desde el diálogo e interdependencia de análisis entre las ciencias sociales y las naturales e incorporar las variable social, política y cultural a un tema que predominantemente ha sido abordado solo en sus dimensiones física, biológica, ecológica o geográfica. Contribución: Se incorporará activamente la dimensión de formación de recursos humanos no sólo de estudiantes de pregrado y postgrado, sino de actores locales sensibles y activos ante los diferentes impactos sobre el efecto al medio ambiente y cultura en sus comunidades, lo que a mediano y largo plazo fortalece los procesos de toma de decisiones locales, democracia, participación, cohesión social y vinculación con actores gubernamentales..

Medio ambiente, educación, social, cultural, multidisciplina

Citation: LÓPEZ-TÉLLEZ, Ma. Concepción, CAMPOS-CABRAL, Valentina, FERNÁNDEZ-CRISPÍN, Antonio and MOLINA-ARROYO, Hugo Rodolfo. Socio-environmental management and conservation of resources in priority areas of the state of Puebla. *Journal Schools of economic Thought and Methology*. 2018 2-3: 27-35

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Introduction

Management and socio-environmental conservation includes the analysis of natural resources and production systems such as agroforestry, agriculture, wildlife utilization, increased biodiversity and soil conservation, among others. This includes cultural elements must be contextualized so from the perspective of knowledge, innovation and practices that have made and make rural and indigenous communities in Mexico responsible for the conservation of biological and cultural diversity. Management and socio-environmental conservation practiced by rural and indigenous communities in our country currently must be evaluated and reevaluated. key element is the institutional and community organization that is built for management, dating back in some cases precolonial times (Garcia, 1992).

Among the great diversity of resources used in the country are the forests, water, soil, flora and fauna, among the most important. This is basically because in Mexico many of the rural areas primarily consisting of collective identities that are made up of communal property and are recognized as agrarian groups: ejidos, or communal property (Gonzalez, 2001). Generally rural communities, because of the poor conditions in which they are, are forced to perform intensive exploitation of its resources and practice activities properties that do not have adequate potential (Carabias et al., 1994). It is therefore considered that depend heavily on natural resources, demonstrating their importance to protect a natural area, since they can operate as allies of protecting natural resources and cultural and biological diversity (Bocco et al., 2000). Currently, the concern of different social sectors to the environmental crisis being experienced by humanity necessitates the search for new alternatives that promote the protection, preservation and proper use of natural resources, Regularizing the management of natural resources is a shock for customary practices by local villagers, since they consider common use. It is therefore vitally important the need to conclude management in a participatory manner with communities, seeking ways to preserve them and that the people of the region make sustainable use of them, thereby ensuring food security, cultural continuity and conservation of ecological processes of ecosystems (Retana, 2006).

In that sense rural, indigenous and peasant communities are allied with the protection of natural resources. These are essential to maintain traditional agroecosystems and genetic diversity in situ, as demonstrated successful experiences in Mexico (Adewole Osunade, 1989; Carabias et al., 1994; Bocco and Toledo, 1997, Toledo, 1997). Proper management will result from the collaboration and contribution of various sectors such as academia, non-governmental organizations and technical bodies themselves in rural and indigenous communities, achieve reconcile conservation and wise use of natural resources they possess.

This makes evident the conviction that knowledge is not exclusive to scientists, and the interest of establishing interactions between science and local knowledge to solve problems regarding the conservation and use of ecosystems. Given the potential contribution of local knowledge, especially for issues of sustainable development and conservation of resources (Nepal and Webber, 1995), an increasing number of scientists and decision-makers working on the integration of traditional knowledge and knowledge general scientific (Warren, 1991; Bocco and Toledo, 1997; Unesco, 2003) which eventually enable rural and indigenous communities in the country make decisions in an increasingly complex environment.

The proposal has an explicit interest to highlight the impact that has on natural resources and culture in historically vulnerable communities in the social, economic and environmental, that in parallel undertake adaptation actions to conserve natural resources and culture.

It is intended that these elements do not create a sterile knowledge, but to contribute to the formulation of recommendations from the local level and in connection with the actions of the sectors engaged in the subject, including initiatives produced in academia and actions building permit collective public policy toward the development of proposals for collaborative management for the conservation of the environment at the local level responses.

The hypothesis in this research lies in the following:

Developing strategies for the management and conservation of natural resources in priority areas of the State of Puebla allow conservation of ecological processes of ecosystems and the preservation of culture of traditional knowledge.

So the aim of this research is analyzed through participatory approaches involving local actors, knowledge that they have of their natural resources and processes in space and time of its territory ownership and management have made of its resources in common use, considering the historical perspective from the origin of the community, organization, characterization, culture, infrastructure, productive activities, problems and solutions for conservation and planning of its territory to propose strategies to management and conservation of natural resources in communities of Puebla.

Development of headings and subheadings of the article with subsequent numbering

The research has been developed in three stages: the first consisted of desk research as a first approach to the research problem involves gathering generic and bibliographic information; the second in applying participatory research to get an overview and approach the comparative analysis of driving conditions and socio-environmental culture and strengthen the adaptive capacities that would allow developing strategies for the management of natural resources and conservation of these and from the local culture. For the third step the generation of databases was performed, the projection of the different diagnoses on handling and culture in communities in different regions of Puebla.

The data analysis involves the socio-environmental diagnosis of natural resource management based on the culture of each region, the use of GIS. Therefore, work has combined different methodologies for data collection, including quantitative and qualitative methodologies, since it is assumed that both are complementary, allowing the researcher to varying degrees of deepening the problem addressed.

Methodology to develop

For the development of this research it has been used to collecting secondary information to understand the context of the investigation, so it has been done documentary research specialist literature for the analysis of different sources that describe phenomena of a historical, social (culture), economic, environmental, political, among the most important areas of study. existing documents directly or indirectly type and databases available information were used.

The various governmental and non-governmental agencies for finding information about the area were used. The information collected in government agencies was used to analyzes the social and environmental context. Forward-looking communities of different regions of the state visits were made to define the study communities and then identify the management and culture from the social and environmental perspective. To obtain the primary information documentary participatory research was applied as an essential tool for obtaining information from the perspective of social actors. This methodology is to generate spaces for meeting and socializing, sharing experiences with key stakeholders involved to allow the systematization and analysis of the conditions of social and environmental vulnerability and resilience to different social and environmental scenarios that lead to the strengthening of processes and adaptive capacities socioterritorial aimed at equity. These methodologies were used in order to allow the participation of people with different degrees and levels of education; also they facilitated the systematization of knowledge and consensus of this (Giraud et al. 2005, JALDA 2008, Brenner 200, Esquivel et al. 2011). Additional to the above points, routes and field observation that allowed testing of an individual or group is performed the information provided in the group dynamics and oral communication (Ayales 1991 Geilfus 1997, Becerra 2006).

Participatory research workshops were Oheld, meetings, interviews, surveys, maps, field trips, historical analysis or timeline and identification and characterization of the social actors that allowed us to evaluate the interests, positions, legitimacy, power relations, and so recognize different situations.

Conducting interviews or semi-structured at the level of key informants or focus groups, a diagnosis of the community to identify, within its territory, areas or areas at risk or affected by the change of land use surveys adds and areas that in the short term can be affected by this phenomenon and areas prone to natural disasters.

Through identifying the problems generated by the historical management of natural resources and changing cultural processes will be recognized that needs of the inhabitants regarding the development of strategies for the conservation of natural resources such as water, food security, agriculture, biodiversity, land use, human health, energy, among the most important. In addition, strategic stakeholders and lines of action to conduct an evaluation of processes and outcomes were identified.

Furthermore, analyzes particularly water quality of the study communities in order to perform a physical-chemical analysis, the behavior of solvents both organic and inorganic compounds, which allows to know the situation of the water system so integrated later to make a qualitative and quantitative analysis to describe the type and degree of alteration they have suffered, to establish proposals for sustainable management (Lance-Espino et al., 2011).

Analysis of social representations of the problem abordándose from a three-dimensional perspective (amount of information, affective structure and trend) is also added. For this index indicating the amount of information that is in a certain representation were used. The development of different methodological strategies to analyze the specific content, structure, evaluative trends and variables that distinguish groups. All this from the definition of quantitative properties of social representations, that will deduct their qualitative properties, or at least hypothesize about what these are. Are considered for analyzing the quality and level of knowledge about the social object represented at individual and group level, the representation of the specific contents of the object represented, based on a model, social structure and organization that is built in a certain space and time to allow the object context.

Similarly, this three-dimensional analysis to detect trends and evaluative general approach adopted representation as attitudinal dimensions affective evaluation (Guevara, 1996) is included.

This analysis has the advantage of detecting the structure, evaluative trend and the specific contents of the joint representations, allowing analysis of social groups according to their characteristics (Fernandez, 2002). Give the meaning of the variables in linear writing and it is important to compare the criteria used based on a model, social structure and organization that is built in a certain space and time to allow the object context. Similarly, this three-dimensional analysis to detect trends and evaluative general approach adopted representation as attitudinal dimensions affective evaluation (Guevara, 1996) is included. This analysis has the advantage of detecting the structure, evaluative trend and the specific contents of the joint representations, allowing analysis of social groups according to their characteristics (Fernandez, 2002).

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Results

The results obtained so far in this research project include collaborative work as members of the Academic Body (CA) Environment and Education within the members part of the inter- and multidisciplinary integrated to will answer the problem acclimate from different perspectives and processes of education to solve social and environmental problems in communities in the state of Puebla. To meet the objectives set out in CA have three lines of generation of knowledge such as:

1. Ecology and natural resource management: in which has generated knowledge about the social and environmental processes from assessment, management, use and conservation of natural resources in a sustainable way, the work that has been done involves processes use and management of natural resources from a participatory and inclusive approach, in order to achieve a co-management that balances between the various stakeholders.
2. Educational research: this research focuses on the processes of science education with emphasis on culture and environmental education, focusing on development projects in rural and urban communities, both children and adults in a participatory manner, with purpose of addressing local problems that allow the development of sustainable alternatives from the local.

Ecotoxicology: in which research on the techniques and procedures of the disciplines of ecology, toxicology, animal physiology and plactología is made, in order to respond to aspects of the quality of natural resources with emphasis on water resources, involving the way in which processes in the alteration of water systems, quality analysis, use and relationship with human populations, and mitigation measures for remediation and conservation are developed.

From these lines of research have generated so many jobs in communities across the state of Puebla, this means regions like Poblana Mixteca focused on communities belonging to the System Unit Management and Use of Wildlife (SUMA) in the protected Natural area (PNA) Biosphere Reserve Tehuacán-Cuicatlán (RBTC) in the Sierra Norte of Puebla, in the state ANP Sierra del Tentzo mainly these works have allowed the generation of human resources for both undergraduate thesis, master's, doctoral, social services, professional practices and incorporation of undergraduate and graduate conducting fieldwork in their various subjects, in order to respond to and support local development. The work carried out under this line of research by college students majoring in Biology in different rural communities in the state of Puebla based on an analysis of local environmental issues where community members participate directly and actively in the project research with students and research professors involved, the results of these investigations are in order to use the knowledge generated for application in solving local problems on the management of natural resources, such as for management and conservation of soil, water, trash, logging and conservation of forest cover, use and use of biodiversity, this information will allow the development of the region in a sustainable manner.

Since the establishment of the Environmental Academicians and Education have developed research primarily undergraduate thesis associated with addressing the socio-environmental conflicts where both researchers at the Faculty of Biology and the Faculty of Law and Social Sciences BUAP Sciences participate. In the case of the Sierra Norte de Puebla jobs they are associated with the conservation of natural resources and territorial defense mainly by the development of megaprojects such as hydroelectric dams and mines open as in the case of communities like Huehuetla and Xochiapulco sky. Other works in the same region lie in the development of local projects such as the conservation of biodiversity through the implementation of schemes of environmental education through a botanical garden in the community of Xoyoquila in Hueytamalco, also in Chignautla socio-environmental conflicts were analyzed regarding the fauna of birds and mammals which have been depleted populations of different economic activities practiced and be in the geothermal station the Flue.

In the Sierra Mixteca have been developed aimed at solving focused on biodiversity management and territory socio-environmental conflict work, the region is characterized by a dry season from 6 to 8 months, with semidesert, however, biodiversity and culturally relevant. Presenting high levels of endemism, proven to be an outcast with a high rate of migration area. Jobs that have been made in this region are associated with the generation of knowledge on the fauna and flora specifically species hunting importance, particularly for species such as deer (*Odocoileus virginianus mexicanus*), other minor species of mammals and wildfowl; these works are based on the interest of communities to conform as Management Units and Use of Wildlife (UMA), initially these works allowed the registration of UMA in several communities of the Mixteca, such information has been based to know how they are populations of these species and whether they have potential for exploitation. The interest of the people has allowed a habitat management is carried out to ensure natural regeneration of stocks and grace to this there are villages where the headbands of use authorized by the Secretariat of Environment and Natural Resources (SEMARNAT) are awarded for legal hunting.

During this process it has been trained UMA committees so that they become community technicians in monitoring biodiversity. Have developed other research topics associated with species of interest from rural communities such as the involvement of the bloodsucking bat cattle, or carnivorous mammals to pets and the results of these investigations have achieved that there is a awareness process so that certain myths that exist with some species are eliminated and know the ecological and cultural function of these species. In the case of work in the Sierra del Tentzo decreed a protected natural area (ANP) state jurisdiction, it has been observed by communities rejection of conservation scheme because they were not consulted during the decree, having at both governmental and socio-environmental conflicts over who owns the land. With respect to the line of educational research: the work that has been done focus to analyze the social representations that have at different educational levels from entry level to the top, considering aspects such as social representation of water, flora and fauna urban and rural areas and aspects of solid waste management, the concept of sustainability,

Work is to analyze the social representation of water, their uses and problems, which include information on water level students in the metropolitan area of Puebla from the drawing. And the analysis of the educational model of environmental education teachers at various levels, including processes of science education with emphasis on culture and environmental education. Has had the participation and collaboration with SEMARNAT and the various municipalities that characterize each region of the state of Puebla, for training in the development of environmental education programs, actions add up to level environmental education workshops for society civil in various environmental calendar dates that add actions to influence through non-formal environmental education.

Finally, in line ecotoxicology research conducted so far responds to the application of analysis of the quality of water bodies in different regions of the state, which involves the analysis of pollutants found in bodies water, analysis of the origin of these, the effects are economic, domestic, industrial activities and the consequences at the level of biological systems in aquatic ecosystems.

In this sense, the research results in this line have focused on explaining how heavy metals directly affect uptake and therefore toxic effects on aquatic organisms and environmental factors depending on the timing influence accelerate or lower capture processes such metals in biological systems.

Thus it explains how heavy metals are major pollutants chemicals in water bodies in both developed and underdeveloped countries. The way in which some of these contaminants remain in solution while others are accumulated in the sediments and waters of rivers and estuaries seas, which represent a serious risk to the environment since they are substances with great chemical stability before biodegradation processes so living organisms are unable to metabolize, generating a contamination bioaccumulation and a multiplier effect on the contaminant concentration level trophic chains and somatic organ morphometric indicators, which provide information on the status of populations over time: To know the effects of pollutants on biological systems, the following aspects are considered in the investigation.

Within these parameters we have analyzed the condition factor (k) which provides information on the relationship between the length and weight of the body, finding it indicates changes metabolic and supply changes due to stress conditions in the environment.

Is also considered hepatosomatic index (HSI) and somatic index (IGS) which are more efficient to establish a direct connection with the effect of exposure to a toxicant in a particular organ may reflect bioaccumulation in organisms. These studies were carried out in water bodies associated with urban areas like the prey of Valsequillo and in rural areas as rivers in Huehuetlán El Grande, the Tzicatlacoyan in the Sierra Norte, among others.

Including Graphics, Figures and Tables-Editable



Figure 1 Evidence of conducting research projects thesis by students from the School of Biological Sciences, BUAP, with communities for training as monitors populations of white-tailed deer, hunting legal uses, the UMAS involved and meetings with various sectors to strengthen them

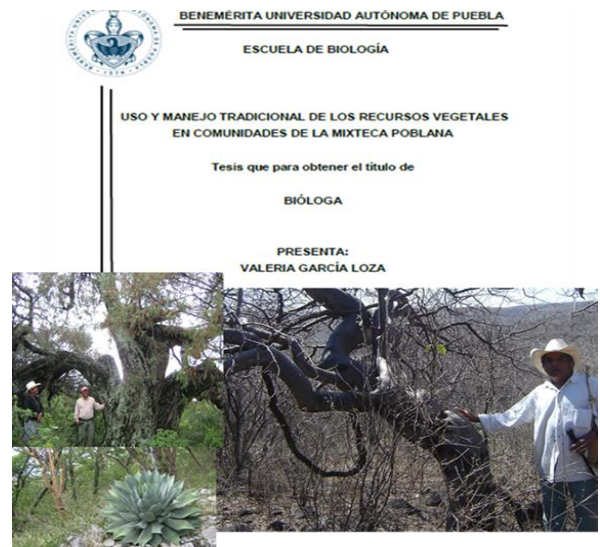


Figure 2 Evidences of conducting research project thesis by students of Faculty of Biological Sciences and the Faculty of Law and Social Sciences BUAP focused on diversity and uses of plants, raising awareness about the importance traditional knowledge, ecological importance and benefits of conservation

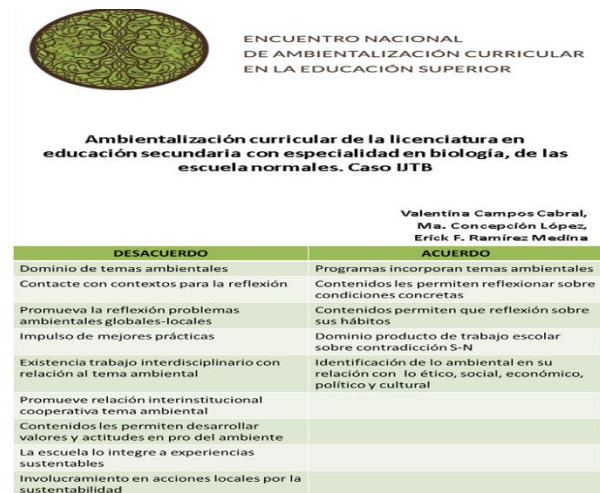


Figure 3 Evidences of conducting research projects thesis by high school students majoring in Biology normal schools. UTB case and the Faculty of Law and Social Sciences of the BUAP, in line Education CA

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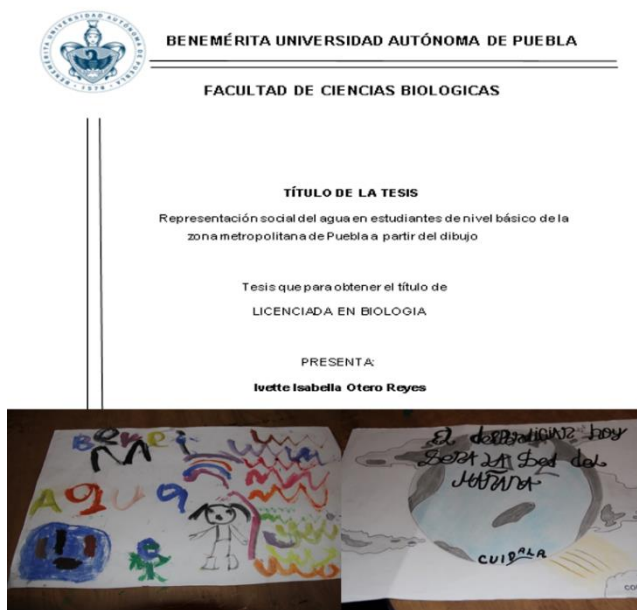


Figure 4 Evidence of conducting research project thesis by students of Faculty of Biological Sciences, BUAP focused on social representations of water in students the basic level of the metropolitan area of Puebla.



Figure 5 Evidences of conducting research project thesis by students from the School of Biological Sciences BUAP focused on physiological responses, and biological indicators of gravid females of *Poeciliopsis gracilis* exposed to sublethal concentrations of zinc in bodies water adjacent to the metropolitan area of Puebla.

Conclusions

Proposals for research projects resulting from the research Environmental Education Academic Body and are undergraduate and graduate theses that are addressed from the conservation biology, from sociology and educational research. Knowing perceived environmental issues other aspects that should be reviewed and incorporated from the environment as are the political, legal, social, economic, cultural, among the most important.

It takes place more emphasis on the formation of values based on awareness, knowledge, attitude, evaluation capacity and participation.

A subordinate to scientific and technical aspects of the profession formation is observed. It is important to link the research of future professionals to solve social and environmental problems that allow development and environmental conservation at local, regional, state and national levels.

Acknowledgement

We thank the producers, agricultural and municipal authorities in each of the communities worked in the state of Puebla, students who have generated the members information Academicians, by the interest in the knowledge of the fauna of their localities, as part the activities of the Laboratory of Conservation and Natural Resources, Ecotoxicology, Environmental education and Culture and the Analysis of socio-environmental problems whose members make up the Academic Body environment and education BUAP.

References

Adewole Osunade MA (1989) "Optimisation of traditional systems of soil resources inventory to achieve increased agricultural production". *Third World Perspective Review* 11(1):97-108

Ayales I. 1991. *Haciendo camino al andar: Guía metodológica para la acción comunitaria*. OEF Internacional. 109 pag.

Becerra Vargas A. G. 2006. *Balance entre Conservación y Desarrollo: Estrategias de vida en dos Comunidades del Parque Nacional Noel Kempff Mercado, Bolivia*. Tesis de Magister Scientiae en Manejo y Conservación de Bosques Tropicales y Biodiversidad. Escuela de Posgrado del Centro Agronómico Tropical de Investigación y Enseñanza. Turrialba, Costa Rica. 97 pp.

Bocco G., Velázquez. A. y Torres, A. 2000. *Ciencia, comunidades indígenas y manejo de recursos naturales, un caso de investigación participativa en México*. *Interciencia* 25:2:64-70 pp.

LÓPEZ-TÉLLEZ, Ma. Concepción, CAMPOS-CABRAL, Valentina, FERNÁNDEZ-CRISPÍN, Antonio and MOLINA-ARROYO, Hugo Rodolfo. Socio-environmental management and conservation of resources in priority areas of the state of Puebla. *Journal Schools of economic Thought and Methology*. 2018

Bocco G. y Toledo V. M. 1997. Integrating peasant knowledge and geographic information systems: a spatial approach to sustainable agriculture. *Indigenous Knowledge & Development Monitor* 5:2:10-13 pp.

Brenner L. 2009. Aceptación de políticas de conservación ambiental: el caso de las Reserva de la Biosfera Mariposa Monarca. *Economía, Sociedad y Territorio*. El Colegio de Mexiquense, A. C. México. 1405-8421 pp.

Carabias, Julia, Enrique Provencio y Carlos Toledo. 1994. Manejo de recursos naturales y pobreza rural, Universidad Nacional Autónoma de México-Comisión Federal de Electricidad, México, 137 pp.

De la Lanza-Espino, G., S. Hernández-Pulido y J. L. CarbajalPérez (compiladores). 2011. Organismos indicadores de la calidad del agua y de la contaminación (bioindicadores). Plaza y Valdés Editores, México, D. F. 643 p.

Esquivel Ríos S., G. Cruz Jiménez, L. Zizumbo Villarreal, C. Cadena Inostroza y R. Del C. Serrano Barquin. 2011. Turismo rural, política ambiental y redes de política pública En la Reserva de la Biosfera de la Mariposa Monarca. *Revista del Programa del Posgrado en Turismo*. Universidad de Caxias. Vol 3(2): 290-300.

Fernández-Crispín, A. (2002). Análisis del modelo de educación ambiental que transmiten los maestros de primaria del municipio de Puebla, México. Tesis doctoral. Madrid: Universidad Autónoma de Madrid

García Martínez B. 1992. Una distinción fundamental en la historia de los pueblos indios del México colonial. *European Review of Latin American and Caribbean Studies*. 53:47-60.

Geilfus F. 1997. 80 herramientas para el desarrollo rural participativo: diagnóstico, planificación, monitoreo, evaluación. IICA.SAGAR, México.

Giraud C., Gouley C., Hernandez G. y Laats E. 2005. Manejo de Conflictos y recursos naturales en un área protegida: el ejemplo del SHM Centro Bartolomé de Las Casas, Cusco, Perú. Colegio Andino, Universidad para La Paz

González García C. 2001. Nueva agresión contra la comunidad indígena, La Jornada 01 de mayo, Ojarasca, México 49, URI, <http://www.jornada.unam.mx/2001/05/01/oja-portada.html>

Guevara, T. (1996). Los símbolos furtivos de la excelencia académica: Estudio de las representaciones sociales de la excelencia en la universidad mexicana. Tesis inédita de Maestría en Psicología Social, Universidad Autónoma de Puebla, Puebla.

JALDA. 2008. Manual de Técnicas Participativas Sucre. Bolivia. Guías y Manuales: 10. 67 pp.

Nepal S. K. y Weber K. E. 1995. Prospects for co-existence: wildlife and local people. *Ambio* 24:238-245 pp.

Retana, O. G. 2006. Fauna silvestre de México: Aspectos históricos de su gestión y conservación. Fondo de Cultura Económica, México, D.F.

Toledo V. M. 1997. Sustainable Development at the Village Community Level: A Third World Perspective. En: *Environmental Sustainability. Practical Global Implications*. Fraser Smith De. St. Lucie Press. Boca Raton Florida. Pp. 233-251.

UNESCO. 2003. Local and Indigenous Knowledge Systems (LINKS). UNESCO. World_Wide_Web.Página_web:http://portal.unesco.org/sc_nat/ev.php?URL_ID=1945&URL_DO=DO_TOPIC&URL_SECTION=201:

Warren D. M. 1991. Using indigenous knowledge in agricultural development. *World Bank Discussion Papers* 127 (Washington, D. C.). 46 pp.