



GLOBAL JOURNAL OF SCIENCE FRONTIER RESEARCH
AGRICULTURE AND VETERINARY
Volume 13 Issue 5 Version 1.0 Year 2013
Type : Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4626 & Print ISSN: 0975-5896

Farmer's Land Mapping: A Public Policy Document to Solve Local Problems

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Abstract - The farmer's land map can be considered an instrument of public policy to solve specific problems, since local populations have a detailed knowledge of their lands. Such knowledge can be systematized using the procedure known as land cartography, the method for which implies considering the social structure of the towns, and the result is that the geographic knowledge stored in the minds of the informants is turned into maps, graphs or written documents that can be used to carry out an analysis of the communal territory, with the possibility of driving actions in terms of public policy. From this viewpoint, participation of the locals is necessary to solve social inequalities and economic and environmental imbalances.

GJSFR-D Classification : FOR Code: 070106



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Farmer's Land Mapping: A Public Policy Document to Solve Local Problems

David Pájaro Huertas^a & Enriqueta Tello García^a

Summary - The farmer's land map can be considered an instrument of public policy to solve specific problems, since local populations have a detailed knowledge of their lands. Such knowledge can be systematized using the procedure known as land cartography, the method for which implies considering the social structure of the towns, and the result is that the geographic knowledge stored in the minds of the informants is turned into maps, graphs or written documents that can be used to carry out an analysis of the communal territory, with the possibility of driving actions in terms of public policy. From this viewpoint, participation of the locals is necessary to solve social inequalities and economic and environmental imbalances.

I. BACKGROUND

For the past decade, planning for national, regional and local development has been based on the promotion of megaprojects and strategic plans that have been justified by the processes of globalization and the competitive insertion of the regions in the international system, regardless of the negative effects caused. Such is the case of the farming towns, *ejidos*, and the indigenous peoples of Mexico, which are constantly preyed upon by the government agents at the service of Mexican and foreign investors, who incessantly intend to take control of their lands and natural assets: the *sierras*, the water, the underground, the plants, animals and their genes, culture, ancient knowledge and the forms of social organization and rural politics (Barrera *et al*, 2012), and are unfortunately supported by a whole legal political framework that legitimates the plundering of such resources in the insatiable search for more profit. We can take for granted that these forms of planning ("from the top") create a series of problems between diverse actors, which lead to intense conflicts. A greater participation of the civil society therefore becomes necessary, in order to create a plan of action collectively, in which every one feels identified and committed to take action. A commitment by the central administration is also important if the participation of citizens is to be effective (and is not reduced to a few groups or associations), as well as the proposals made are carried out with the intervention and follow-up of the population (Garrido, 2002).

II. POLITICAL TERRITORIAL CONTEXT

In Mexico, in the insatiable search for the highest possible profit, public policies have been driven

with the purpose of guaranteeing the continuity of a dominant system that perpetuates the hierarchy, exploitation, and polarization. This has led to millions of Mexican farmers, craftspeople, small and medium shopkeepers, along with other sectors of small businesspeople into bankruptcy (Serrano, 2007). And despite the different social, economic, and political pressures to exploit their natural resources and their populations, rural communities have survived and are determined to reproduce their culture, they are aware of the situation they live in, and are committed to defending their territories and they know that in order to confront the dominant economic model "*cultural identity, ancient and upcoming epistemologies, the voice of the elderly, community work, the adequate use of natural assets, autonomous education, assemblies, reciprocity and community, as well as the capacity to have dialogues with other authors; these must all must be proposed from their inner forces*" (Cuellar *et al*, 2013 and Barrera *et al*, 2012). When considering these proposals that arise as small actions, and when everybody, from their action and ideological trench, formulates an alternative solution that can counteract the negative effects of the dominating model, the result will be the construction of a new model proposed by social actors that live and know concrete spaces from infinitesimal actions, (Wallerstein, 2013). We would be faced with another way of doing politics, in which common people could decide and execute; Wallerstein (2013) claims that it is necessary to create forms of power different to those used by the State in order to guarantee territorial autonomy, in which it is crucial to ensure material sovereignty (health, education, housing and food) by re-appropriating the territory, collectively, to resist adversities and protect life. "*If we want to fight for a better world, the defense of our territory is essential*" (Zibechi, 2013).

III. PROPOSAL

One's territory is where one dreams and feels, where awareness is raised, where myths and ritual life are recreated giving a meaning to community life (Barrera *et al*, 2012). Bringing up proposals of action from the territory is creating spaces in which one can guarantee local life in all its multifaceted dimensions, as well as generating resistance nuclei from the social relations that are woven around the values of use and reciprocity to neutralize government policies that intend

to destroy what is collective (Zibechi, 2013). From this perspective, we propose the use of the farmer's land map as a document that blends the native knowledge on soils and the expectations of a solution to the problems of each *ejido* or community, because: 1) it contributes to the reappropriation of the territory, empowering farmers, and can therefore be considered a political instrument; 2) it considers the farmer's context, his/her cultural surroundings and the *ejido*'s or the communal territory; 3) it represents the interests of the locals, and 4) the land map has a local cultural meaning that reproduces the social surroundings of the communities (Pájaro, 2010; Tello *et al.*, 2011; Pájaro and Tello, 2012). This makes the farmer's land map a cultural and a social document, since it is a document with which the social order is communicated, reproduced, experienced and explored, and can therefore be used as an instrument of power (Harley, 1988), with almost unlimited repercussions in different domains of knowledge.

a) *Epistemology of farmer's land maps*

An alternative method to soil surveys and agrological studies has been called "land mapping" (Ortiz Solorio *et al.*, 1990) or "participatory mapping" (Pájaro Huertas & Tello García, 2012). Here, the result

again is a soil distribution map in the area under study, accompanied by textual information on distinctive characteristics of relevant soil types and recommendations for soil management – always from the farmers' point of view. Participatory mapping is a methodological tool. It takes into account social structures of concerned communities and helps to visualize farmers' cognitive maps in the form of (carto) graphic maps. Hence, respecting the locals' self-recognition and self-representation helps strengthening the participation of communities in search of alternatives and solutions for problems within the communal territory (cf. fig. 1). The methodology of land mapping or participative mapping is based on the simple fact that local populations have a detailed knowledge on their lands and resources, and that this knowledge can be gathered and interpreted geo- and cartographically. Essentially, this methodology combines participatory research with spatial-environmental knowledge, cognitive comprehension and mapping techniques. As a result, cartographic knowledge stored in the locals' minds becomes visible and communicable in the form of maps, graphs or written documents. These documents then can be used to analyze the land with the possibility of boosting action in terms of public policies (figure 1).

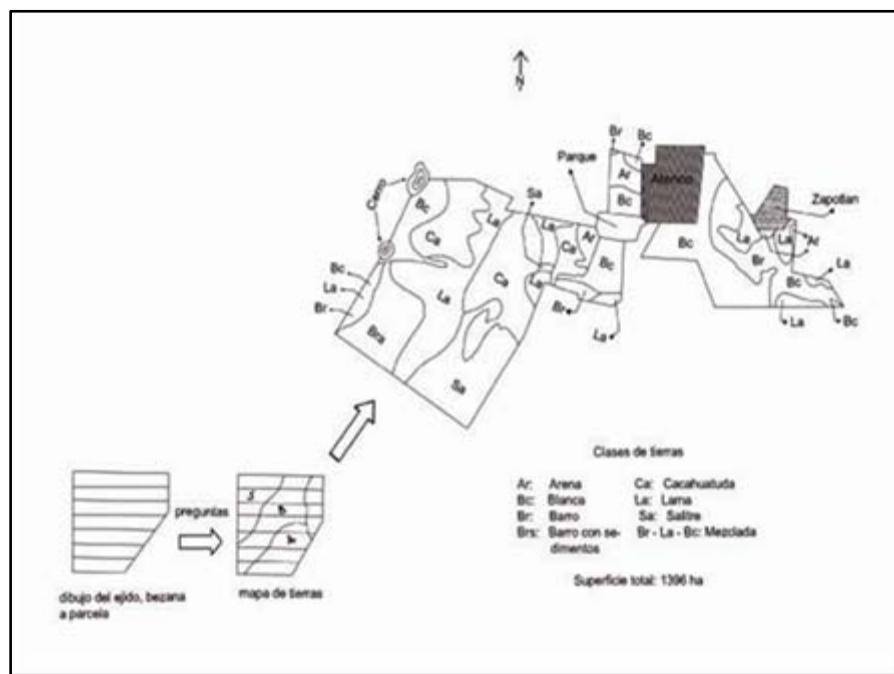


Figure 1: Cartography of lands (after Pájaro y Ortiz, 1987 y Ortiz *et al.*, 1990)

The studies we realized do not only include the owners of the ejidos (Pájaro, 2011), but also local authorities (the ejido's commissioner), as well as other groups organized inside each community. Identifying and including the different actors involved in land use may help to find strategic alliances in order to propose and solve the issues highlighted by each land map. The idea is to position the map in the mental domain of the

local community, but as well of everyone who interacts in the territory, as a public policy instrument that helps:

1. Criticize the results obtained, whether by informants or by the community in general
2. Reaffirm or correct the objectivity of the information obtained

3. Create an interest in the problems in the ejido within the community
4. Obtain a consensus to begin some action plan for the solution of that problem, and
5. Show that the land map is a tangible object, because it shapes the native knowledge on soils, it promotes actions by farmers, and consequently, its political dimension is exposed.

The methodological proposal helps zonify at a level of plots within each ejido, where farmer participation, in order to identify different soil types, but also to know their problems, is decisive, and also systematizes the possible solutions to the problem that each ejido faces. Therefore, institutional tutelage is avoided and farmers are recognized as mature individuals and active members of their community, capable to contribute to solving the problems that may arise.

The different problems identified and the solutions presented by interested locals, enable municipal authorities and consultative councils to define priorities and actions under an ethical and realistic perspective, based on the resources available. Likewise, participatory agreements can be made with other institutions in order to solve the problems presented by the farmers, which would allow to switch the decision-making process from a "deciding for" mode to "deciding with" or "enabling deciding by" modes.

b) The political perspective of land maps

The implicit discourse of land maps must be analyzed in its political and social dimension to understand how it intervenes and how it acts. For this purpose it is necessary:

1. To position farmers' knowledge of soil in the context of society;
2. To acknowledge that maps are forms of visual language to communicate both territorial and property rights in symbolic and practical ways;
3. To recognize that the detailed map categories favor a political and social discourse, which gives privileges to certain types of truths
4. And to communicate the problems regarding land and land use

As shown before, the land map is a geographical reference serving as a starting point when actions in the common lands have to be taken. Subsequently, two contrasting examples shall demonstrate the advantages of participatory mapping. Ignoring these advantages may cause other problems, even beyond a local scale level and upset the regional and national political environment.

i. The defense of communal lands

The latest social movements in and around the Eastern part of the State of Mexico (Estado de Mexico),

specifically those that concern people of Atenco (Pájaro Huertas, 2002, 2006) and towns in Texcoco (San Nicolás Tlaminca, Huexotla and Tequexquihuac) near the mine shafts, where toxic waste from Mexico City is currently being deposited teach interesting lessons, for example in regard of organization, resistance, social solidarity, forms of struggle and leadership.

A common element defines all of these movements: they are collective entities, i.e. a political subject, with the power of communitarian decision-making and of direct negotiation with well-defined cultural and territorial roots (Esteva, 1985). Its forms of organization and participation with communication networks between participating towns and communities make us focus in further detail on the collective subject and on the common territory.

It is also true that it is always the community that argues, makes decisions and gives orders to carry them out. However, the key of their success lies in the peculiar relationship of the leaders with their bases, because without their support, they would never have achieved what they did, e.g. stopping the questionable project of a new airport in Mexico City (in Atenco) and the deposit of toxic waste (in Texcoco). They reflect the dialectical interplay of hegemonies and counter-hegemonies of the historical blocks, now inserted in a worldwide neoliberal context, when the peoples are taking initiative and start to transform their reality, according to their interests.

We can claim that, since the topic is much more complicated than it seems, and more that we have mentioned here, the "small" people's resistance movements and their modest natural leaderships, are, nowadays, the best track of analysis for those who search and are concerned for the liberation of humans, keeping in mind that these struggles take place in defense of common territories. A brutal clash of two discourses in a context of "real-politics." The hyper realistic conflict of people from Atenco and Texcoco, who defend their modest heritage, their lifestyle, traditions, history, their dead, their dignity, myths, rites, beliefs, festivities, their traditional clothing, their laughter, animals and homes, has an objective reference: the common territory and, consequently, the land map. Because everyday activities are carried out in those small environments, for the inhabitants of these small towns and their ways of organization and making decisions, any action not approved by them can be fatal, since it would affect the best lands or the common peace and quiet.

ii. The change of land use

On the other hand, from a technical viewpoint, a growing problem in the State of Mexico is the disorderly growth of urban settlements, for example in 14 municipalities of the Texcoco region, covering a large area of ca. 260000 hectares from Ecatepec (adjacent to the state of Morelos) to Coacalco and Ecatepec in the



north of Mexico City. 70000 hectares of this area are occupied by urban settlements – equivalent to a city of 70 km in lengths by 10 km in width. Despite ongoing urbanization, 353 deep wells are used in this area for agricultural irrigation purposes, which, organized adequately, would inform several other irrigation units for rural development (Unidades de riego para el desarrollo rural (URDERALES)).

The governing plan for agricultural and forestry development of the mitigation area in the municipalities of Atenco, Texcoco and Tezoyuca (Comisión Nacional del Agua, 2009), mentions 60 deep wells for agricultural irrigation. However, only 47 of them are functioning, and in many cases just inefficiently and energy wasting due to outdated pumping equipment with an electro-mechanical efficiency of, at best, 50 %. Furthermore, it is worth noting that only 20% of all irrigation channels are lagged, causing leaks and waste of water from the well to the point of use. Along with this, we must include the fact that the farmers from the Atenco-Texcoco-Tezoyuca region are just beginning to learn about technified irrigation systems, which would help them save considerable volumes of water in each well (Instituto de Ingeniería Agrícola y Uso Integral del Agua, 2010).

If the 47 wells for agricultural irrigation in the Atenco-Texcoco-Tezoyuca region were conformed into URDERALES, 5,000 hectares could be irrigated, where currently a large variety of basic, fodder and vegetable crops is being produced; this would mean both better incomes for the farmers of this region and more jobs for laborers due to the demand for technical assistance, options for agricultural credits, and the need for storage and selling the products. In consequence, these 5,000 hectares - located on flat grounds that usually show high soil quality, and of which currently less than 1,000 hectares are irrigated – would become part of the agricultural production and would, therefore, no longer be a point of attraction for uncontrolled urban settlements.

In this situation, the new government administration with its three levels (municipal, state, and federal), which will soon become consolidated, must pay particular attention to the problem of change of land use in the Texcoco region. If crop fails frequently due to bad soil and infrastructure management, farmers may tend to sell their land for the construction of houses, malls, industrial parks or any other non-agricultural use; this would imply a series of problems common to these municipal areas.

To consolidated irrigation units for rural development, just little financial input would be necessary, since most of the legislation for their setup and support already exists; what is needed is a good work, initiative and creativity component to help this reach the farmer's field, simply because they have the best lands and most of the infrastructure for this

purpose. The land maps for the ejidos studied shows this.

The farmers, technicians, administrators, politicians, and governors, as human beings, are intelligent beings, and if we have more than one situation we can think about the event and take the better alternative for our future. According to the experiences in Atenco and Texcoco, farmers opted for defending their common territory and for the formation of irrigation units, to name just two concrete examples. However, if no action is taken, more and more farmers will sell their plots.

Finally, as we have been explaining with examples, land maps, through the defense of one's territory and the integration of irrigation units for rural development, are a form of participation and of individual and collective exercise that legitimizes the rights of farmers and the community of taking influence on local, national and international policies.

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