The Need for an Integrated Landscape Management Approach Illustrated by the Analysis of the Participation in the Ecologic Spatial Planning of Benito Juárez, Quintana Roo, Mexico

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Abstract This paper exposes the need to use an integrated landscape management approach for sustainable development through the co-responsible participation of all stakeholders based upon the analysis of the ecologic spatial planning of the municipality of Benito Juárez, Quintana Roo, Mexico. The results of interviews with stakeholders are integrated by a set of indicators and translated into four participation levels and sustainability ranks. In Benito Juárez, most participation is done by government stakeholders and through mechanisms of citizen participation, such as public opinion polls, whereas the lowest result has been found in community participation. Furthermore, a high degree of social and economic development within the municipality, principally due to Cancun tourism, contrasts with a very low score for environmental sustainability. The paper seeks to achieve the understanding of an approach that claims for nothing new, but rather integrates the existing planning instruments and is based on inclusive and equitable decision-making processes.

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1 The Local Ecologic Spatial Planning Programme: Participation by All Stakeholders

The local ecologic spatial planning programme[1] (hereafter "the Programme") is a public policy instrument that is based on a participation process involving different governmental and societal stakeholders. The idea is that the participants decide together how to use the territory of their municipality towards sustainable development. The purpose is to attribute conservation, protection, preservation, restoration and sustainable use policies to environmental management units, in order to preserve the environment, incentivize the sustainable management of natural resources and protect ecosystems.

The adoption of the Programme and its plan by the executive council, which is made of representatives of the three administration levels—municipal, state and federal—and a citizen representative, is supposed to be based on a consensus, which is elaborated in the technical council. The latter reconciles different interests of communities, civil society organisations, production sectors, and scientific and technical experts. Together, the two councils constitute the committee of the ecologic spatial planning programme (hereafter "the Committee"), which is constituted at the beginning of the planning process. In addition, the use of participatory workshops and a public opinion poll should guarantee the participation of all of these different stakeholders.

The approach that underlies the Programme is currently called integrated landscape management (hereafter "ILM"). The landscape is composed of a mosaic of patches (rivers, lakes, wood land, agriculture, stock farming, protected areas, industry, coast, sea, villages and cities etc.) that are interconnected and interdependent. The approach searches to do justice to this connection by the integration of planning and management decision-making in the landscape through the collaboration between different sectors, the cooperation between stakeholders and the integration between the planning and management instruments. With the common objective of sustainable development, it is thereby possible to ensure the conservation and sustainable use of natural and cultural resources when all parties adopt the ILM approach.

In this context, the participative methodology of the Programme is promising and the importance for sustainable land-use planning indisputable in a country that consists of an exceptional variety of biological diversity in terms of ecosystems, species and genes. However, since the adoption of this instrument of environmental policy in the modification of the federal general law on ecologic balance and the

[1]In Spanish: *Programa de ordenamiento ecológico territorial local.*

protection of the environment[2] in 1996 and its regulation of 2003, of all 2446 existing Mexican municipalities, to date only 71 have published their Programme.

Obviously, no easy answer could explain why more municipalities have not succeeded in the last 20 years in the adoption of Programmes at the local scale.[3] One fact is that the decentralization process of the Mexican administration is not yet complete and funds do not automatically arrive to the municipal level. Also, municipal government periods are of only three years and, as authorities often still lack a culture of responsibility, this does not allow for process continuity from one government to the other (Cabrero Mendoza 2002). Finally, there are many more endogenous and exogenous factors, depending on the territorial features of every entity, which have colluded to the absence of Programmes in the overwhelming majority of municipalities.

This paper seeks to point out one element of ILM that can determine the sustainability of spatial planning: the substantial participation of stakeholders. However, it is important to underline that it presents a selection of variables and indicators, which are entirely based on the focus of the research and do not pretend to be exclusive for evaluating the Programme or sustainability or ILM.

2 Case Study: Caribbean Tourist Paradise Cancun

This research is based on a Ph.D. thesis that is the first of its kind with regard to three aspects: first, the evaluation of the Programme in general; second, in particular its relation to participation; and, third, as based on real case studies. Here we present the case study of Benito Juárez, Quintana Roo (Fig. 1), a municipality loaded with conflicts due to diverging interests between, on the one hand, national and international developers of Cancun´s tourism sector and, on the other hand, environmentalist non-governmental organisations and academic activists who defend the conservation of critical ecosystems and endangered species. The fight for the conservation of ecosystem services struggles against an unsustainable and short-sighted massive entertainment model that was designed in the nineteen-seventies.

Benito Juárez includes two RAMSAR[4] sites -*Parque Nacional Arrecife de Puerto Morelos* and *Manglares de Nichupté*- that comprise of 1,171,114 ha, which represent 14% of total RAMSAR surface of Mexico (Secretaría de Turismo SECTUR 2013). Both are federal Natural Protected Areas and are undergoing problems of contamination and pressures caused by tourism activities. The *Manglares de Nichupté* are made up of four lagoons that are surrounded by the so-called "Cancun Isle", the main hotel

[2]In Spanish: *Ley General de Equilibrio Ecologico y Protección al Ambiente.*

[3]Apart from the local ecologic spatial planning programmes, there is the nationwide general programme, the marine programmes and the regional programmes for one or more states.

[4]"Convention on Wetlands of International Importance especially as Waterfowl Habitat", stipulated in Ramsar, Iran on the 2nd of February 1971 by the United Nations Educational, Scientific and Cultural Organization UNESCO.

Fig. 1 Location of Benito Juárez, Quintana Roo, Mexico in Google Earth

development facing the Caribbean Sea (see Fig. 2). Because of its proximity to the city of Cancun with its exponentially increasing human population and the hotel zone, as well as solid and liquid waste deposits, the wetlands suffer from water contamination and its subsequent decline of biotic populations (Secretaría de Medio Ambiente y Recursos Naturales SEMARNAT 2014).

Cancun is also an important income source for Mexico, representing 14.4% of total tourist arrivals to Mexico in 2008 and 0.4% of world tourist arrivals the same year (Dzul Huchin and Moncada Jiménez 2008). In fact, Cancun´s airport is the second most important by means of arrivals of the country (Secretaría de Turismo SECTUR 2013). Apart from the beaches, Cancun is also a good place of departure for visits to numerous Mayan ruins, Chichén-Itzá and Tulum being the most visited. In addition, Cancun is prepared for more tourism, given that there are 145 hotels—some of which are enormous- that totalled 30,608 hotel rooms in 2014, to which has to be added a vast extension of residential condominiums (Secretaría de Turismo SECTUR 2013).

Due to this pressure on natural resources, the Mexican Federal Attorney for Environmental Protection[5] has repeatedly declared that the capacity of Cancun´s beaches had exceeded its limit and the excessive exploitation was threatening its ecologic balance. The problem is so severe, that the recommendation by the same authority in 2012 was the demolition of hotel rooms (Secretaría de Turismo SECTUR 2013). However, the urban development programme[6] (PDU) for

[5]In Spanish: *Procuraduría Federal de Protección al Ambiente PROFEPA.*

[6]In Spanish: *Programa de Desarrollo Urbano (PDU).*

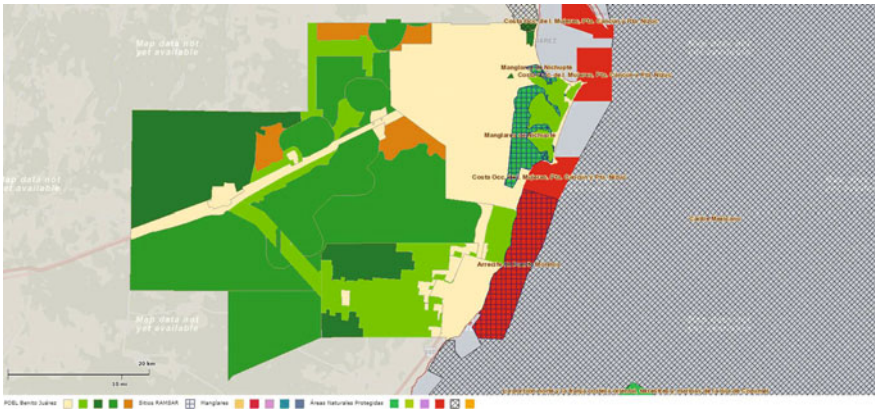

Fig. 2 Map of Benito Juárez Programme´s plan with environmental management units (Beige: sustainable use; Light green: conservation; Medium green: protection; Dark green: preservation; Brown: restoration), natural protected areas (red and italic shaded) and Ramsar sites (straight shaded) (Secretaría de Medio Ambiente y Recursos Naturales SEMARNAT 2017)

2014–2030 updated the land uses in sites of high environmental value and increased the development allowed in such areas (Secretaría de Desarrollo Agrario, Territorial y Urbano SEDATU 2014). This means that Cancun´s PDU and Benito Juárez´s Programme are not harmonized, although the first should theoretically take the second into account. Nevertheless, it is not surprising that the two planning instruments diverge in substance because their responsibility lies in two different institutions that pertain to two separate sectors -one of development, the other of conservation- and, thus, have distinct legal and operational bases.

3 Sustainability Actors or the Tragedy of the Commons

The tragedy of the commons that Garrett Hardin described in 1968 is precisely about the limits of natural resources and the disastrous consequences of individual decisions based entirely on an independent, rational and free position (Hardin 1968). The relevance of this classical text for our topic is based on two consecutive aspects that the author mentions:

1. In a world were all people only pursue their own personal interests, based on egoistic and short-sighted reasoning, ultimately all suffer the (irrevocable) consequences.
2. Every time that the use of the commons[7] is limited we are also limiting personal freedom; however, decisions and laws taken collectively make the entire humanity freer (Hardin 1968).

[7]Hardin uses the "commons" for common property: goods and land that belong to all (or no one).

Evidently, it is not possible to resolve the tragedy of the commons by leaving the responsibility to the morality of individual public servants, given that the personal eventually prevails over the public interest and makes those officials easily corruptible in return for personal benefits. Therefore, Hardin proposes a government made of laws instead of humans (Hardin 1968). However, based on the experience of the situation in Mexico, having a good legal framework, as well as excellent planning and management instruments, does not necessarily mean that these will be properly used.

In Mexico, the problem of violating or intentionally misinterpreting the institutional processes required by the law is generally linked to the limitations of the democratic practice and attributed to structural problems, such as the lack of equity and the absence of a political will (Blauert et al. 2006). But then, if neither the governors on their own, nor the laws by themselves can resolve the tragedy of the commons: what can be done to avoid it? Nobel prize winner Elinor Ostrom´s theory on the organization of local individuals for a sustainable use of natural resources (Ostrom 1990) is an alternative solution to central-power monopoly on planning and management: the involved population has the best knowledge and the most direct access to the resources they use and therefore are best at managing collectively the commons dilemma.

Theoretically, citizens form a political community and pursue the aim of common wellbeing (Ochoa Arias and Petrizzo 2006). However, the transformation of the free and egoistic individualist into an altruistic and committed citizen is neither a miraculous transformation of the nature of human beings, nor something that occurs automatically the moment people are given their democratic rights. Rather, the construction of citizenship is a slow and non-linear process, since there can be setbacks and discontinuity when the lack of quick results discourages the enthusiasm of participants (Cabrero Mendoza 2002).

Thus, it is important that citizen participation coexists and grows alongside with state responsibility, resulting in the so-called co-responsibility between society and government (Cabrero Mendoza 2002; Oseguera Ponce et al. 2010; García Barrios 2012). The outcome of co-responsibility is a cooperative relation between citizens and their government rather than a fight for power. This implies that citizen participation "claims at the same time the previous acceptance of the rules of the democratic game and the free will of people who decide to participate: the rule of law and the freedom of the people" (Merino 2001).

Some authors propose that environmental problems and territorial conflicts can open up new spaces for participation, because they motivate citizens who are affected directly or indirectly to formulate solutions that correspond to their necessities and demands (Larraguibel Galarce 2002). To get back to the tragedy of the commons, we have arrived at that moment in history when the consequences of individual behaviour are affecting ourselves to the same extent as the rest of humankind (and all other species). Therefore, rational behaviour does not necessarily imply an antithetic position between personal and public benefit. Thus, despite plenty of possibilities for action at the individual level, collective action

nevertheless seems most effective for achieving visible changes that are reflected in an improvement of the general conditions.

In order that this new social actor called "sustainability actor" (Larraguibel Galarce 2002) is able to participate substantially, he/she must be part of an informed and organised citizenry that is provided with its democratic rights and duties. Thereby, communities will be capable of taking decisions on the design and implementation of public policies that are relevant for them. Hence, a renewed or new civil society, made of empowered citizens and communities in processes of endogenous development organises new forms of participation and common action spaces.

The State as the unique decision-maker is losing importance for environmental governance in the twenty-first century (Agrawal and Lemos 2007). Rather, the cooperation with new stakeholders and different sectors—as the private sector and communities- substitutes the state monopoly in environmental decision-making. Thereby power is not only exercised top-down as by the State, and in other theories the Market, but other players who take decisions from the bottom up always gain more importance: non-governmental organisations and locally organised civil society—all sustainability actors—play a crucial role in the protection of natural resources and the construction of sustainable development (Arts 2004; Bruch and Czebiniak 2002). They have the capacity of pushing decision-makers by the use of transnational networks (Jelin 2000) becoming important associates, together with civil society, who complement the public administration at all levels (Bruch and Czebiniak 2002).

4 Four Types of Participation

As early as 1969, in the framework of worldwide pacifist and anti-nuclear movements, Sherry Arnstein underlined that participation is of no avail if it does not come along with a real redistribution of power, given that otherwise it continues to be found in the hands of a very small minority (Arnstein 1969). Furthermore, it is important to note that in our societies, which adopted universal franchise, participation is not only an option but, paradoxically, even the lack of participation has a participative impact. Because not participating means "giving a vote of confidence to those who are making the decisions: a blank cheque for others to act" in one´s name (Merino 2001).

In this context, not only is the right to participate in public matters a basic principle of the social and democratic rule of law that has as its premise -citizen participation- in the institutional and political structure of the State (Rio Fernandes et al. 2015). But, furthermore, from the moment that this right exists it also always transfers a responsibility to the citizens. In addition, the exercise of this right and responsibility must be based on the citizens´ trust in the democratic institutions (Serrano Rodríguez 2015). This is how co-responsibility between all stakeholders is based on transparency and decentralization. And this is how it becomes an

expression of the recognition and appreciation of all participants, which gives public policies such as the Programme legitimacy and leads to the viability of its implementation.

Thus, only if the Programme is an expression of a consensus between all stakeholders, with rational individual trade-offs and common benefits as a solution to the well-known prisoner´s dilemma,[8] can it contribute to the achievement of sustainable development. What helps to overcome the dilemma in this case, beyond the enforcement of the State and the contract between stakeholders, is the constant participation of all sustainability actors based on co-responsibility.

According to the World Bank, citizen participation is a process through which stakeholders impair and share control over development initiatives and the decisions and resources that affect them (Crespo Flores 1999). In addition, starting with a participation that was limited to the right to vote and other representative instruments, citizen participation then became part of the public policy design process to, finally, be claimed for during implementation and evaluation processes too (Pacheco Vega and Vega López 2001).

For this purpose, citizens have different modes of participation, depending on whether they wait for the State to require them to choose from a menu of options (citizen participation) or they organise with other citizens around a mutual professional or private concern (social participation). In addition, there is the participation of government representatives as part of their functions (public participation) and the participation of community representatives (community participation), who are either elected for that specific purpose or represent their community as members of a distinct decision-making structure.[9] Obviously, these four types of participation are not mutually exclusive and only serve for the purpose of theoretical analysis. They are defined in the table (Table 1).

5 Methodology: Interviews on Participation and Sustainable Development

The process of the Programme is based on the assumption that successful spatial planning relies on the substantial participation of all key stakeholders. The interviews, which were conducted for this research with 21 key stakeholders who have participated in the Programme's process in Benito Juárez, enquire how much each

[8]The prisoner´s dilemma is a classic game of game theory that shows why two isolated rational individuals tend not to cooperate although it would lead them to the most advantageous scenario for both.

[9]The first in Latin-America to distinguish four types of participation (social, community, political and citizen) was Nuria Cunill Grau (Cunill Grau 1991; Cunill Grau 1997). However, the idea of the four types used here for an instrument of environmental management was adopted from a research on participation in the management processes of the river basin of Rio Valles, San Luis Potosí, Mexico (Ferney Leonel et al. 2010).

Table 1 Types of participation as defined in this paper for the ecological spatial planning process

Type of participation	Definition
Social	The broadest category of stakeholders in the Programme is of those who exercise social participation. It includes the private (production) sector, professional councils[a], non-governmental and civil society organizations, academia and the scientific sector. What all these stakeholders have in common is that their members do not participate for the sake of their individual interests. They defend the common interest of all members, being a professional, economic, social or environmental cause that binds them together. Social participation is exercised in the technical council of the Committee and during the public opinion poll.
Community	This type is the most organic because it is based on the assumption that communities are directly -physically and culturally- linked to the territory. Either rural or urban, they are the first in noting changes and the first to suffer alterations. In Mexico, community participation[b] often responds to distinct internal organisation mechanisms that are not legally stipulated. Community representatives often have the most precious knowledge in terms of every-day experience with the environment and specifically defend the vision and interests of their communities. In the Programme, participative workshops allow for this type of participation.
Public	In Mexico, there are three legally stipulated levels of political decision-making, which shall all participate and cooperate in the Programme through government representatives: federal, state and municipal stakeholders. In the case of environmental matters, in this group of participation actors, all those civil servants who work for some environmental government dependency are especially important. Public participation is potentially present in both councils of the Programme's Committee.
Citizen	This is a type of participation that the State convenes, thus where government and society are in contact. Citizens involve themselves directly into public actions within the limits of the legal framework. Elections are a typical example of citizen participation, but also public opinion polls and the representation of civil society by an elected member for example in the two councils of the Programme´s Committee are expressions of citizen participation.

[a] Typically, those who participate are biologists, civil engineers and architects

[b] Usually, and differently to the definition used here, community participation in Mexico is interpreted as a claim for State assistance on the part of the community (Villarreal Martínez 2009)

of the participation types has been used. Quantifiable data was obtained through questionnaires, in order to calculate the participation rate for every participation type.

The qualitative results (possible answers to questionnaire were YES, NO and DON'T KNOW) obtained from the interviews were numerically codified in order to work with the data in Matlab. For every questionnaire, the number of each possible answer was counted per question and interviewee. In addition, we applied Cronbach´s alpha to the results of our pilot study and thereby excluded questions that turned out to be unreliable (Pérez-Tejada 2008).

The participation index (Ip) is generated simply by the weighted sum of the positive responses plus the weighted sum of the negative responses, divided by the total of responses (N). Positive answers are assessed a weight of 1, whereas negative or uncertain answers obtain a weight of 0. This means that a final result of 1 would express a maximum level of participation and 0 would indicate its inexistence. The formula that was used for the calculation of the participation index is the following:

$$Ip = \frac{1}{N}\sum_{n=1}^{N} R_n$$

Finally, the results were translated into participation levels considering the idea of the ladder by Sherry Arnstein (Arnstein 1969) as in Ferney et al. (2010) but with five equal ranges[10] as follows:

0.76–1 high
0.564–0.75 medium-high
0.376–0.563 regular
0.189–0.375 low
0-0.188 very low

It is important to note that the level of participation that results from our research is based on the perception of the key stakeholders and, thus, goes beyond counting register signatures in the Committees´ sessions, workshops and opinion polls. The reason for this methodological choice is that we believe participation is not restricted to being present, and therefore the level of participation of a group cannot be only calculated by counting the number of signatures per event. To measure the participation level, it is not sufficient to know about quantity, or how many members of a group participated, but also about the quality or intensity of their contributions. Furthermore, the perception by participants of ownership is crucial for the success of managing the Programme, given that it determines acceptance or refusal.

In addition to the quantitative results obtained through the application of questionnaires, the interviews with key stakeholders of the ecologic spatial planning process also included a section of semi-structured interviews with open answers. The information that resulted from this part of the interviews helped in the process of interpretation of both participation levels and the levels of municipal sustainable development.

In the same way as for the measuring method of participation, also the indicator set for measuring the level of sustainable development of the municipality has been kept as simple as possible. This is because the idea behind the methodology is that it should be simple to replicate and with easily, freely and constantly available data. Thus, every one of the three classic dimensions of sustainable development (social,

[10]Ferney et al. use three ranges (low, regular and high).

economic, environmental), in addition to the political dimension, which is particularly important in a research on participation, are measured by two indicators each (Table 2). As with participation, also the perception of stakeholders on sustainable development in their municipality was measured and combined with the results from the indicator set. The calculation method for each sustainable development dimension is the same as for the types of participation, as well as the distribution of ranges.

However, given the complexity of all elements of a territorial unit, indicators will always only reflect a small part of reality, and their choice depends on the focus of each analysis. Therefore, here the indicators were exclusively chosen on the basis of our theoretical framework and practical experience, and are not meant to be perfect nor irreplaceable. Three main premises have shaped the methodology of this research from the beginning:

1. Mexico has promising spatial planning and management instruments whose application, however, needs to be evaluated.
2. Sustainable development indicators and indexes are mostly complex and difficult to use. Simple tools that offer a rough idea on the state of a territory within the different dimensions of sustainable development are sometimes sufficient and more viable.[11]
3. When it comes to substantial participation, it is important to include the perception of stakeholders.

6 Results on Spatial Planning Processes

We defined five equally large ranges of participation in the Programme and sustainable development from very low to high. The results from the case study of Benito Juárez, Quintana Roo reported in Table 3, reflect medium-high participation by government stakeholders (public participation) and the citizen representatives (citizen participation) in the executive council of the Committee, as well as medium-high participation by citizens in the public opinion poll (citizen participation). Social participation, mostly exercised in the technical council of the Committee and during the public opinion poll, obtained a medium level and community participation resulted to be very low. The latter implies an insufficient or incorrect use of the participatory workshops, which are supposed to explore the visions and priorities of the communities that form the municipality.

The results of the indicator set on sustainable development reproduced in Table 4, combined with the information retrieved by the open answers of the

[11]This is obviously only true for the planning process. When it comes to the evaluation of the results and impacts of processes that are based on the plan, programme or policy, a more complex and specific set of indicators is needed.

Table 2 Indicators for every dimension of sustainable development

Sustainable development dimension	Social	Environmental	Economic	Political
Indicators	Health index (United Nations Development Programme UNDP 2014) with data by INEGI, 2010 in (United Nations Development Programme UNDP 2014)	Indicator of disturbed areas (Salgado Vega et al. 2011) with data of (Secretaría de Medio Ambiente y Recursos Naturales SEMARNAT 2013) and (Salgado Vega et al. 2011)	Income index (United Nations Development Programme UNDP 2014) with data by INEGI, 2010 and World Bank in (United Nations Development Programme UNDP 2014)	Turnout of voters' index (Flamand 2007) with data by the Municipality of Benito Juárez (Ayuntamiento de Benito Juárez 2016)
	Education index (United Nations Development Programme UNDP 2014) with data by INEGI, 2010 in (United Nations Development Programme UNDP 2014)	Indicator of public investment in environment (Salgado Vega et al. 2011) with data by INEGI, 2010 "urbanización y medio ambiente" from (Instituto Nacional de Estadistica y Geografía INEGI 2015) and (Salgado Vega et al. 2011)	Indicator of employment level (Flamand et al. 2007) with data from (Flamand et al. 2007)	Gender development index (United Nations Development Programme UNDP 2014) with data by INEGI, 2010 in (United Nations Development Programme UNDP 2014)

Table 3 Results for participation in the ecologic spatial planning process of Benito Juárez, Quintana Roo, Mexico

Type of participation	Result	Level
Social	0.543	Medium
Community	0.295	Very low
Public	0.732	Medium high
Citizen	0.619	Medium high

Table 4 Results for the dimensions of sustainable development of Benito Juárez, Quintana Roo, Mexico

Sustainable development dimension	Result	Level
Social	0.796	High
Environmental	0.063	Very low
Economic	0.711	Medium high
Political	0.565	Medium-high

interviews, allows us to assume that Benito Juárez is an economically prosperous municipality with excellent social conditions, due to business and work opportunities offered by Cancun's international tourist expansion. Also, the political dimension shows a good performance, while environmental sustainability dramatically lags behind. The reason for this poor environmental score is rather obvious, considering the consequences in terms of contamination, destruction of ecosystems and fragmentation of habitat that mass tourism implicates. In addition, the perception of stakeholders on sustainable development in Benito Juárez -with a focus on participation and the Programme- also represents a low level.

7 Interpretation of Participation and Sustainable Development in Cancun

Of course, Cancun in the Northeast of the municipality of Benito Juárez is an ideal international tourist destination, favoured by a warm subhumid (tropical) climate with an average annual temperature of 26.6 C. Long white sand strips and turquoise waters make Cancun particularly attractive for beach tourism. This is why, since the seventies, tourism in Benito Juárez has been growing constantly and turned the location into an important generator of income and an attractive destination for work opportunities. Because of its visibility and an economically and intellectually influential settlers' community, political conditions have been improving for citizens.

However, it is striking that this economic, social and political development did not come about with the necessary precaution for what concerns environmental outcomes, especially if considering that local ecosystems are known to be extremely vulnerable. The vegetation of the municipality is predominantly composed of medium and lowland forests, where emblematic mammals such as the jaguar and

reptiles like crocodiles are found. Furthermore, large portions of wetlands around the lagoons facing the Caribbean Sea provide important environmental services, such as being a shelter for reproduction of marine species, as well as to serve as a buffer zone for hurricanes. In addition, Benito Juárez´s coral reefs are part of the Mesoamerican Reef System,[12] another ecosystem of unique beauty and vulnerability.

One of the greatest environmental risks in Benito Juárez is that underground water flows directly to the sea. Given the presence of irregular settlements that lack a proper sewage system, wastewater is drained into the groundwater reservoir and moves on to the wetlands and into the sea, facilitated by the subterranean hydrodynamic (Secretaría de Medio Ambiente y Recursos Naturales SEMARNAT 2014). The contamination affects water quality, marine flora and fauna and contributes to local coral bleaching. Furthermore, the connectivity of wetlands is often disrespected, leading to infrastructure built on top of ecosystems of inestimable value.

There are many open questions on the findings presented in this text. And evidently the same amount of answers can be found to explain the complex relations between the infinity of variables that are somehow connected to each other within a landscape. However, one assumption is that there could be a relation between the very low community participation and a very low level of environmental sustainability. Given the relative youth of the municipality and its original design as a mass tourist destination, that gave work opportunities to a huge number of settlers, there could be a relation between the lack of an organic belonging of the population to the territory and their lack of interest in its development patterns through spatial planning processes. This is especially true if we consider that most people depend on jobs from mass tourism and fear that changes to this development model could leave them jobless. In addition, confidence in political institutions and participation processes evidently fall when people see that regulations and agreements are not respected.

However, qualitative information from the interviews, which was triangulated between different stakeholders, offers additional explanations to the much lower community and social participation as compared to citizen and public participation: participatory workshops were apparently not communicated with a sufficient anticipation and frequently realized in the city centre instead of decentralized sites that are more accessible to rural community representatives; and, since the first Programme of Benito Juárez in 2005, social stakeholders noticed that their participation in the form of recommendations and revisions of the proposal presented in the public opinion poll had not been taken into account in the final document. Both circumstances obviously lower the trust and motivation of participants.

Furthermore, from what has been mentioned above, it becomes clear that there is a lack of integration of different management instruments; of natural protected areas and cultural heritage; tourism development; ecologic spatial and urban development

[12]The research was realized in 2015 when Puerto Morelos was still part of Benito Juárez. Today Puerto Morelos is a separate municipality.

planning etc. This demonstrates that there is no common vision on the development and management of the municipality between the stakeholders. Although the participation of government representatives in the Programme was perceived as medium-high, it seems that the Committee of the Programme nevertheless predominantly includes stakeholders from the environmental sector and thus does not achieve a real integration, neither with urban planning nor with tourist development.

8 The Need for Integrated Landscape Management (ILM)

The recent National Vision for ILM and Connectivity by the Mexican environmental sector, together with stakeholders from other sectors of the federal public administration—notably Tourism-, different non-governmental organisations, representatives of academia and experts in the topic, which was presented by the Mexican Secretary for the Environment during the COP13 of the Convention on Biological Diversity in December 2016 in Cancun, is that

> In 2030, on a quarter of Mexico´s surface, spatial management decisions are taken with an articulated and adaptive approach from terrestrial and inland water landscapes –both rural and urban- and seascapes. These are connected and managed integrally through negotiation and collaboration processes that value and link the interests of all stakeholders. Hereby, the conservation and sustainable use of natural and cultural resources are ensured for the benefit of national development. (SEMARNAT, CONABIO, CONAFOR and CONANP, 2017)

The idea of adopting this approach is to overcome the division between conservation and development that has marked the country´s legislation, institutions and public policy until the present day. In the case of Benito Juárez, this would mean a common agenda between tourism, production, environmental and urban sectors for the sake of a sustainable development of the municipality. This would guarantee the conservation of ecosystem services and resources for the satisfaction of the present and future needs of the populations of all species, and, at the same time, allow the long-term economic development of the municipality and its contribution in terms of the spread of wealth via tourism and other activities.

The ILM approach for Benito Juárez implies an example for the need of diversifying tourist activities by the integration of sustainable tourism to the portfolio. The spread of new sustainable work opportunities would quell people´s fears for environmental protection and allow them to value and protect cultural and natural heritage. Also, urban and ecologic planning have to be integrated and take account of the interests and needs of communities, based on the respect for social justice and human rights. The latter includes both the right to participate and the right to a healthy environment, which State and society construct and implement together by exercising co-responsibility.

ILM is not the explicit approach for the Programme, although it shares most of its elements with the theory of spatial planning. The same approach has also

different names depending on the sector, for example "sustainable territorial management" in the Mexican productive sector. However, the core of it is the same belief of a need for effective planning, management and evaluation processes that lead to coherence between, on the one hand, the Mexican compromise for sustainable development positioned in policy, laws and planning instruments and, on the other hand, its effective, transparent and inclusive implementation through integrated management. Only when citizens perceive congruency between discourse and facts, between development and conservation, between participation and decision-making, will the conditions be set for common objectives and shared strategies.

9 Conclusions

Based on the assumption that the participation of all stakeholders in the process is meant to be the foundation for its success, the case study illustrates that the methodology for the local ecologic spatial planning programme is still perfectible, considering that in Benito Juárez community participation is much lower than public and citizen participation.

This may be, because in Mexico there is a predominating interpretation of participation convened by the State to ratify decisions previously made and determined by particular and sectorial (economic) interests. Therefore, it is crucial to mainstream a culture of co-responsibility where State and citizens show mutual trust and respect, based on transparency and subsidiarity, as well as processes of empowerment and the internalization of the sustainable development paradigm as a win-win option through mutual trade-offs.

Participation spaces, such as the local ecologic spatial planning programmes, must be used without a sectorial bias in order to foster dialogue between stakeholders with different interests. This is how the existing planning and management instruments are to be integrated in an articulated and adaptive way from the territory. Conservation and development instruments are not in opposition; there is a need for finally unifying them to allow for a path towards sustainable development. Thus, there is a need for integrated landscape management, based on inclusive and equitable decision-making processes among all stakeholders.

The general findings of this paper and the future prospects for its topic can be summarized as follows:

1. Co-responsibility requires that community, public, social and citizen stakeholders have recognized and accessible spaces to participate in decision-making and that their participation is taken into account in a transparent way. If the State "betrays" these terms, participation by all other stakeholders -especially community and social- will fall drastically and can become an opposition force that makes future decision-making much more difficult.

2. Citizen participation is the direct expression of the social and democratic rule of law. However, participation spaces that are convened by the State are not sufficient to guarantee sustainable development because they are too easy to be manipulated. It is therefore crucial for an integrated process to continue engaging interest groups and communities. Even if, because they have sometimes more radical positions -defending a special and direct cause- it can complicate and slower decision-making, the effort is worth it because the difficulties only reflect the complexity of reality.
3. The legitimacy and viability of public policies lies within its acceptation and appropriation by all stakeholders, who only participate in their implementation if they share responsibility. It is necessary that more effort is spent on capacity building and socialization of information and options in a dialogue between scientific and traditional knowledges in order to obtain the expected results for which these policies are formulated.

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