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Cuauhtemoc Leon

Boris Graizbord

Richard Kyle Paisley

Eugene C. Bricklemyer, Jr.

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# DESIDERATA FOR PUBLIC POLICY REQUIREMENTS FOR THE MEXICAN COASTLINE

*Cuauhtémoc León, Boris Graizbord, Richard Kyle Paisley and  
Eugene C. Brickley, Jr.\**

## EXECUTIVE SUMMARY

Canada, the United States, and Mexico are adjacent coastal nations where the impact of significantly increased human activity in the coastal zone by the year 2050 will be potentially catastrophic. Integrated coastal management (ICM) may well have a role to play within, and between, all three countries to help ameliorate this situation. This paper develops a list of pieces of a complex puzzle that will help explain the relationship between socio-economic processes, cultural values and legal frameworks in Mexico compared with those of the United States and Canada.

## I. BASIC IDEAS

### *A. The Coastline as a Social Space*

Approximately 60% of the world's population lives within sixty kilometers (km) of the coast, and it is widely recognized that this number is increasing rapidly due to population growth, migration and urbanization.<sup>1</sup> Two thirds of the most populated cities of the world are located within this coastal zone, often close to estuary systems.<sup>2</sup>

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\* This is the third in a series of six related papers appearing in this volume. For biographies of the individual authors of this paper, please see 9 OCEAN & COASTAL L.J. 174 (2004).

1. R. Gomme et al., Food and Agriculture Organization of the United Nations, Potential Impacts of Sea-Level Rise on Populations and Agriculture (1998), available at <http://www.fao.org/sd/EIdirect/EIre0045.htm> (last visited May 21, 2004).

2. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, U.S. DEP'T OF COMMERCE, GLOBAL CLIMATE CHANGE AND THE RISING CHALLENGE OF THE SEA (1992).

In 1990, approximately 43% of Mexico's population lived in the seventeen Mexican coastal states, in which the coastal municipalities themselves had 23% of the total population (19.2 million). Analysis of growth rates reveal that in the last decade, coastal towns have been the destination for migration from the inner states. In addition, towns with over 100,000 inhabitants have grown the most rapidly when compared to the smaller localities.<sup>3</sup>

Accompanying the phenomenon of population growth is that of urbanization, which has meant that of the country's 127 largest cities, forty-eight (approximately 30%)<sup>4</sup> are located on the coast. Due to economic factors operating over the past ten years, it is possible to see that several cities have shifted their economic activity from predominantly agricultural or primary sector specialization to secondary or tertiary activities.<sup>5</sup> Moreover, the number of tourist cities has also grown, further reinforcing the dual tendencies of urbanization and migration towards these centers.

For the above reasons, the process of concentration and urban growth in these centers will continue. By the year 2025, the population will grow by several million, which begs the questions where will all these people settle, and what are the accompanying socio-environmental risks?

Despite various attempts at characterizing and regionalizing the Mexican coastal region,<sup>6</sup> there is an ongoing international controversy regarding the simple matter of reaching a uniform spatial definition for the Coastal Zone (CZ). This is also expressed in the relatively few research papers written about this zone in Mexico and in the almost non-existent public policies specifically related to it.

On one hand, there are legal issues that must be resolved, not simply in terms of a satisfactory definition but also, and consequently, a definition that would permit the management and administration of this zone. Different levels of the sociopolitical hierarchy interfere and often appear to be at cross-purposes in terms of the numerous functional aspects related to this issue. Examples include the limits set by municipal administrations and those derived from structural (geomorphological) or functional (basins, ecosystems, bioecographic borders) limits. On the other hand, this is opposed by the fact that the CZ is a border region in terms of disciplines

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3. Gustavo Cabrera-Acevedo, *Las Regiones Costeras, Crecimiento y Potencial Demográfico*, DEMOS, 1993 at 30-31.

4. See Gustavo Garza & Salvador Rivera, *DINÁMICA MACROECONÓMICA DE LAS CIUDADES EN MÉXICO* 71-80 (Instituto Nacional de Estadística 1994).

5. Cuauhtemoc Leon, *Piezas de un rompecabezas: dimensión socioeconómica de las costas de México* 4-11 (June 2004) (unpublished manuscript, on file with OCLJ).

6. See Mario Arturo Ortiz-Pérez & Luis Miguel Espinoza-Rodríguez, *Clasificación geomorfológica de las costas de México*, GEOGRAFÍA Y DESARROLLO, 1991, at 2.

and opposing phenomena, those which are properly classified as "land" and are generally better known than those which are maritime, coastal or even oceanic.

In addition to the problems of spatial definition, there are those originating from the sectorization of the zone. The coasts are seen and treated from many different perspectives—from the tourist industry to those of agriculture, livestock raising, ports, fishing, mining, oil, or aquaculture.

The landscape that can presently be seen in the CZ is the result of the sum of these forces, pressures and activities, carried out with varying intensity and at different places and moments.<sup>7</sup> Currently, the most reliable environmental evaluations, usually carried out on a small scale, show critical situations of deterioration, generally due to the high vulnerability of the systems (benthonic, pelagic fauna, lagoons, arid coastal plains, tropical regions, etc.) and to their links and synergy with various human activities.<sup>8</sup> This is shown by water quality in the coastal regions, where it is not only impossible to imagine the existence of virgin areas, but it is also obvious that there is a situation of extreme deterioration associated with urban waste disposal.<sup>9</sup>

The heterogeneity of the Mexican coastline parallels the variety of flora and fauna that exist in the country. The wide variety and diversity of the marine and terrestrial plants and animals that inhabit this transition zone is well documented in terms of their biogeography.<sup>10</sup> They have been classified in terms of their diversity,<sup>11</sup> as well as their strictly ecological problems.<sup>12</sup> An analysis of Mexico's two long coastlines is now a necessity which cannot be further delayed. The condition of the CZ can therefore be seen as the sum of the effects of economic-political and ecological processes.<sup>13</sup>

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7. See Alfonso Banderas-Tarabay, *Impacto Ambiental de los Desarrollos Hidroagrícolas sobre las Lagunas Costeras del Noroeste de México*, in LAS LAGUNAS COSTERAS Y EL LITORAL MEXICANO 471, 471–95 (Guadalupe de la Lanza-Espino & Carlos Caceres-Martinez eds., 1994); TIMOTHY BEATLEY ET AL., AN INTRODUCTION TO COASTAL ZONE MGMT. 55–102 (Island Press 1994).

8. Alfonso V. Botello et al., *Ecología, Recursos Costeros y Contaminación en el Golfo de México*, CIENCIA Y DESARROLLO, Jan.–Feb. 1992, at 33–42.

9. INSTITUTO NACIONAL DE ECOLOGÍA, ESTRATEGIA AMBIENTAL PARA LA GESTIÓN INTEGRADA DE LA ZONA COSTERA DE MÉXICO: 7 Propuesta (2000).

10. FRANCISCO CONTRERAS & LUIS M. ZABALEGUI, EL APROVECHAMIENTO DEL LITORAL MEXICANO 23–38 (Centro de Ecodesarrollo 1988).

11. ALEJANDRO YAÑEZ-ARANCIBIA, ECOLOGÍA DE LA ZONA COSTERA, 2–7 (1983).

12. See FERNANDO TUDELA, LA MODERNIZACIÓN FORZADA DEL TRÓPICO: EL CASO DE TABASCO 79–350 (El Colegio de Mexico 1989).

13. B.P. Hayden et al., *Classification of Coastal and Marine Environment*, 11(3) Environmental Conservation 199–207 (1984).

The different government policies promoted to develop the country throughout this century have had a differential spatial effect (in different ecosystems), in time and sectorally. None have explicitly favored the coast, except those that concern fishing.<sup>14</sup>

### B. A Parceled Area

The evolution of public administration in the form of government institutions, whether they be tourism, fishing, agriculture or energy, and throughout their distinct stages of development, have created a highly parceled CZ.<sup>15</sup> Moreover, there has been a lack of foresight and evaluation in terms of the possible effects on, or management of, the coast itself, within the different government programs.<sup>16</sup> There obviously does not exist,<sup>17</sup> nor has there ever existed, an explicit policy articulating the actions carried out in the national CZ.

All of these factors lead to the conclusion that the CZ apparently does not exist, and correcting this situation would require, at the very least, visualizing it as a transition zone between the sea and land – a zone whose characteristics would need to be considered so as to conserve, exploit and maximize its productive capacity. The apparent nonexistence of the CZ sets out the first challenge for short-term and immediate decision-making. The classification of the processes and the general trends related to environmental deterioration and the mechanisms which cause them, will allow the proposal of alternatives that stop or change these same processes. This would be a vital step in the promotion of what has been defined internationally as the “Integrated Coastal Zone Management Program.”<sup>18</sup>

Many countries have adopted different definitions of what exactly constitutes a CZ.<sup>19</sup> Some, such as the United States, have defined these

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14. J.C. Chavez-Comparan, *Administración de Zonas Costeras en México. Bases para un Plan Nacional*, Secretaria de Marina. Colima, México (1992).

15. JENS C. SORENSEN ET AL., COASTS: INSTITUTIONAL ARRANGEMENTS FOR MANAGING COASTAL RESOURCES AND ENVIRONMENTS 3–20 (Univ. of Rhode Island 1992).

16. Alejandro Toledo, *La Zona Costera del Pacífico sur*, in RIQUETA Y POBREZA EN LA COSTA DE CHIAPAS Y OAXACA 17, 41–64 (Alejandro Toledo, ed., 1994).

17. Martin Merino, *The Coastal Zone of Mexico*, 15 COASTAL MGMT. 27, 27–42 (1987).

18. Chua Thia-Eng, *Enhancing the Success of Integrated Coastal Zone Management: Good Practices in the Formulation, Design, and Implementation of Integrated Coastal Zone Management Initiatives*, GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas 2 (1996).

19. See Richard Kyle Paisley et al., *Integrated Coastal Management (ICM): A Brief Legal and Institutional Comparison Among Canada, the United States and Mexico*, 9 OCEAN & COASTAL L.J. 195 (2004).

zones from as early as the 1970s with the open sea and interior terrain as its defining limits. This has been useful in the formulation of legal frameworks for legislation related to these areas, to the extent that after more than twenty years, although of doubtful efficiency and effectiveness, there is a framework of federal and state institutions that supervise the carrying out of activities in this territorial fringe. Under different approaches, the stimulation of institutional efforts that set the minimal bases for the management of this extremely important area of the country becomes absolutely indispensable.

Independent of the extension of the coastlines, the surfaces (marine and land) that define them, and their economic and ecological values, the CZ is an area of strong intersectorial conflicts where there are grave contradictions between interests and social actors,<sup>20</sup> to the extent that environmental management becomes very difficult.

Legal concepts that are recognized in the Constitution, such as the Exclusive Economic Zone (EEZ) (200 miles), the idea of the national Maritime Territory (12 miles) or concepts such as the Federal Terrestrial-Maritime Zone (a strip of 20 miles over the high tide mark), are largely inoperable in terms of confronting and dealing with the conflicts that arise in this zone. Together with policy instruments such as Environmental Impact Assessment and the Territorial Ecological Landuse Planning system (known as Ordenamiento Ecológico Territorial) considered by the federal environmental law, they have not collectively shown the ability to resolve the problems related to socio-environmental decline and, therefore, the prevention of further negative impacts upon the environment. In fact, it could even be stated that innovative and sustainable projects are not necessarily feasible under such a normative framework.

### *C. Conflicts in Crescendo*

In the recent past, the space of the CZ has become an area of international and national conflicts. This is an area where many natural disasters occur, such as hurricanes and floods. It is also an area where the marine resources themselves offer many examples of highly charismatic species that are valued and appreciated by society (and often the theme of public statements by Non-Governmental Organizations (NGOs)) such as whales, coral reefs, marine turtles, migratory birds, and mangrove swamps.

More recently, this has become an area of conflict between government ministries and diverse economic sectors. This is the case with petroleum,

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20. See DAVID MARTIN DEL CAMPO, *LOS MARES DE MÉXICO, CRÓNICAS DE LA TERCERA FRONTERA* 128-224 (1987).

tourism, ports and urban zones and, of course, issues related to conservation. Some current examples of these conservation-related conflicts are the case of the Cozumel Quay (taken to the CEC-NAFTA),<sup>21</sup> the case of Salina San Ignacio and the gray whale,<sup>22</sup> the Cancún-Tulum corridor and its territorial classification, and Punta Diamante in Acapulco in 1996,<sup>23</sup> all of which are examples of very serious economic and social conflicts.<sup>24</sup>

Simultaneously, these regions are involved in intense competition for scarce resources and offer a preview of the biggest problem to come, that of the pending conflict over water. Water is retained, consumed and polluted in the high basins; however, in the lower basins it is required for agriculture, aquaculture, or for the maintenance of the saline balance necessary for the growth of shrimp and other organisms of the coastal lagoons. Sustainability is a function of the definition of the carrying capacity and the distribution among users of the benefits or negative impacts. Generally, activities that benefit the upper basin damage the lower basin, normally located on the coastal plains, and the users who inhabit the land-sea transition zone.

It is still not clear how the social and economic asymmetries on the coast are formed, but what can be clearly stated is that there is an existing tension between urban and rural spaces.<sup>25</sup> Coastal cities specialize in services or industry, and the surrounding agricultural or fishing areas that are also sources of employment for the population form a high level of asymmetry in services and income. There are further tensions and problems that can be identified between the sectors of low scale fishing and intensive commercial fishing, between sport fishing and subsistence fishing, and between the participants in the relatively new industry of aquaculture and the traditional shrimp fishery.<sup>26</sup>

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21. North American Commission for Environmental Cooperation, Citizen Submissions on Enforcement Matters, Cozumel, (1997) available at <http://www.cec.org/citizen/submissions/details/index.cfm?varlan=english&ID=32> (last visited Apr. 21, 2004).

22. Andrés Ortiz, INE-SEMARNAT, *El Conflicto Por Los Salitrales De San Ignacio* (2002), available at <http://www.ine.gob.mx/ueajei/publicaciones/gacetitas/282/salinet.html.cfm?varlan=english&ID=32> (last visited Apr. 21, 2004).

23. La Jornada, *Desalojos, origen de los terrenos de Diego Fernández en Punta Diamante* (Sept. 4, 1996), available at <http://www.jornada.unam.mx/1996/sep96/960904/diego.txt.html> (last visited Mar. 4, 2004).

24. See North American Commission for Environmental Cooperation, *Proceedings from a Dialogue on Sustainable Tourism in Natural Areas in North America*, Playa del Carmen, Quintana Roo, Mexico 27–28 (May 1999), available at [http://www.responsiblewhalewatching.org/documents/Play\\_Proceedings.pdf](http://www.responsiblewhalewatching.org/documents/Play_Proceedings.pdf) (last visited Apr. 15, 2004).

25. See Cuauhtemoc León et al., *Challenges for Managing the North American Coastal Zone*, 9 OCEAN & COASTAL L.J. 281 (2004).

26. As has been demonstrated in the Gulf of California. See Cuauhtemoc León & Boris Graizbord (eds.), *Bases Para El Ordenamiento Ecológico de la Región de Escalera Náutica*

#### D. *Problems of Time Scale and Space*

Recently, a methodological problem has become obvious, one that is associated with the interpretation of ecological, climactic, social or economic phenomena or processes that occur and are manifested over different time scales and spaces. Even though they may in fact coincide in terms of a certain geographic point, their nature is, or may be, fundamentally different.<sup>27</sup> For any attempt at intervention to be successful, these processes require the design of specific policies, developed according to the complexity (interdefinition or dependency) and the coordination of other intervening phenomena.<sup>28</sup> That is, policies must be designed based on short or long term perspectives, sectoral or not, that simultaneously have an effect on the territory (basin, municipality, region, state or country) where they are manifested. For instance, in the Caribbean, federal tourism policies indirectly increase, among other things, local demand for seafood, which in turn will increase the pressure on the lobster population on the reefs. Management efforts done by local communities or municipal authorities are driven by either regional ecological conditions (like lobster population dynamics) or by regional economic forces (like federal investment or international market flows).<sup>29</sup>

Deriving from this is the discussion related to global issues. Independent of how we might explain the origin of the problem, these issues require local, regional and global remedies. This discussion must begin to take shape, and it requires theoretical and methodological elaboration that at this moment is exploratory and incipient, but nonetheless not of lesser importance because of its relation to issues of environmental deterioration. Political borders are not respected by physical or ecological dynamics, neither in the continental nor the oceanic systems.<sup>30</sup> Phenomena such as the

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(*Componente Social y Económico*), Instituto Nacional de Ecología-SEMARNAT El Colegio de México (2003), available at <http://www.ine.gob.mx/enautica/index.html> (last visited Apr. 21, 2004).

27. See David W. Cash & Susanne C. Moser, *Linking Global and Local Scales: Designing Dynamic Assessment and Management Processes*, available at [http://www.ksg.harvard.edu/gea/pubs/2000art\\_gec\\_scale.htm](http://www.ksg.harvard.edu/gea/pubs/2000art_gec_scale.htm) (last visited Apr. 7, 2004).

28. Rolando García, *Conceptos Básicos para el Estudio de Sistemas Complejos*, in *LOS PROBLEMAS DEL CONOCIMIENTO Y LA PERSPECTIVA AMBIENTAL DEL DESARROLLO* 45, 69–71 (E. Leff ed., 1986).

29. See I. Solares & O. Alvarez, *Socioeconomic Assessment of Punta Allen: A Tool for the Management of a Coastal Community*, available at <http://www.cep.unep.org/pubs/cepnews/v17n4/mpa%20corner.htm> (last visited Mar. 30, 2004).

30. Aaron T. Wolf, *Transboundary Waters: Sharing Benefits, Lessons Learned* (2001) available at [http://www.water-2001.de/co\\_doc/transboundary\\_waters.pdf](http://www.water-2001.de/co_doc/transboundary_waters.pdf) (last visited Apr. 15, 2004); World Resources Institute, *World Resources Report 2000–2001*, New York:



migration of species (birds or mammals) or contamination (atmospheric, oceanic or river) travels from country to country, and is therefore subject to different government, technological and economic capabilities. Paradoxically, the environmental degradation is the same, which leads to the obvious conclusion that local efforts, no matter how timely, are insufficient for the detention of these processes and the guaranteeing of the conservation of the different ecological phenomena. This is the case with migratory species, whose migratory paths are continent-wide and therefore any conservation and protection effort should be undertaken on the same scale.

In this manner, a "landscape continuum" expresses and includes institutions and administrative arrangements with highly diverse and even asymmetrical political, social and economic structures. This is the case of the fishing policies with shared resources, for example in Baja California (with California), and in the Caribbean Sea with populations of abalone and lobster respectively.

Along the Mexican coastline it is possible to observe extremely different socio-demographic and economic structures, but above all, histories and cultural bases that vary widely and have little in common, as is the case with the northeast and the southern part of the country.<sup>31</sup> The territory is determined by the borders of each country, and towards the interior it is determined by state borders, which are in turn divided by municipal borders and finally by different local structures.

The challenge of natural resource management, on any geographic scale, must confront the fact that the processes it intends to deal with (study or resolve) are determined by activity that is out of the political-administrative jurisdiction where they occur (*e.g.* basins). The methodological approach needed requires recognition of this fact, given that environmental phenomena have different temporal and spatial scales, which necessarily require policies that operate at the levels at which these problems are occurring.

It is therefore highly relevant to search for the institutional bases, the political, geographic and economic divergences and convergences that allow coordinated action, but above all correctly size up the challenge, on whatever scale it may require, in order to identify the agents involved in the coordinated efforts, as well as those who will be affected. It falls neither

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Oxford University Press (2000); C. MORRY, WORLD WATER COUNCIL, CHANGING COURSE – REPORT OF THE TECHNICAL SESSIONS, 2ND GENERAL ASSEMBLY OF THE WORLD WATER COUNCIL, Marseilles, France (2001).

31. See CONSEJO NACIONAL DE POBLACIÓN, LA SITUACIÓN DEMOGRÁFICA DE MÉXICO 73–89 (1999).

under the agenda of problems of a global scale, nor under what could be considered local, and should be considered medium scale because of its objectives in terms of evaluating the countryside and its social dynamics.

*E. Free Access to Goods or the Tragedy of the Commons*

The oceans are, or can be considered, as a common pool resource<sup>32</sup> or as a global public good.<sup>33</sup> There is free access to their resources and they are very difficult to exclude or privatize. Given the collapse of the main fisheries of the world,<sup>34</sup> the oceans and their resources can be considered a prime example of “the tragedy of the commons.”<sup>35</sup> The CZ is the privileged space in this phenomenon. In terms of marine resources, through concessions and permits, appropriation lacks clear rules of access, and in worst-case scenarios, the water surface itself hides the deterioration and decrease in these populations. This can be seen by the recent data published by the National Institute of Fisheries in its fishing reports: the majority of the fisheries are at their maximum potential or are collapsing because of overexploitation.<sup>36</sup>

In numerous water bodies and at the beach, the notion of upstream-downstream connectivity remains unknown; coastal fishing and the influence of human activity on the land (as is the case with changes in river flows and lagoons, pollution due to urban or agricultural discharge, or urbanization due to tourist activities) accelerate the processes and the conflicts. This occurs to an even greater extent when coastal activities (tourism and fishing, for example) receive excessive attention and

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32. See E. Ostrom, *Protecting the Commons*, in *PROTECTING THE COMMONS: A FRAMEWORK FOR RESOURCE MANAGEMENT IN THE AMERICAS* (Joanna Burger et al. eds., Island Press 2001).

33. See Rosalie Gardiner & Katell Le Goulven, *Sustaining Our Global Public Goods*, ENV'T BRIEFING NO. 3 (2001), available at <http://www.earthsummitn2002.org/es/issues/GPG/gpg.rtf> (last visited Apr. 15, 2004).

34. Rosalie Gardiner, *Oceans and Seas: Harnessing the Marine Environment for Sustainable Development*, ENV'T BRIEFING NO. 3, Oceans Briefing Paper (2002), available at <http://www.earthscope.org/p1/gar03/gar03.pdf> (last visited Apr. 15, 2004).

35. Ostrom, *supra* note 32.

36. See Secretaria de Agricultura, Ganaderia, Desarrollo Rural, Pesca y Alimentacion, *Carta Nacional Pesquera 2000*, available at <http://inp.semarnat.gob.mx/CNP/anexo.htm> (last visited Mar. 15, 2004).

investment from Fondo Nacional de Fomento al Turismo (FONATUR),<sup>37</sup> or when the institutional complex ignores them.<sup>38</sup>

### *F. Relative Importance of CZ*

It is difficult to determine the relative importance of the CZ on a national scale and much more difficult to catalogue it on a continental or regional scale. However, it is relatively easy to affirm that it is a slice of territory, at least in the case of Mexico, which has been ignored or gone unrecognized, to the extent that a cry of frustration can be heard from academics involved in the field. It has been justified as a "historic error"<sup>39</sup> and is without a doubt ultimately expressed in national public policy. Nevertheless, this characteristic is shared with other countries of Latin America, which still maintain, for example, dietary and commercial sectors related more to land than to the sea. In any case, with different approaches, it has been estimated that the United States coastal zone economic contribution is around 31.7 %<sup>40</sup> while the Mexican coastal zone contribution is 3.7 %<sup>41</sup> of the Gross National Product respectively.

## II. THESIS AND POLICIES

### *A. The CZ Does Not Exist as a Predefined and Uniform Entity*

The CZ does not exist as a predefined and uniform entity. This is the result of a process of social differentiation, which in turn depends on cultural perception and appreciation, in particular the idea that what is here today will not necessarily be here tomorrow. The landscape of the coastline has been socially represented through different images. Today, it depends on a social definition that is slowly starting to take shape. The social history of the beach, or the use and perception of it, are changing and evolving, and it is certainly not a uniform process throughout the world.<sup>42</sup>

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37. Stands for the National Fund for Tourism, which is responsible for tourism projects and programs promotion and is part of Secretaría de Turismo (SECTUR- Federal Tourism Ministry).

38. See GRACIELA ALCALÁ MOYA, CON EL AGUA HASTA LOS APAREJOS: PESCADORES Y PESQUERÍAS EN EL SOCONUSCO, CHIAPAS 153-212 (1999).

39. Carlos B. García, MEXICO FRENTE AL MAR 285-347 (1981).

40. CENTER FOR URBAN AND REGIONAL STUDIES, VALUING COASTAL ZONE MGMT. 1, 4 (Charles S. Colgan ed., National Coastal Resources Research & Development Institute, Publication No. NCRI-T-90-005 (1990)).

41. Leon, *supra* note 5, at 2.

42. See ALAIN CORBIN, EL TERRITORIO DEL VACIO (1988).

A strong polarity has been developing from the 1950s closely associated with urban zones. In the case of Mexico, the urban zones are largely located in the highlands, where the population regards the coastline as a zone for pleasure, recreation, and relaxation (a dream that is further perpetuated by the official campaigns of FONATUR and SECTUR in the public sector and by private companies such as beer and rum producers) where concept-symbols of an exotic beach appear in abundance.<sup>43</sup> On the other hand, there is a desire for virgin areas to remain forever intact. Ultimately these are the areas that require protection in order to keep them at the margins of human impact. From this can be derived a long-term project that helps expand the cultural possibilities to re-appreciate the multiple dimensions that exist in this part of our national reality.

*B. Managing the CZ Depends on the Existence of  
a Spatial and Functional Definition, Which Grants Unity  
to this Multidimensional Space*

Managing the CZ depends on the existence of a spatial and functional definition which grants unity to this multidimensional space. This necessarily legal definition, not just attributed to resources, could also lead to specific policies, provided it is rendered operative. The definition would convert this zone into an object of planning to maximize development and diminish or control any negative impacts and avoid "resource" management, which ignores the socioeconomic processes to which it is subjected. The institutional arrangement must emerge from a fusion of the presently scattered authorities, located in different government ministries. In addition, this arrangement requires a consideration of the minimal fiscal requirements able to affect the specific local issues, such as that of municipal action.

Sectoral actions (plans, programs or policies) that affect the CZ will require coordination, which will not be possible if there is no minimum definition (spatial or functional) that leads to its recognition (see point H below).

Although it may appear highly paradoxical, there has been a great leap backwards from the end of the 1960s and the middle of the 1970s to the present time. During this first period, Mexico was in fact a member of the vanguard in marine protection issues, leading international discussions regarding the law of the sea, which was part of a foreign policy that was not

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43. Cuauhtemoc León & Jose Sosa, *Atributos del desarrollo Costero en México: ¿Derrotero sin rumbo?*, in *ESTRATEGIAS MUNICIPALES PARA EL MANEJO DE LA ZONA COSTERA 7-8* (P. Moreno-Casasola ed., (forthcoming) [hereinafter León & Sosa].

only interrupted but has in effect disappeared.<sup>44</sup> Mexico, and this group of internationalists, whose combined efforts culminated in the declaration and conception of the new legal category, EEZ, founded something from which we have yet to fully reap the benefits, an issue that has remained on the proverbial "backburner" ever since. On August 30, 1968, the *Diario Oficial* published a definition of maritime space for the country; however, the myriad of possibilities it represents has yet to crystallize. The Gulf of California is delimited with precision, with base lines that define the interior sea (a nonexistent category in the rest of the country and without a responsible institution), the territorial sea and by exclusion, the EEZ (without counting the terrestrial federal maritime zone). However, this did not lead to, among other things, better fishing methods, economic planning or regulation of maritime traffic, or the protection of islands. It was not until recent years that the National Institute of Ecology, as part of the environmental ministry in Mexico,<sup>45</sup> began to classify this marine and terrestrial space, although their efforts have largely gone against the will of regional forces that control in general the resources and generate negative externalities along with conservation efforts.

### C. *The CZ Cannot Be Reduced to One Dimension*

The CZ is multidimensional, even when regarded as a simple geographic space. Ecological processes influence the sea as well as land, where human activities are introduced to transform or disrupt "natural" processes. The CZ should be seen as a socio-environmental system, and should be analyzed from the perspective of a complex system where the relationships between its components are mediated by cultural processes (in the anthropological sense), and therefore do not necessarily have cartographical meaning, or rather, meaning in terms of "lines on a map." This would be the case with decisions regarding the location of tourist centers, in which market relations are created between the tourist destination and foreign origins (such as the supplying of Cancún from Mexico City).

### D. *A Conceptual Framework Is Required*

The study of the CZ requires a conceptual framework that allows for the inclusion of dynamic and complex systems, provided that the diverse challenges based on issues of scale and time can be resolved, in order to

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44. For an historical approach, see ALBERTO SZEKELY, *DERECHO DEL MAR* (1991).

45. INSTITUTO NACIONAL DE ECOLOGIA, *supra* note 9.

reach a precise diagnosis of the problems at hand. It is as much an issue of accepting that each coastal region has its own individual history, as explaining that their present conditions require considerable effort to identify the processes and mechanisms that brought the system to its present condition. The Chontalpa region (Tabasco state in the Gulf of Mexico) may differ from the Soconusco (Chiapas state, in the Pacific), and a port such as Tampico (Tamaulipas state, Gulf of Mexico) may differ from any other. The classical sectoral approaches are essentially useless and ineffective for the resolution of problems of this type, as are the planning proposals that come to nothing (without considering the prevailing institutional arrangements).

*E. The Tools Developed for the Management of Natural Resources in Other Areas and Disciplines Can Be Extrapolated and Applied to the Management or Administration of the cz<sup>46</sup>*

There is an unfinished discussion, constantly muddying the theoretical waters, that says resource management is not a true scientific discipline, and this accusation extends to the management of the CZ. Various individuals disqualify, criticize or misunderstand people who are working in this field. As a result, the teaching of this profession is barely being tested and tried. In response to new fields of investigation, universities have in general preferred to remain removed from the field of debate, proving their inability to promote new alternatives in knowledge, which has perpetuated this vicious circle. In fact, the teaching of how to resolve these environmental problems is undergoing a reexamination in terms of curricular and university reform.

*F. The Uses and the Spatial Definition of the CZ Have Been Evolving Sectorally*

The uses and the spatial definition (resources) of the CZ have been evolving sectorally. In addition to the divisions and dissections made by the different areas of knowledge, only part of the history or spontaneous and instantaneous representations of this "actor" are known. The tourists know this region for its sunsets, bikinis, romance, and relaxation. Others, including the traditional farmers and agriculturalists perceive this zone as a coastal plain. The coastal plain supports tobacco, bananas, sugar cane, copra (coconut oil) and currently, corn and vegetables; the lagoons support

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46. See Cuauhtemoc León & Marina Robles, *Developing a Cadre of Professionals with a Global Environmental Perspective*, 45 OCEAN & COASTAL MGMT. 633, 633-48 (2002).

aquaculture. The farmers insist upon leaving aside the socio-economic problems and restricting themselves to technical issues of viability and control. For a few, there is fishing, the exportation of shrimp, the tuna embargo, the period of Lent, aphrodisiacal myths, mariners' tales, the phenomenon of El Niño, the cyclones, floods and shipwrecks; biodiversity and ecological damage is for the ecologists; money and opportunities for the economists and investors; problems of sovereignty and economic losses for the Secretary of Foreign Affairs; events and disasters for the Secretary of the Interior.<sup>47</sup>

Ports of entrance and exit for hope, zones of ill health and sickness, black gold, oil wells, source of energy and possibly of wealth, and generator of poverty. For the people of the coast, one sea, while for those from the highlands, another vision. This puzzle has yet to be assembled.

*G. The Spatial Definition of the CZ Implies Processes of Different Scales, Where Disparate Points Can Be Closely Related*

The spatial definition of the CZ (structure and function) implies processes of different scales, where disparate points can be closely related. These relations point to the need for regional and national solutions to local effects and problems. This is the case with Mexico City and the impact of its sewage water drain-off into the Gulf of Mexico (throughout the Panuco River). Thus, the CZ area of the Gulf begins in Mexico City. Processes with different temporal scales are equal players; on one hand, social processes (e.g., migration, population dynamics, agriculture, livestock raising, political plans, etc.) and, on the other hand, the processes which are more strictly biophysical or ecological (e.g., community dynamics, appearance or disappearance of species, disturbances, productivity, and erosion). Their combination, interdependence, and synergy are a challenge. It is enough to think about the time scale that is required to study all the global climatic changes. In particular, how do governments create and execute basin management plans that go beyond one legal-administrative territory and that require time frames that extend beyond each administration's term in power (six years for the federal government and four for the state government)?<sup>48</sup>

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47. León & Sosa, *supra* note 43, at 15.

48. See ALEJANDRO TOLEDO, RÍOS, COSTAS, MARES. HACIA UN ANÁLISIS INTEGRADO DE LAS REGIONES HIDROLÓGICAS DE MÉXICO (2003).

*H. The Influence of Different Sectors, Institutions and Actors Operating in the CZ must Be Systematically Analyzed*

The influence of different sectors, institutions and actors operating in the CZ must be systematically analyzed. This analysis should be done in the context of conceptual and epistemic barriers that exist due to the disciplinary formation of most of the professionals who intervene (through studies or in the decision-making process). This arena, composed of different actors, requires a strategy of well selected hierarchic and sequential actions in order to bring about the necessary changes for the development of the CZ. In this lies the idea of sustainability, understood as a process, not a state, or as a unique solution. It is important to speak of sustainable developments in their plural form, in order to facilitate the vision of differentiated magnitudes of orders (in time and space), as well as the multiple routes available and cultural agreements. This takes into account cultural and environmental differences of each territory and country.

Such strategies will finally put, for example, the administration and study of islands presently under the control of the Secretary of the Interior into the hands of another authority, as well as place the action of FONATUR in a different context from that of constructing buildings and infrastructure.

*I. The Establishment of a General National Framework Is a Priority Due to the Spatial Heterogeneity That Each Region Or Micro Region of the Country Possesses*

The establishment of a general national framework is a priority due to the spatial heterogeneity that each region or micro region of the country possesses. This heterogeneity, the result of the evolution of biophysical and socio-economic characteristics from one coastal region to another, forces us to consider it as a source of wealth. What is valid and optimal for the Gulf of Mexico is not necessarily so for the Pacific Coast. The same can be said for the border coastal zones, where the actions of both countries are equal and relevant to the zone. The establishment of a general framework will help to promote regional policies.



*J. The Present Landscape of the CZ Is the Result of a Historic Process in Which Various Social Processes Have Interacted With Those That Are Considered Strictly Natural*

The present landscape of the CZ is the result of a historic process in which various social processes have interacted with those that are considered strictly natural. A static vision of this landscape inevitably leads to erroneous diagnoses, and therefore to proposals for only partial, biased solutions, which do not guarantee changes in the trends leading towards environmental deterioration. In general, the governmental apparatus has evolved in terms of natural resources and environmental problems in a conspicuous way, perhaps slowly, but definitely positively. In the same vein, we cannot design policies without taking into consideration the particularities of each region; jurisdictional-administrative models should not be imposed without having been evaluated beforehand, and adapted to the culture and conditions of the country. Before creating a law such as that which exists in the United States (Coastal Management Act of 1972), the risk of ignoring the successes and failures of these programs and the large socioeconomic differences that exist between our countries must be avoided.<sup>49</sup>

### III. CONCLUSION

The preceding is, or could be considered, a working agenda, as fields of investigation, or as conflicts that have to be confronted.

From the 1970s (since the Stockholm meeting) and the birth of environmental consciousness on a global level (leaving aside the important participation of Mexico in international law of the sea for the definition of the EEZ's 200 mile limit), to the present, there has been a lack of orientation on the part of public policy toward the coastline. However, the present government, in particular, the governmental branch responsible for environmental issues (SEMARNAT), has been receptive to addressing the coasts.<sup>50</sup>

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49. See Evelyne Meltzer, *Overview of Marine Conservation Issues in Atlantic Canada, in SEAS THE DAY: TOWARDS A NATIONAL MARINE CONSERVATION STRATEGY FOR CANADA* (excerpts) (L. Beckman, ed., 1996). See also Paisley, *supra* note 19.

50. See INSTITUTO NACIONAL DE ECOLOGIA, *supra* note 9; Isaac Azuz-Adeath & Evelia Rivera-Arriaga, *Resultados del Seminario/Taller La Sustentabilidad Costera*, available at [http://etzna.aacarn.mx/epomex/epomex%202004/sustentabilidad\\_costera.html](http://etzna.aacarn.mx/epomex/epomex%202004/sustentabilidad_costera.html) (last visited Mar. 30, 2004); EVELIA RIVERA ET AL., *EL MANEJO COSTERO EN MÉXICO* (forthcoming).

The policies dictated from the inland-highlands that have affected the CZ are key in coastal issues and are as segmented as our perceptions and approaches from our own fields of study.

