Decentralization and Modernization in Mexico: The Management of Water Services

by

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ABSTRACT

This paper addresses the design, implementation, and evaluation of public policies in the Mexican water services during the last fifteen years. Three dimensions are differentiated: the first raises the problem of the production of knowledge in this area of public decision in terms of its construction: who produces knowledge in this realm? and, in what way is it being produced? The paper suggests the existence of bodies of knowledge, which confront each other in the processes of design, implementation and evaluation of public policies. In the second dimension, we put forward that in the late 1980s, a qualitative challenge in the Mexican water resources' public management began. This challenge is part of the global state's transformation, which we suggest must be analyzed at two levels: i) the structural rupture with the previous model of state-led development built since the 1940s, and ii) the strengthening of the state control over this sector. Particularly, we focus on the processes of administrative decentralization, of territorial deconcentration, and of privatization and disincorporation of productive activities which were under the state's control. Finally, the third dimension focuses on a relevant feature: the making of new identities expressing a process of social and political change. What we suggest is that a qualitative challenge at the level of public management of water, corresponds to the emergence and/or to the expansion-consolidation of new social identities. In general, we suggest that the state's action promotes the emergence of two social forms or figures: the water entrepreneur and the water customer.

This paper addresses the design, implementation, and evaluation of public policies in the Mexican water services sector during the last

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fifteen years. To a large extent, the following discussion is the result of a set of research projects[1] on water management[2] in Mexico, with relation to: a) its urban as well as its rural expressions; b) the contradictions between technical and political features; and c) the flaring up of cases of water struggle performed by a variety of social sectors. The Mexican authorities have denominated these events "the conflict for water."[3]

Public management of water in Mexico today faces the following challenges: a) to supply the "increasing number of users who demand more water with adequate quality;"[4] b) to enable the water management agencies "to generate enough income for paying the cost of operation, conservation and maintenance, as well as any percentage of the required investment;"[5] and c) "to channel and solve without bureaucratism the different conflicts being generated with relation to the distribution, use and exploitation of water."[6] However, facing this problem in the sphere of knowledge is quite different from its practical management.[7] Therefore, in our approach, we differentiate among the following three analytical dimensions.

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1. José E. Castro, El conflicto por el agua en México: Los casos de Tuxtla Gutiérrez, Chiapas y Ciudad Juárez, Chihuahua, 1986-1991 (1992) (comparative research performed at FLACSO concerning the cities of Tuxtla Gutiérrez, Chiapas and Ciudad Juárez, Chihuahua in the period 1986-1991, which focuses on people's struggles and mobs with relation to water services); María L. Torregrossa et al., Proyecto Agua y Sociedad (1990-1994) (a set of studies performed through FLACSO-IMTA in the Valley of Mexico in the same period, addressing the contents and forms of social struggle with relation to water problems in Mexico); CNA-ADISA A.C., Proyecto para el mejoramiento de la eficiencia parcelaria para un uso más eficiente del agua (1993) (a research project centered on the modernization policies being applied in the country's ten top irrigation districts).

2. *See* SECRETARÍA DE AGRICULTURA Y RECURSOS HIDRÁULICOS, PLAN NACIONAL HIDRÁULICO 113 (1981).

> "Technically, it is a convention to define water management as that set of activities done for matching this resource's availability in quantity, quality, space and time to the growing demands linked to the development of human activities. It generally consists of regulatory activities between water users systems, and between them and hydrologic systems."

Id.

3. *See id.* at 50.

4. PRESIDENCIA DE LA REPÚBLICA MEXICANA, INICIATIVA DE LEY DE AGUAS NACIONALES vi (1992).

5. COMISIÓN NACIONAL DEL AGUA, 1 ESTRATEGIAS 1990-1994 14 (1990).

6. PRESIDENCIA DE LA REPÚBLICA MEXICANA, *supra* note 4, at ii.

7. We refer here to problems of knowledge with relation to policy analysis. *See* Douglas Torgersson, *Entre el Conocimiento y la Política: Tres Caras del Análisis de Políticas*, *in* EL ESTUDIO DE LAS POLÍTICAS PÚBLICAS 198 (Luis F. Aguilar Villanueva ed., 1992). "In a wide definition, policy analysis includes all those activities directed to developing relevant knowledge for designing and implementing public policies." *Id.*

First, a topological dimension, which we have localized as crucial in elaborating and implementing policies in the sector. We will refer to it as the complexity of the different perspectives of those intervening in this realm of public decision. We will refer as well to the intervention of certain subjects, whose perspectives model the reality in which they operate. Although they perform their intervention on the basis of non-coincident presuppositions and interests, their output (the policies already applied) must be evaluated as a whole because it directly impacts several groups of people (settlers, farmers, et cetera). We employ the concept of epistemological subjects because we conceive of them as subjects of knowledge, which intervene on the basis of a certain theory. These subjects do apply methodological strategies through which they obtain certain results: they produce measurable, controllable, and verifiable or refutable effects. These subjects may be embodied in institutions and in working teams, as well as in individuals. This is an hypothesis about the existence of bodies of knowledge; of theoretical bodies, which can be observed in action, confronting each other when operating on reality. In our research on water management, we identified at least three subjects intervening in this arena: we named them the specialist, the functionary, and the social scientist.[8]

However, we do not raise the problem of knowledge in terms of its nature—which is a philosophical issue—but in terms of its construction: who produces knowledge in this realm and how it is being produced.[9] Our hypothesis suggesting the existence of bodies of knowledge which confront each other in the processes of design, implementation, and evaluation of public policies already points to the study of this problem.

The second dimension is diachronic. We suggest that in the late 1980s, a qualitative change in the Mexican water resources' public management began. This change is part of the global state's transformation, which we suggest must be analyzed at two levels: i) the structural rupture of the previous model of state-led development built since the 1940s, and ii) the strengthening of the state control over this sector. Particularly, we focus on the processes of administrative decentralization, of territorial deconcentration, and of privatization and disincorporation of productive activities which were under the state's control. At the end of the 1980s, more precisely since the Salinas Administration took office,

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8. These subjects do not necessarily identify themselves with real individuals or institutions. Individuals and institutions are crossed by these different perspectives and we do not wish to reify these identities. We only give them a hypothetical status.

9. *Cf.* Torgersson, *supra* note 7, at 198. Traditionally, "the nature of knowledge is a permanent preoccupation" in policy analysis. *Id.* In our approach, however, the important thing is the process of producing knowledge.

a break was produced, a qualitative change of which the state's modernization policies are the clearest expression. In the particular case of water services, this process implies the transfer of management from the state towards an incremental participation of the private sector through diverse and complex mechanisms. We say incremental because there is not a simple and clear transference from the state to private subjects, but rather a gradual process with different combinations of actors, in one way or another, under an omnipresent state. What already can be clearly stated is that it is a new process in Mexico, because it breaks with traditional policies in the sector, whose main feature was the state's role of supplier, donor, and benefactor.[10]

This second dimension focuses on the moment in which substantial changes in the country's hydraulic policies began to take place. These changes are part of an historical transformation of the Mexican state, which has already been formalized in the Constitution through the reform of Article 27. This measure puts an end to the policies of land distribution and gives the formal basis for creating land and water markets through giving the ejidal and communal land, as well as water, the status of private property.[11] Paralleling this change, the state has strengthened its regulatory role through the creation of a new supervisory institution: the Comisión Nacional del Agua. These issues point to an unprecedented challenge to water management in Mexico, though we suggest they must be analyzed in the context of the current global transformation of the Mexican state.

Finally, the third dimension focuses on a relevant feature: the making of new identities expressing a process of social and political change. What we suggest is a qualitative challenge at the level of public management of water, corresponding to the emergence and/or to the expansion-consolidation of new social identities. In general, we suggest that the state's action promotes the emergence of two social forms or figures:[12] the water entrepreneur and the water customer. Although these generic forms can assume different shapes according to the resource's use, we address only the urban and rural sectors. However, while the entrepreneur shows a more homogeneous shape,[13] the

10. *See* COMISIÓN NACIONAL DEL AGUA, *supra* note 5, at 13.

11. This measure was established through the new Ley Agraria (Land Law) and Ley de Aguas Nacionales (National Water Law).

12. *See* NORBERT ELIAS, WHAT IS SOCIOLOGY? chs. 1, 3 (1978). The concept of "social form" or "social figure" refers to the webs of interdependence that people make up through their reciprocal links. This points to a higher level than that of the individual behavior, and looks for the conceptualization of the impersonal character of these links, which is partially expressed as self-regulated and self-perpetuated forms of +wman relation. *Id.*

13. The role of the entrepreneur is to produce and to distribute water, looking for the profitability of the operation with autonomy of the final use of the resource.

customer becomes more differentiated. On the one hand, we find the domestic customer, who performs a reproductive consumption of water services in the everyday private realm (he is the dweller, the settler, et cetera, in the water management jargon). On the other hand, we find the efficient producer who, himself being an entrepreneur, performs a productive consumption of water in the realm of agriculture (for him water counts as an input).

Policies are not implemented in a social vacuum: traditional policies in the water sector were the function of certain kinds of identities (the settler, the ejidatario, et cetera), which were built on the basis of a corporate relation with the state which is now undergoing a fast transformation. The new 'water policy' looks for the making or consolidation of social identities following criteria of economic rationality. Therefore, the state promotes the emergence and consolidation of the capitalist entrepreneur to perform water services management and, as its necessary counterpart, of the customer, from whom a trustworthy solvent demand of water services is expected.

THE BACKGROUND OF WATER POLICY

Because of geographical concerns and the way in which human settlements are located, extraction, processing, and distribution of water in Mexico represent an enormous challenge to the corresponding authorities. Two-thirds of Mexican territory is arid or semi-arid, while its people are distributed inversely to the available water resources:

> [M]ore than a half of the territory, located in the North and in the high plateau, has 19 percent of the country's annual average water catchment, yet it comprises two-thirds of the Mexican population, 70 percent of the industrial activity, and 40 percent of non-irrigated land. Meanwhile, the Southeast, which comprises less than a quarter of the country's total surface, with 24 percent of the total population, and where industry is just beginning to develop, 67 percent of the country's annual average water catchment occurs. Also, more than a quarter of the total population is settled in areas over 2,000 meters above sea level, where only 4 percent of the water catchment takes place. In contrast, 50 percent of the water catchment occurs in areas under 500 meters, where a similar amount of people are settled.[14]

The relevance of water management in Mexico is already reflected in the strategic status the country's Constitution gives it:

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14. PRESIDENCIA DE LA REPÚBLICA MEXICANA, *supra* note 4, at v.

> The legal framework for water management in Mexico is based on the Political Constitution, which determines that the Nation holds at any time the original water and land rights, and that, therefore, it will have the right to impose public interests over private property, as well as to regulate the exploitation of those elements suitable for appropriation, and to take care of its conservation.[15]

However, the high percentage of Mexicans who are still marginalized from access to water services represents a major problem. According to the Comisión Nacional del Agua, in 1990, 30 percent of the population still had no access to formal potable water systems and 51 percent still had no sewer connection.[16]

As Table 1 shows, people living in large cities have much better access to water and sewage systems while people living in intermediate and smaller cities are much less favored. Meanwhile, the population located in rural areas—nearly one-third of the total—is the worst affected in terms of access to water services.

Table N° 1.

Water and Sewage Systems Coverage in Mexico (1990).

	Percentage of population with Water System	Sewage System	Total Popul.
Big cities	90	73	30,000,000
Other cities	69	58	31,300,000
Rural areas	49	12	26,300,000
Total	70	49	87,600,000

Source: Comisión Nacional del Agua (1990).

The population's access to domestic water services varies widely among the federal states. Table 2 shows the percentages of dwellings without water and sewage systems by state: while in the Federal District only 6 percent of the housing units have no access to the formal water system, in southern states such as Chiapas, Tabasco, and Oaxaca, more

15. SECRETARÍA DE AGRICULTURA Y RECURSOS HIDRÁULICOS, *supra* note 2, at 113.
16. COMISIÓN NACIONAL DEL AGUA, *supra* note 5, at 28.

than 50 percent of dwellings lack this essential service. Similarly, while only 14 percent of the housing units in the Federal District are still without a sewer connection, in other states such as Oaxaca and Zacatecas, the problem affects more than 70 percent of dwellings.

The figures within cities and regions also show the presence of sharp inequalities among different social sectors and between competitive users of water: For example, industrial versus agricultural consumption of water, as well as these productive uses versus human consumption. To give an example, an industrialized city such as Tijuana, which at the beginning of the 1990s had one of the country's lowest unemployment rates (less than 2 percent), still has 47 percent of its inhabitants (a total of over 750,000) without access to drinking water and drainage systems.[17]

As far as irrigation systems are concerned, natural conditions restrain agricultural development: those areas which are suitable for farming are arid, having less than 10 percent of the available water in the country. Worse still, mismanagement in distribution networks results in the waste of more than 60 percent of water between the source and individual plots. Nevertheless, irrigated agriculture has played a central role in the country's economic development and this sector currently produces 65 percent of the total value of Mexican agricultural exports.[18] However, since the 1982 financial crisis public investment in hydraulic infrastructure has fallen sharply, limiting both extension and maintenance of irrigation systems. Furthermore, agriculture has gradually lost the characteristic dynamism it showed in the 1970s; in the late 1980s, the sector has even registered negative growth rates.

PERSPECTIVES OF THE ACTORS

Our hypothesis about the intervention of non-coincident perspectives in the process of creating and carrying out water management policies leads us to suggest the concept of epistemological subjects: the specialist, the functionary, and the social scientist.[19]

The principal example of the specialist is the hydraulic engineer. His perspective is that of one who operates directly on the order of physical-natural phenomena while holding a central position in the process of water's social management. What the specialist produces becomes input for the functionary. The specialist's diagnoses and

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17. Roberto A. Sánchez, *Equidad y eficiencia en la distribución del agua en Tijuana y su importancia en la calidad de vida*, 9 ENCUENTRO DE LA RED NACIONAL DE INVESTIGADORES URBANOS 4 (1991).

18. COMISIÓN NACIONAL DEL AGUA, *supra* note 5.

19. *See* Torgersson, *supra* note 7, at 200. "It is noticeable that the analyst's place, as a being in social interaction with others, is not included in [public policy analysis]." *Id.*

Table N° 2

Percentage of Housing Units without Water and Sewage Systems, by State (1990).

State	W/o Water	W/o Sewage	State	W/o Water	W/o Sewage
Aguascalientes	11.55	8.86	Morelos	21.81	45.35
Baja California	21.25	34.10	Nayarit	28.24	62.79
Baja California Sur	21.97	52.61	Nuevo León	12.07	30.88
Campeche	39.52	54.64	Oaxaca	54.17	71.89
Coahuila	14.52	40.85	Puebla	39.14	55.80
Colima	14.84	38.62	Querétaro	33.8	59.38
Chiapas	54.92	65.53	Quintana Roo	40.77	56.83
Chihuahua	21.39	42.75	San Luis Potosí	48.59	59.70
Distrito Federal	6.38	13.79	Sinaloa	31.92	56.73
Durango	25.96	56.25	Sonora	16.48	46.22
Guanajuato	30.21	45.87	Tabasco	57.13	51.79
Guerrero	50.61	64.97	Tamaulipas	27.57	43.48
Hidalgo	40.24	63.89	Tlaxcala	27.79	63.80
Jalisco	20.83	29.45	Veracruz	48.07	51.35
México	17.45	29.65	Yucatán	48.45	51.41
Michoacán	32.32	51.44	Zacatecas	41.82	70.31

Source: INEGI (1991).

forecasts direct investment policies in infrastructural works, and determine priorities in the manner, location, and timing in which these policies must be implemented. However, other kinds of diagnoses also arrive on the desk of the functionary, who manages a kind of information that the specialist's tools can neither process nor handle. This information does not fall within the specialist's frame of reference. Such things as "popular discontent,"[20] or "the population's social and economic characteristics," or water's "economic, social, psychological and environmental values,"[21] represent externalities to the main problem the specialist faces: water management.

The functionary operates as mediator between the specialist's technological function and the upper political and economic spheres. Therefore, the functionary currently 'translates' and 'transmits' the specialist's outputs; his 'reading' is crucial for implementing policies in this field. In fact, the functionary embodies the role of certain agencies of public administration linked to the production and maintenance of infrastructure and services which directly deal with the people's demands.

The functionary is in contact with a reality which produces high sensitivity to a certain dimension that, even yet, is still not well known: the social character of the physical-natural order.[22] In Mexico, there is

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20. However, to the functionary, this kind of problem constitutes a central dimension in his sphere of activity. This fact is currently represented in the press. *See* LA VOZ DEL SURESTE, May 10, 1986 (Tuxtla Gutiérrez, Chiapas). "[T]he manager of the Potable Water and Drainage County System, engineer . . . talking about the water supply shortcomings, admitted that . . . it is no longer possible to continue with the situation of water scarcity, and of people's discontent." *Id.*

21. *See* SECRETARÍA DE AGRICULTURA Y RECURSOS HIDRÁULICOS, *supra* note 2, at 14. "[W]ater exploitation and preservation is strongly determined by the economic, social, environmental and psychological meanings people give this element. . . . In Mexico there are regional differences because of geographical conditions as well as because of the inhabitant's social and economic characteristics. . . . These conditions determine differences in the economic, social, psychological and environmental values water acquires in each region." *Id.*

22. There is less knowledge about the social dimension of these processes than about their natural and technological dimensions. Therefore, the available background for intervention on the physical-natural aspects of water management has no correspondence in the field of this resource's social management. *See* ELIAS, *supra* note 12, at 31.

> "Nevertheless, many people today believe that it is possible to approach social problems from the standpoint of their own inborn 'rationality,' quite independent of the current state of development of social knowledge and thought, yet with the same 'objective' approach that a physicist or engineer brings to scientific or technological problems. Thus, contemporary governments commonly assert—perhaps in good faith—that they can overcome the acute social problems of their country 'rationally' or 'realistically.' In fact, however, they usually fill the gaps in our still fairly rudimentary

a noticeable sensitivity to conflicts stemming from the distribution, use, and exploitation of water. Looking at the activities of control and resolution of these 'conflicts' will allow us to observe clearly our hypothetical subjects in action. In this sense, a central point in the Plan Nacional Hidráulico (PNH) which represents what we called the specialist's perspective,[23] is the effort made towards identifying conflicts in the distribution of water to localities. More recently, the President pointed out that "the Comisión Nacional del Agua was created for channelling and solving without bureaucratism the different conflicts growing from the distribution, use, and exploitation of water . . . as the sole authority in the area."[24]

Our third 'subject,' the social scientist, is concerned with the analysis of this central problem: the water conflict. Those features the specialist considers external variables constitute central issues for the social scientist, as they are his coordinates for the observation of reality. These aspects are highly relevant for the functionary, who deals directly with these problems. In addition, the functionary frequently finds himself coming into conflict with the specialist's perspective, sometimes because the specialist's plans do not fit the real conditions he administers, and also because the specific problems they face sometimes belong to different spheres.[25] The social scientist's work is to deal with the challenge of

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> factual knowledge of the dynamics of social interweavings with dogmatic doctrines, handed-down nostrums, or considerations of short-term party interests. Taking measures mostly by chance, they remain at the mercy of events, the sequence of which governments understand as little as those they govern."

Id.

23. We say 'represents' because we do not wish to reduce the hydraulic engineer's perspective, which we consider a complex outcome of a large accumulation of knowledge and experience, to the Plan's general outline and propositions. Also, a deeper analysis of the complete set of public policy instruments in the water sector would allow us to identify non-coincident perspectives within this 'subject,' whom for our necessarily general approach we named the specialist. Anyway, at the level of analytical suggestion this paper claims, we consider that the 1981 Plan Nacional Hidráulico, which was not yet replaced, constitutes a pertinent example to build our hypothesis.

24. PRESIDENCIA DE LA REPÚBLICA MEXICANA, *supra* note 4, at ii.

25. For example, see EL DÍA, May 29, 1986 (Tuxtla Gutiérrez, Chiapas). "Tuxtla Gutiérrez does not have problems with potable water availability as it is enough even for the next thirty years, the County President declared . . ., and added that the problem of the Potable Water County System is mainly a financial one because the operation costs are higher than the incomes, which has to be with the current economic situation." *Id. See also* EL DÍA, June 23, 1988 (Tuxtla Gutiérrez, Chiapas).

> "In Tuxtla Gutiérrez, . . . everywhere one of the main demands people present to [the Candidate to the Government of Chiapas] has been that of Potable Water. This has moved him to know the problem deeper . . . which he considered the more 'sensitive and heavy' of Chiapa's problems. He

designing and implementing policies deriving from the social and political dimensions. Similarly, for the functionary those same dimensions become de facto issues with which he must deal. In addressing these issues, the functionary becomes sensitive to a variety of factors generally designated social.

However, a rigorous scientific approach to these issues, which could lead to the production of relevant knowledge for designing and carrying out policies, is not part of his specific function nor does it have relation with the 'political timing' of his taking office. Thus, the social scientist's intervention has to be with the need of understanding the social character that water management assumes and, particularly, with the generalized expression of this character: the potential conflict growing from the exploitation and distribution of this vital resource. The need for his contribution has been demonstrated by the fact that the dynamics of potential conflict have proven to be independent from the physical, natural, and technological processes which were formerly addressed as explanatory variables.

For example, the PNH puts forward forecasts about the expectation of conflicts for water in 93 Mexican cities. The empirical indicators the PNH took into account were "water availability" and "expected consumption." Thus, cities were classified from those where conflicts for water already existed, and in which more conflicts were expected in the future, to others where conflicts were not expected "until the year 2000." However, our research, which focused on two cities belonging to both extremes of the scale,[26] showed that conflicts for water were flaring up in both groups of cities.[27]

> said that in some places we can speak of piped water but never of potable water, as the majority of projects in this area are more the product of the complicity with building contractors than of the people's needs. In Tuxtla Gutiérrez alone more than 50 percent of the resource is wasted because of the deficient network of extraction and distribution in the Santo Domingo River . . . . This denounces everybody, specially those who . . . [with] their technical formation did not know how to face seriously the Potable Water problem in Tuxtla Gutiérrez."

Id.

26. The complete scale is as follows: 1) cities with current and future conflicts, 2) cities with future conflicts, 3) cities with current conflict but with alternative supply sources, 4) cities without proved underground waters but with evidence suggesting their existence, 5) cities with current conflict because of water quality, and 6) cities free of conflicts until the year 2000. *See* SECRETARÍA DE AGRICULTURA Y RECURSOS HIDRÁULICOS, *supra* note 2, at 50.

27. The study found "the existence of recurring people's actions in which water constituted, in one way or another, the element in dispute." We took national, regional, and local press reports for the cities of Tuxtla Gutiérrez, Chiapas, and Ciudad Juárez, Chihuahua, between January 1986 and December 1991. *See* Castro, *supra* note 1, at ch. 5.

Thus, potential social conflict for water is quite independent from the natural and technological conditions (water availability and the capacity to extract and process it). Moreover, the intervention of subjects who approach reality from non-coincident perspectives implies danger of creating confusion and making serious mistakes in the process of designing and carrying out policies in this field. In fact, even what these different subjects intervening in water management understand as conflict involves different dimensions of reality which are not grasped in a global form, but that are still artificially split off both in analysis and practice.

When the specialist speaks about conflict for water, his observable[28] are quantities: his key concepts—"availability," "demand," "supply," and "consumption"—point to water volumes per time units; to numerical series correlating expected population growth; quantities of cubic meters of water, tubes, energy's kilowatt hours, et cetera, which are necessary for covering the demand within a certain period of time. In this perspective, conflict is the result of the lack of expected correspondence between these variables. In fact, the forecast of conflicts for water distribution in the localities which PNH put forward was produced by calculating the relation between "natural availability of water" and "expected consumption." In those regions where expected consumption was higher than natural availability, conflicts for water were forecasted—certainly with success. This is the case of Ciudad Juárez, Chihuahua, where conflicts for water already were constant and serious throughout our whole period of study.[29] However, where expected consumption was lower than availability, "no conflicts until the year 2000" were forecast. This is the case, for example, of Tuxtla Gutiérrez, Chiapas, where, with quite precise calculations, conflicts for water were arising throughout the whole period.[30] This situation is paradoxical: the specialist's calculations were correct, though the results were not

28. The concept of 'observable' was elaborated by Jean Piaget. It means something more than 'empirical indicator,' though it is the earlier outcome in approaching reality through the scientific method. *See* JEAN PIAGET, THE GRASP OF CONCIOUSNESS 342-46 (1977). *See also* JEAN PIAGET & ROLANDO GARCÍA, PSICOGÉNESIS E HISTORIA DE LA CIENCIA ch. 9 (1982); JEAN PIAGET & ROLANDO GARCÍA, HACIA UNA LÓGICA DE SIGNIFICACIONES 148 (1989).

29. PNH considered Ciudad Juarez as "with current and future conflicts for water," similarly to all other Northern border cities. Our research showed that, in the whole period 1986-1991, water played a key role in many social and political conflicts in this city.

30. Factually, this paradox concerns the whole state of Chiapas. *See* LA VOZ DEL SURESTE, April 24, 1991 (Tuxtla Gutiérrez, Chiapas). "[T]he Manager of the state Comisión Nacional del Agua . . . pointed that, with respect to the use of potable water, from the total state's population only a half receives this benefit. He considered paradoxical the fact that, though one third of the country's surface water is concentrated in Chiapas, its exploitation is still the lower here." *Id.*

satisfactory from the point of view of global efficiency in the applied policies.[31]

For the functionary, however, conflict involves other observables: he is worried about certain dimensions of people's actions. These actions constitute a complex fabric when observed at the everyday scale, that space closer to the functionary's sphere of action. There, the population, the users, and the claimants all take concrete and differentiated forms, thus breaking the homogeneity prevailing in the specialist's perspective. While, for the specialist, the figure of the generic consumer predominates without further differentiation, for the functionary this figure splits and obtains a higher degree of complexity with relation to a certain kind of action which has been named the conflict for water. What does this conflict, which is performed by a variety of sectors of the population, consist of? It consists of a set of actions whose key objective is to access water services, although it expresses a desire for people's participation in solving their own problems.[32] As the functionary directly faces this problem, he finds himself obligated to take these people's actions into account as a determining factor in designing and implementing policies.

Among the forms taken by the population in the functionary's perspective, the irregular settler or, his opposite, the regularized settler, are the most important. The main difference between them lies in their right to access services. Yet, empirical variations were found among them in different contexts: in general those settlers who are still in irregular conditions with respect to land rights or, even more, with respect to their geographical location,[33] lack the right to access formal water services. The necessary condition for including them is to normalize their situation, which leads to a deep and complex set of social conflicts.[34] The function-

31. "Global efficiency" implies that, for the whole set of perspectives intervening in the process of design, implementation, and evaluation of policies in the water sector, the expected goals were reached.

32. This hypothesis was anticipated for several studies done within the Proyecto Agua y Sociedad (Project Water and Society), *supra* note 1, which focus on mobs in the Valley of Mexico. *See also* INSTITUTO MEXICANO DE TECNOLOGÍA DEL AGUA, 1 TENDENCIAS 1 (1991). "One of the main points of the social expressions facing water problems is the way in which people participate to satisfy their needs in this matter. Frequently, this participation appears as a conflict expressing a form of organization of social will struggling to solve a problem." *Id.*

33. This is due to the technical feasibility of providing them the service.

34. To give an example, we can quote functionaries' declarations (although they are related to the two cities our study focused on, we consider that the problem they reflect could be generalized at the country's level). *See* LA VOZ DEL SURESTE, April 21, 1991 (Tuxtla Gutiérrez) ("SMAPA's [Sistema Municipal de Agua Potable y Alcantarillado of Tuxtla Gutiérrez, Chiapas] operative manager . . . informed that almost 48,000 persons lack the service in this capital because they are located in rock areas with a very steep topography and because they have also strong problems of land tenancy."); LA VOZ DEL SURESTE, June

ary is already watchful of this kind of problem because it has direct effects at different levels of his area of responsibility: in his own management's accountability, in the electoral processes, et cetera. When the functionary thinks of conflicts, he thinks about demonstrations, about the empowerment of the political opposition on the basis of people's problems, and, in general, about the creation of new fronts for social and political protest which threaten his position as well as that of the state institutions.

Recent research on people's actions for accessing formal water services, as well as for complaining about the lack of quality service (irregularity, pollution, high prices, et cetera), has found that, throughout the country, these actions have been increasing in the last years. This is especially true for the Valley of Mexico:

> In the material registered by the press for the Federal District and the neighboring counties in the state of Mexico . . . it could be observed that . . . water is the most important mobilizing factor within the whole set of urban demands.[35]

Among the actions people take, claims and denunciations to the authorities and the press are the most common. Also, people perform

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27, 1990) ("While reporting that works to regularize the colonies in order to bring them the essential public services, a city council spokesman in this capital reported that conferring these benefits is difficult because of the proliferation of human settlements. This measure of regularization is to promote that all dwellers in the county's colonies reach documents supporting the legality of their land, and on this basis it could be possible to answer to their claim of obtaining the benefits of potable water, electricity and sewage system."); NORTE DE JUÁREZ, May 25, 1991) ("The Public Works County Direction will delimit the high parts of the peripheral colonies, to make people realize that if they live outside of the border areas, they will not have access to the more elementary services such as water and electricity . . . . Those families already located there will be asked to leave the place and to relocate in the reservation area the State Government held in the Salvarcar zone, as this will be the only alternative to supply them public services such as potable water.")

On the problem of "irregularity" in land tenancy, see also Guillermina Valdés Villalba, *Asentamientos humanos irregulares y reservas territoriales*, 1-2 CHAMIZAL 17 (1988) ("[R]esponsible for 54 percent of land urbanization are the popular organizations which begin activities and consolidate their power through land access and control. As this is the only way for wide sectors to access a plot where to build their dwelling, popular leaders become true property businessmen."). *See also* Secretaría de Desarrollo Urbano y Ecología, Plan Parcial de Crecimiento del Ejido Francisco I. Madero 1 (1986). "[I]n the period 1982-1984, a valorization of urban land took place [in Tuxtla Gutiérrez]. That increase in prices expulsed from the area the lower income social sectors and prevented the newcomers from accessing this part of the city. Facing the need of finding a place to live, this important and growing sector of homeless ['destechados'] had two alternatives: to invade the ejidos or to find a cheaper land, though not necessarily apt for urban use. Historical evidence of the Patria Nueva and Las Granjas colonies shows that the second option was selected, which strengthened the North-East sector's expansion." *Id.*

35. INSTITUTO MEXICANO DE TECNOLOGÍA DEL AGUA, *supra* note 32, at 1.

protest marches, threaten to undertake direct action of civil disobedience which may result in their occupying public buildings, closing routes, and promoting payment strikes, and many others.

To the social scientist, these actions constitute neither an external factor (as for the specialist) nor a de facto situation which must be controlled (as for the functionary). For him, these actions normally form part of the processes of confrontation and struggle which characterize that level of vital organization that is designated as belonging to the social sphere.[36] What is important for this subject is to understand that these actions, which are provisionally named as 'conflicts' in the institutional discourse, are neither an external factor nor a kind of criminal behavior. Also, he rejects that these actions could be explained by the subjectivity or will of their performers,[37] but he holds that they express the teleonomy[38] of a social system which is founded on the

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36. The social scientist, as well as the other subjects, is not an homogeneous character, but it is possible to distinguish different perspectives within him. However, we are incorporating elements which could be considered as "consolidated knowledge," already being part of the theoretical accumulation in social sciences. For this subject, "society," "population," and so on, are abstractions of little utility in designing and applying concrete policies. In place of presupposing an homogeneous perspective of the human species, the accumulated knowledge suggests that he observes certain cuts, certain heterogeneities, and vital differentiations within the species. These features express themselves through a dynamic of confrontation and struggle that leads to the hypothesis that the human species is more a project than a reality. To put it in the words of a scholar of confrontation in different animal species: "It does not require very great optimism to assume that from us human beings something better and higher may evolve . . . I believe . . . that the long-sought missing link between animals and the really humane being is ourselves!" KONRAD LORENZ, ON AGGRESSION 197 (1966).

37. In this field, there is a common basis of accumulated knowledge within Social Sciences. To mention only the classics, we remember with Durkheim that "the social fact exists separately from its individual effects." EMILE DURKHEIM, THE RULES OF SOCIOLOGICAL METHOD 55 (1982). Also, Weber declared that: "Not every kind of action, even of overt action, is 'social' . . . . Not every type of contact of human beings has a social character; this is rather confined to cases where the actor's behavior is meaningfully oriented to that of others." MAX WEBER, ECONOMY AND SOCIETY 22, 23 (1978). Finally, referring to the arena of commodities circulation, Marx described "a whole network of social relations spontaneous in their growth and entirely beyond the control of the actors." KARL MARX, CAPITAL 86 (1946). These three authors had different perspectives and faced different problems of knowledge. However, they contributed to identify that the 'social dimension' neither can be reduced, on the one hand, to the objective processes which are external to the individuals (Weber) nor, on the other hand, to the particular wills and behaviors of those individuals (Marx and Durkheim).

38. This concept was developed by Jacques Monod, with reference to what he named "the autonomous determinism" which characterizes the living beings and that is manifested in "all the structures, all the performances, all the activities leading to the success of the essential project (the conservation and multiplication of the species)." The concept expresses the "necessity" with which man's evolutive processes are self-imposed ("the teleonomic project"), while it incorporates the "hazard" element as the "absolute but blind freedom"

reproduction of social relations through the inclusion and exclusion of individuals from a socially accepted way of life.

These different perspectives, already present in the process of design, implementation, and evaluation of policies in the water sector, also express a confrontation within the water management institutions.[39] Although the dominant perspectives within water institutions are those of specialists and functionaries, the increasing emergence of social conflict over water has led to the contracting of social scientists by these institutions. In this context, social scientists struggle to give the sector's policies a global approach to the factors and dimensions already present in water management.

DECENTRALIZATION AND MODERNIZATION: CHANGES IN THE PUBLIC MANAGEMENT OF WATER

As pointed out above, the reform of the system of water management needs to be seen in the overall context of reform of the state in Mexico and in the particular form and logic which this has taken. The rupture of the previous model of state-led development is not being replaced with a non-interventionist state, but rather with one concerned with increasing its powers of regulation and control of the private sector and with making the public administration efficient. This, then, is what is meant by modernization of the state in Mexico. Although these factors are integral to the process, analytically we differentiate between rupture of the previous model on the one hand, and strengthening of state power on the other.

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which leads the autonomous and spontaneous character of the living beings. Furthermore, this concept provides distance from the teleological approach that has dominated within Social Sciences. JACQUES MONOD, CHANCE AND NECESSITY: AN ESSAY ON THE NATURAL PHILOSOPHY OF MODERN BIOLOGY (Collins, 1972).

39. We do not refer here to that kind of confrontation which is the object of the traditional study of "public policies," and which some authors name "the political context." *See* Torgersson, *supra* note 7, at 206, 217 (this author refers, among other things, to the fact that "public policy promoters can well represent competing interests." There, the object of analysis are "vested interests" and "political loyalties," and the proposal is to bring "those interests to the public light, openly, preventing those initiatives of being clandestinely carried out."). Rather, our object points to another level of analysis, which obviously does not replace the former. We distinguish between: a) the clash of interests within each public management sector, which involves distribution of resources and the evaluation of "the side effects and non-intentional consequences" of policy-making (traditional object); and b) the confrontation in the realm of knowledge, which involves the action of what we named "epistemological subjects," whose perspectives cut different dimensions of reality while they perform the design, implementation, and evaluation of public policies in this sector (object we refer to).

Perhaps the first dimension is better known in the academic world as the crisis of the Welfare State. In fact, a large part of the academic discussion in the United States and Europe since the late 1970s has focused on this issue. The economic aspect of the so-called "crisis" was the dominant feature in this debate, and the disintegration of the post-war monetary system, the United States' loss of its international economic hegemony, and the expansion of the developing countries' external debt were among the main issues being addressed. In addition, the issue of the reform of the state as the answer to the crisis became a central matter for many scholars. As a result of this, in our opinion, a kind of image has been generalized according to which, on the one hand, the state would be shrunk and dismantled, while, on the other hand, the role of civil society would grow in importance and would assume functions and roles that were formerly monopolized by the state. This image is currently associated with the processes of state decentralization, as well as with those of deregulation and privatization of state agencies.

The recent debate has also incorporated another dimension of state development: the growing "globalization," the internationalization of decisions and processes, and the increasing interdependence between countries which creates very different conditions from those of former decades. These references give ground to a second image that has also been generalized in the literature. The nation states have become superseded by the dynamics of private agents' interrelations, and by the supranational agencies' activities which have the capacity to induce and even impose decisions over matters affecting the sovereignty of particular states. This second image expresses what could be understood as the weakening of the state presence and authority within a growing global and interacting society.

Focusing on the Mexican experience in this matter, we found that one strategic axis in the public policies being implemented as a reaction to the crisis has been decentralization, which is also a part of the wider issue of the reform of the state.[40] Decentralization policies began to be discussed in Mexico in the 1960s. However, even though the problems which the issue raised were acknowledged so early, it seems clear from

40. Among other examples, see Manuel Camacho Solís, *Presentación, in* DESCENTRALIZATION Y DEMOCRACIA EN MÉXICO 20 (Blanca Torres ed., 1986). "In Mexico, decentralization is a requisite for state modernization. In the political aspect, the international circumstances the country faces permanently, and the need of integrating such a complex society, as well as of facing the requirements for fast economic transformation, demand a national leading of the development process. However, this necessary concentration of power, which allows to preserve the fundamental outlines of the national project (sovereignty, freedom and social rights) as well as to avoid the pulverization of efforts and the dispersion of resources, wants to be combined with the strengthening of democracy and with the improvement of the mechanisms of political participation." *Id.*

the analysis of projects and policies already implemented that the main problem, excessive centralization, and the complexity of decentralization, were not well identified until very recently. Particularly, we refer to the confusion between the concepts of decentralization and deconcentration, which are quite different processes but were not clearly specified within the public policies' field until the late 1980s.[41]

Until the mid 1980s, the term 'decentralization' referred mainly to the processes of territorial deconcentration of industries, human settlements, et cetera. That was the basic problem Mexican planners faced, since they were not concerned with what is understood today as decentralization of power, which affects the realm of decisions. The period 1976-1982 found the country on the way to what, for many, was the worst crisis in its whole history. Decentralization, after becoming an important issue, temporarily lost its importance. At that moment, the urgent goal became to promote economic growth while a series of development plans were implemented with the objective of stopping the excessive concentration in the country's main urban centers. One main initiative was the 1978 Plan Nacional de Desarrollo Urbano, which intended to stop the growth of the three great Mexican metropolises, the Valley of Mexico, Guadalajara and Monterrey, as well as to stimulate development in the intermediate cities. Also, the 1979 Plan Nacional de Desarrollo Industrial had the main goals of creating massive employment, increasing GDP, and producing a minimum level of social welfare while reducing the industrial concentration in the Valley of Mexico from 50

41. Since the mid-1980s, we found references to this confusion, as well as a clearer perspective within the industrial bourgeoisie than in the sphere of public decisions. *See* Carlos Bustamante Lemus & Javier Delgadillo Macías, *Terremoto y decentralización: Oportunidad para un nuevo proyecto nacional*, 16 PROBLEMAS DEL DESARROLLO, REVISTA LATINOAMERICANA DE ECONOMÍA 62, 63, 76-77 (1985). "[W]e observe that, while decentralization has not necessarily a spatial or a territorial link but rather a qualitative one, deconcentration obligatorily does. Although both concepts have been undifferentiated within the political environment of the last 15 years, their background is highly differentiated and involves diverse complexities." *Id. See also* 17-428 EXPANSIÓN 83-85 (1985). Jorge Kahwagi Gastine, Cámara Nacional de la Industria de Transformación (CANACINTRA) vice-president, commented: "It worries me that this conjuncture leads to take emotional decisions, and that it is spoken of decentralizing only because buildings and people are being moved to other areas. They will not deconcentrate; by the opposite, they will move the whole problem to other places." *Id.* According to Kahwagi, "centralization is a form of state administrative organization where the organs [are] concentrate[d and] articulated in a hierarchical order which depends on the central power. It has a variety—deconcentration—characterized because it is not separated from the center, but the latter gives certain faculties to the organs for action and decision. Decentralization is another variety, through which legal faculties are given to a person to administrate public businesses, without leaving the governmental reglementation. There are several forms, by services and by regions or territories. When they currently talk of decentralization—he concludes—they refer to deconcentration." *Id.*

percent to 40 percent by the year 1982.[42] However, these strategies proved no more effective at reaching the desired goals than previous policies.

In the following presidential term of Miguel de la Madrid (1982-1988), decentralization programs received a further boost. Furthermore, the 1985 earthquake and the growing awareness of environmental pollution in the Valley of Mexico strengthened the debate.[43] While the more traditional industrial sector was still supporting decentralization of the state apparatus rather than of industry, other sectors were demanding a clearer governmental project concerning a hierarchy of priorities and the making of structural conditions for industrial decentralization. Once again, failures in the final implementation impeded real advances in tackling the problem. Thus, the trend towards concentration in the country's three main urban centers continued as before.

The period from 1988, as we indicated, showed a qualitative change of unprecedented proportions. The country's modernization became the top priority and the orientation—no longer the amount—of public expenditure became the key factor in prioritizing the strategic economic areas and in promoting decentralization. Precisely, decentralization of decision making took a key place in the modernization program,[44] including the geographical deconcentration of productive activities. We suggest that it was only in this stage that a clear differentiation between territorial deconcentration and decentralization processes appears to have been reached by official planners.

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42. In addition, the Plan Nacional Hidráulico was presented by the Secretaría de Agricultura y Recursos Hidráulicos (SARH) through the Comisión del Plan Nacional Hidráulico.

43. It is interesting to revise the discussion in this period because the issue of decentralization became a central matter for a sector of industry. The journal Expansión clearly reflects the dominance of this problem since the earthquakes by publishing a series of passionate articles between May and November, 1985, though it stopped the discussion and did not raise it again. *See* 17-426 Expansión 26-30 (1985). Cámara Nacional de la Industria de la Transformación (CANACINTRA) president, Ing. Carlos Mireles García, showed willingness of taking advantage of the earthquake's tragic conjuncture to initiate what he named 'a true structural change,' by implementing decentralization both in the productive as well as in the governmental sectors. . . . Mireles also stated that, even with the fiscal and financial stimulus, it will be necessary to create an industrial and communications infrastructure to allow a favorable moving of enterprises. "Part of the national budget should be dedicated to remodel railways and routes as well as to complete such development areas as Salinas Cruz or Lázaro Cárdenas." CANACINTRA's president acknowledged that, in the case of a lack of financial resources to promote this expensive transformation, the enterprises will not be able to face this new stage adequately because a political decentralization should correspond to the industrial decentralization. *Id.*

44. In the water services sector, in 1989, the Comisión Nacional del Agua was created. It is said to be the only authority in this matter.

DECENTRALIZING WATER MANAGEMENT

In the early 1980s, the Plan Nacional Hidráulico considered the implementation of an institutional system for water management to face the growing regional problems. Thereafter, a series of regulations were formulated with the goal of implementing the 1972 Ley Federal de Aguas through conferring concessions to individuals and other private agents for water management.

PNH was oriented to promote:

> The application of the following policy: to improve the resource's administration through maintaining the responsibility of integral water management within only one agency, while creating integrated regional systems for water administration, especially in the Valley of Mexico and in the Río Lerma's basin. This policy is founded on the technical advantages represented by, on the one hand, basin- oriented water management through locally designed administrative systems, while, on the other hand, impulse to a wider user's participation in solving their common problems is being given.[45]

In fact, conflicts for water increased in the following period as PNH already anticipated. It was the effect of a set of problems such as the over-exploitation of aquifers, increasing pollution of water sources, permanent growth of great urban centers, et cetera. However, in its strategic evaluation of water policies, the new Administration blamed the national water system's inefficiency for what it called "a firmly rooted culture of dependency within which the government has played, because it was expected, a paternalistic role: of supplier, donor, benefactor."[46] In the same analysis, it was pointed out as well that "economic crisis has caused this paternalistic role no longer to be feasible and, in consequence, a new relation between Government and Society must be created to reach a wider co-responsibility in solving problems."[47]

The economic crisis which began in the late 1970s affected the more diverse aspects of public management and, in the particular case of water services it was diagnosed that:

> [T]he cause and origin of the general deterioration of the operative agencies is the low income for water and sewage services. This scarce income is caused both by a very ineffi-

45. SECRETARÍA DE AGRICULTURA Y RECURSOS HIDRÁULICOS, *supra* note 2, at 117.
46. COMISIÓN NACIONAL DEL AGUA, *supra* note 5, at 13.
47. *Id.* at 14.

> cient collection system and by low tariffs. Even large consumers are, frequently, exempted from payment.[48]

To deal with this problem, the modification or even the elimination and replacement of the current water management systems began. One of these mechanisms was the transference of the potable water and drainage systems, which were originally under the authority of the Secretaría de Recursos Hidráulicos (SARH) and the Secretaría de Asentamientos Humanos y Obras Públicas (SAHOP), to state and county boards:

> [S]ince 1980, these systems have been given to state and county operative agencies and a financial decentralization, which began in 1976, was being applied as well. . . . . In general, the outcome of this policy of administrative and financial decentralization has been the decrease of state resources for potable water and sewage. This decrease has not been compensated by credit operations, which has produced the decrease of the total resources being allocated for water services.[49]

Decrease of these resources, however, did not occur evenly across Mexican cities:

> [W]hile in the more important metropolitan areas of the country the percentage of population covered was stable between 1980 and 1987, in the intermediate cities, coverage dropped from 86 percent in 1975 to 83 percent in 1987 for water supply and from 75 percent to 68 percent for the sewage service.[50]

As noted above, in the late 1980s, a qualitative change began to take place in Mexico through the process of 'reform of the state.' In the water sector, we pointed to the creation in 1989 of the Comisión Nacional del Agua (CNA) to concentrate the control over all of the national water services. This gave the state a regulatory role to "guarantee equity and justice conditions in the use of a National inheritance."[51]

A central goal in this new stage became the implementation of "a real decentralization policy in the water services which determined that

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48. *Id.* at 30.

49. María Luisa Torregrossa, Proyecto Agua y Sociedad, Primer Informe del Apartado Referente a Dimensiones Macroestructurales 54, 55 (1990).

50. *Id.* at 56 n. 83.

51. COMISIÓN NACIONAL DEL AGUA, *supra* note 5, at 1.

in May, 1990, the Programa Nacional del Agua Potable, Alcantarillado y Saneamiento were started."[52]

As a consequence, the decentralization process in the urban environment was reinforced through the already existing state and county operative agencies, which were characterized by both administrative autonomy and the goal of reaching financial self-sufficiency.[53] In the case of rural areas, the corresponding process is the transference to the users of the water network management in the country's 78 irrigation districts. The policy consists of promoting the formation of users associations within the districts, with CNA providing technical advice. These associations became responsible for the administration of the water network: distribution, maintenance of infrastructure, collection of the user's payments, payment of canon rights, et cetera. They are expected to operate as truly autonomous and self-financed enterprises.

The process of transfer of irrigation districts accelerated in 1992, when 900,000 hectares were transferred to 190 users' associations in 27 irrigation districts, bringing the total to 1,500,000 hectares since this policy was first applied in 1990. The process continued, and by May, 1994, a total surface area of almost 2,400,000 hectares had been transferred to more than 300,000 users, organized in more than 300 civil associations. A total of 38 irrigation districts were completely transferred, while another 16 were partially transferred.

However, the success of the transference policies is strongly dependent on their application in those regions where the service is linked to a process of valorization.[54] The country's Northern and Northeastern regions have, from this point of view, the best conditions, and it was not accidental that the first successful case of transference had occurred in this area.[55] There, the agro-industrial and maquiladora sectors prosper, as they are linked to the North American sources of finance and markets. In sharp contrast with this, other regions show serious problems for applying these policies. They lack the economic base as well as the shared interests with the international markets, particularly those in the United States. As an official report stated:

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52. COMISIÓN NACIONAL DEL AGUA, DESARROLLO DE LA CAPACIDAD DEL SECTOR AGUA (DECSAGUA) 18 (1992).

53. By June, 1992, 300 decentralized state and county operative agencies [] exist[ed] as a result of actions developed by CNA. *Id.* at 18.

54. The service's management self-sufficiency is closely related to the rentability of those activities in which water constitutes an input. Therefore, efficiency in the use of irrigation water and productivity are two complex aspects intervening in this matter. Those regions and sectors which hold adequate productivity levels, that have access to financial support and markets, et cetera, are suitable for initiating the process with higher chances of success.

55. The first successful case of transference occurred in the Valley of El Carrizo, state of Sinaloa.

> [T]he irrigation districts are classified in three groups. The first has 17 irrigation districts covering a surface of 411,000 hectares ([almost all] located [] in the Mexican Southeast), where users do not exploit completely the infrastructure, sometimes because of the lack of complementary works whose construction demands relatively low investment, and sometimes because of institutional, legal, and social problems . . . . A second group consists of 40 irrigation districts with 834,000 hectares (almost [all] in the central area), which present great delays in the infrastructure maintenance. . . . . The rest of districts, with a total surface of 1,907,000 hectares (mainly in the North and Northeast) are sufficiently developed and they require low investment for their modernization.[56]

This set of policies which has been implemented or accelerated in the water sector expresses what we named an important qualitative change. However, the package was completed through a series of unprecedented legal changes, operative beginning in 1992: a) reforms to Article 27 of the Constitution, with the object of, on the one hand, promoting the creation of land markets giving the former ejido as well as the communal land the character of private property, allowing the owner to freely decide its use, while, on the other hand, stopping land distribution; b) the new Ley Agraria, which implements the above mentioned reforms; and c) the new Ley de Aguas Nacionales, which gives water the same mobility as land for agricultural purposes and establishes the basis for introducing market mechanisms for circulating water rights.[57]

The above analysis amounts to our perspective that observation of the water services sector in Mexico allows us to register enough empirical indicators of the double movement that characterizes the current transformation of the state. The originality of the Mexican process of reform and fast change, named modernization, has made it an international model. It is of greater importance to consider this second aspect through which society will be re-appropriating functions formerly monopolized by the state, as the rupture of the previous model has not meant the replacement of public management by private agencies. On the contrary, we foresee an active state promoting the formation and reproduction of management capacities over which it begins to exercise a qualitatively increasing power:

> The Mexican water sector faces a political time of great relevance as the President of the Republic himself considers as

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56. COMISIÓN NACIONAL DEL AGUA, *supra* note 52, at 16.

57. PRESIDENCIA DE LA REPÚBLICA MEXICANA, *supra* note 4, at xii, xiii.

> a priority attending those problems concerning its development. With the recent creation of the Secretaría de Desarrollo Social and the modifications to the SARH's internal regulations, CNA is strengthened as the only water authority . . . revitalizing the State's leading role and widening the population's active participation in solving problems.[58]

THE "SUBJECTS" OF THE NEW WATER POLICY

Earlier, we pointed out that the qualitative change being produced in the state realm corresponds to the emergence and consolidation of certain social figures which we named the water entrepreneur and the water customer.[59] Moreover, the status of water services is changing: they must cease to be a gift or benefit from the state; rather their production must become a profitable economic activity. Water must be considered a commodity. Thus, water supply must no longer remain in hands of a paternalistic state which offers the service under the form of a subsidy or a donation, but rather in the hands of private enterprises applying criteria of economic efficiency. Whether public or private, the new water management agencies must adopt commercial practices, so the total cost of producing these services should be covered through adequate prices.[60]

The impact which these policies could reach is of some magnitude. In 1988, for example, users in the irrigation districts "covered on average only 30 percent of the operation and maintenance costs."[61] Also, in the sector of urban water, tariffs are considered to be insufficient, and "they vary from 9,920 pesos per cubic meter in Zacatecas to 58 pesos in

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58. COMISIÓN NACIONAL DEL AGUA, *supra* note 52, at 24.

59. Already, the modernizing state seeks "to promote, with decentralizing criteria, the creation of financially healthy and autonomous enterprises to improve the performance in the potable water and sewage systems in the cities, as well as the water service in the irrigation districts. . . . The constitution of enterprises to manage the water service is a fundamental tool to reach the rational exploitation of hydraulic resources . . . . Under this new view, water services both in the countryside and the city are offered in an autonomous and self-financed way: users pay for the services they receive, which should cover the whole cost of producing them, and, if it is appropriate, they also participate in directly financing those actions directed to improve the quality and extension of these services or in refunding those credits that could be contracted. . . . It is foreseeable that the degree of development of some sectors of the population will limit their credit-worthiness; in these conditions, financial policies will be designed in the context of such programmes as the Programa Nacional de Solidaridad which have clearly defined goals to promote wealth distribution as well as social and economic development." COMISIÓN NACIONAL DEL AGUA, *supra* note 5, at 10-17.

60. *Id.* at 15.

61. COMISIÓN NACIONAL DEL AGUA, *supra* note 5, at 16.

certain towns of the state of Tabasco."[62] Through the model of entrepreneurial management, it is expected not only to recover costs, but also to generate conditions for expanding water services in facing future demand. This implies the transformation of consumers—until very recently, recipients of the public donation of water supply—into creditworthy customers. To put it in other words, they should be able to pay "the true social value and cost of water."[63] The authorities have termed this process of creating new social identities as "the birth of a new water culture" in Mexico.[64]

CONCLUSIONS

An evaluation of the impact of these policies should focus on the extent to which their initial objectives are being fulfilled: a) to supply the increasing demand of water services; b) to achieve self-financing in the sector; and c) to solve the conflicts arising around water services.

The effort to solve the complex problem of water management has led to a huge process of social and political change in the country. This is probably more evident in the rural areas, as the transference of irrigation districts implies a break with the traditional management model based on corporate links in which the figure of *cacique or caudillo* played the role of mediator between the central power and the user.[65] The displacement of the local or regional *caudillo* for the enterprise—the users' association—abruptly modifies a complex net of power relations built around water management. The reconstitution of this net of relations between the central power and the final consumer is a key issue within the current process of modernization. To transform water's status as a "public good" to a "commodity" implies the radical transformation of the key social relations on which the agrarian model was built.

However, we want to address another question concerning the extent to which this new model can be expanded. To put it in other words, whether many Mexicans will match the identity of the trustworthy customer who is able to generate and to sustain the demand of water services on the basis of paying the real water cost. For example, is

62. COMISIÓN NACIONAL DEL AGUA, *supra* note 52, at 18.

63. PRESIDENCIA DE LA REPÚBLICA MEXICANA, *supra* note 4, at vii.

64. *Id.* at ii.

65. *Caudillos and caciques* are key characters in the Mexican structure of power. Although their importance has weakened since the revolution began to be institutionalized in the late 1930s, they are still an important factor of power at the regional and local levels, particularly in the most impoverished states. *See* PABLO GONZÁLEZ CASANOVA, LA DEMOCRACIA EN MÉXICO (1993). *See also* Eric R. Wolf & Edward C. Hansen, *Caudillo Politics: A Structural Analysis*, 9 COMP. STUD. SOC'Y & HIST. 168-79 (1966-67).

it possible to extend this identity to the whole group of rural producers? If not, how do we incorporate those sectors whose economic situation pushes them out of the reach of this model? What chance does the Programa Nacional de Solidaridad (PRONASOL) have to incorporate these sectors?

Furthermore, the openness of the Mexican market to competition with American products leaves Mexican farmers with a stark choice: produce at international competitive prices or stop farming. Within the new legal framework, the second option carries the possibility of massive and definitive abandonment of land by those ejidatarios and small landowners who do not have the means to become trustworthy customers and risk entrepreneurs.

In the urban areas, the most important problem is to expand water and sewage systems to reach the entire population as well as to improve the quality of the current services. Here, too, it is questionable to what extent the former users can be transformed into trustworthy customers who are able to support the profitability of producing these services. Also, another issue to take into account is that the users' identity, in the case of settlers, is directly linked to the land rights status, which generates the problem of how to incorporate the large number of people currently in the condition of irregularity. Such programs as PRONASOL are directed to address this problem, but the extent to which they are able should be evaluated carefully, as the number of people who do not have access to these services is still very sizeable.

From the point of view of the supply of these services, the transformations already begun through the decentralization-modernization policies clearly show an historical rupture. It could be interesting to explore the hypothesis that these transformations mean irreversible changes, especially with regard to the creation of new social identities and relations. Focusing on the level of the nation state, these changes mean the demise of a series of state mechanisms and operations. The donor state was based on corporate links with the peasant and the worker. Now, in the new model, the state withdraws its former responsibility as manager and producer of services, and seeks to concentrate on regulating the private sector. The main problem is that these private agents do not exist to the extent the model requires, and therefore they want to be created contemporaneous with the implementation of the model itself. In consequence, these policies explicitly seek to create or to consolidate the required social identities: the capitalist entrepreneur and the trustworthy customer. Thus, the modernizing state is already a founder state.

The policies' strategy is oriented to face the problems we described in the introduction: to expand water supply with adequate quality, and to reach self-sufficiency in the water management agencies.

The third aspect, the resolution of conflicts with the population, is, to a certain degree, dependent on the first one: conflicts flare up with the service's shortcomings or failures. However, it is not possible to explain people's responses by only focusing on the technological and political-administrative dimensions of the problem. Prediction and control of conflicts for water centering only on these dimensions have had disappointing results. Therefore, the improvement of skills in the area of design, implementation, and evaluation of policies in the water sector should incorporate the analysis of the different perspectives intervening in this area of public management. In this way, it will be possible to avoid the explanation of complex sets of problems through more reductionist approaches based solely on physical/geographical and administrative criteria.

Incorporation of the social dimension into the analysis should enable understanding that popular responses, which the government conceptualizes as conflicts, should play a central role in policy analysis since they anticipate those problems demanding action from the relevant authorities. Also, promotion of certain types of social identities necessary to the new model does not occur in the social vacuum, nor is it possible to extend the model into the whole population—certainly not rapidly. Then too, the problem of "the degree of development of certain sectors of the population"[66] remains a strong obstacle to incorporating them into the system. It is clear as well that such policies as PRONASOL can only partially redress this situation. Consequently, we think that the following issues should be addressed: 1) identification of the social identities expressed in the marginalized sectors of the population; 2) whether alternative models incorporating the marginalized sectors exist; and 3) whether it is possible to avoid both the models of economic efficiency—unsuitable for those sectors—and of public donation.

The analysis of water policies should investigate these issues in depth in order to offer an accurate evaluation of their results, as well as to promote a positive direction to reach the proposed goals.

66. COMISIÓN NACIONAL DEL AGUA, *supra* note 5, at 17.