Chapter 3
Water Policy and Institutions

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Abstract This chapter exhibits Mexican legislation on the subject of use and exploitation of Mexican water resources at the different government tiers and bodies, and lays out a scheme of water policy based on its main instrument, the *Plan Nacional Hídrico* (National Water Plan), in which the water management by basin and the social participation in decision making, the latter a more expositive principle than real. In spite of the fact that Mexico has a reasonably adequate legal framework on water subjects, with a set of institutions, among which Conagua stands out, and a water policy whose instruments have diversified, water management presents a series of problems such as a lack of long-term view, a bias toward farming water use, and the development of hydro-agricultural infrastructure and budget allocation that neglects sanitation, sewage, and water quality needs.

Keywords Regulatory framework · Institutions · Water management

3.1 Water Legal Framework and Institutions

According to Article 27 of the Political Constitution of the United Mexican States, the property of waters found within the national territory corresponds originally to the nation, which has the right to regulate its exploitation and transfer its control to particulars. Water use and exploitation is done through concessions granted by the Executive Branch of the Federal Governments.

According to the National Water Law (NWL) of 1992, modified in 2004, water is a public good, a strategic resource whose management is a national security issue (Article 14). Since 1994, the Federal Executive Branch exercises water authority and administration through the National Water Commission (Spanish Acronym: Conagua), a decentralized agency of the Secretariat of Environment and Natural Resources (Spanish acronym: Semarnat).

The Federation norms, plans, manages, and operates the resource water and the municipalities are responsible for administering potable water services, sewage, and treating residual waters (Constitution, art. 115-I). The Federation collects the rights for water exploitation and wastewaters disposal, as well as fines and late fees

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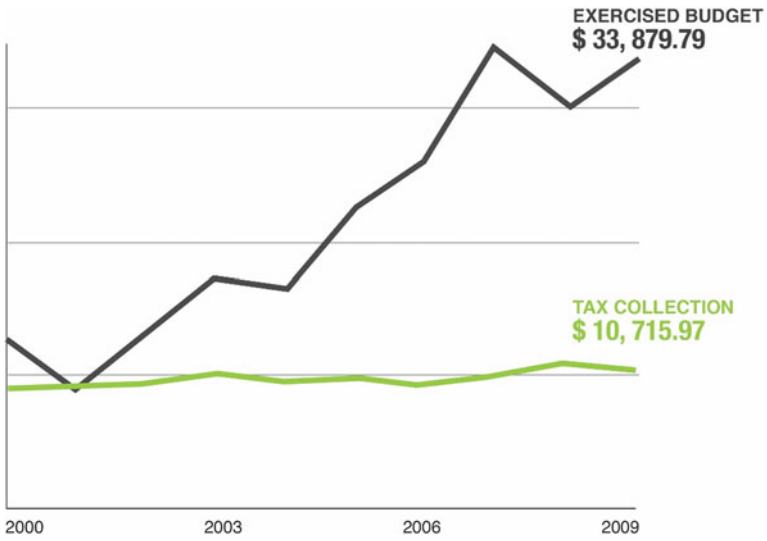

Fig. 3.1 Tax collection and budget spent by the national water commission. *Source* Conagua 2011

generated by the former concepts. This collection (Fig. 3.1) comes from only 5 % of water users due to a generalized no payment culture and many operating organizations—especially in those states where the resource is scarce and has a high cost—do not pay the corresponding fees. Low income, derived from insufficient tariffs and scarce payment, generate a perverse circle in which users do not pay for the service because they consider it unfit and operating agencies do not offer a better service because of the lack of payment. Exploitation oriented to farming use (78 % of the extracted water) are not the subject of payment (Guerrero 2004: 31–46).

The 2002 reforms of the NWL included the world tendencies in water management: the basin as the management unit, payment for water consumption, the principle that "he who pollutes has to pay," the acknowledgment that there is a need for integral and integrated water management, social participation in management, and decision making at the level problems present themselves. Progress has been made regarding federalism, decentralization, and administrative disaggregation; some responsibilities were delegated to states and municipalities and there is a possibility to establish coordination agreements for solution of specific issues (Carabias/Landa 2005). But municipalities were not given the necessary resources to fulfill their new responsibilities.

Conagua does not only exercise water authority and management, it also takes actions on the vigilance over the resource that are not included in the responsibilities of the Federal Attorneys Office for the Protection of the Environment (Spanish acronym: Profepa), which is in charge of watching over maritime resources, federal sea–land zones and maritime waters, leaving underground and surface waters supervision to the Conagua.

State offices, whose jurisdiction are state waters less important than federal waters, were added to the federal structure for water management represented by Conagua. Thus, every state of the federation, as well as the Federal District, has a state water commission regulated by a state water law.

The provision of potable water, sewage, and wastewater treatment services is carried out through operational agencies,[1] 2,517 units in 2008 (INEGI 2011) that can be public or private and are mostly located in urban areas.

To the end of water management, Mexico is divided into 13 hydrologic-administrative regions (HAR); each of these has a basin agency (BA) reporting to Conagua's general director, and has the same functions as Conagua, only at a regional level. The BA are formed by a general director, an advisory council, a representative from the state's Federal Branch and another one from the municipalities within the BA's jurisdiction, as well as a users' representative.

In a parallel way and not subordinated to the structure integrated by Conagua, the BA, and the state commissions, there are other agencies called basin councils (BC), with a mixed integration and that have coordination, agreement, support, consulting, and advisory functions they display between government structures (Conagua, water federal, state or municipal agencies and entities) and the HAR's users' representatives or organizations. The BC work as a General Assembly of Users, a Directive Committee, an Operation and Vigilance Commission, and an Operative Management office. They are supported by basin commissions (in subbasins or groups of subbasins), basin committees (micro basins or groups of micro basins), and the technical committees of underground waters (TCUW).

In the organizational structure of water management (Fig. 3.2), we can observe that Conagua is attached to Semarnat, of which it accounts for nearly 70 % of its budget. On the other hand, directly subordinated to the director of Conagua we have the National Meteorological Service (Spanish acronym SMN), a specialized autonomous technical unit, and the Mexican Institute of Water Technology (Spanish acronym: IMTA), a decentralized public organization that is the first technological advisor to Conagua.

3.2 Water Policy

The Head of the Semarnat submits a proposal for the national water policy and the *National Hydric Plan* formulated, updated, and watched over by Conagua, to the Executive Branch of the Federal Government (NWL, Articles 8 and 9). According to the NWL (Articles 14 BIS, 5 and 6), water policy and program are based upon a series of basic principles among which the most important ones are: (a) water is a

[1]Operating agencies are usually part of municipal governments and are represented by potable water and sanitation commissions and offices, or decentralized water systems. They also operate as local water users committees or associations, and, less frequently, as private enterprises with concessions (INEGI 2011).

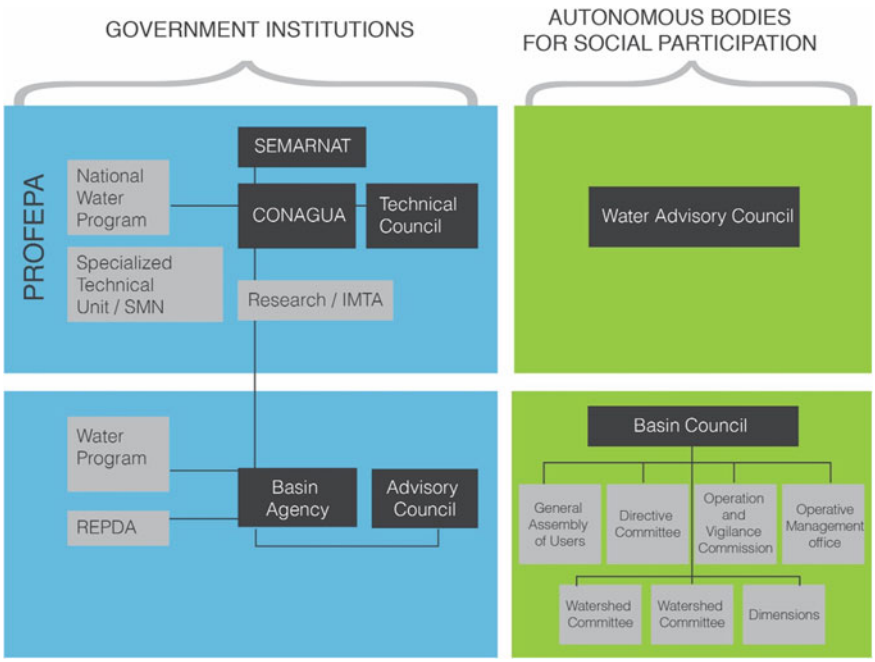

Fig. 3.2 Organizational structure of water management. *Source* Own elaboration with information from Conagua

public, vital, vulnerable, and finite resource, with social, environmental, and economic value, the preservation of which is a matter of national security; (b) attention to marginalized population; (c) payment for water exploitation or use; and (d) domestic and public uses are a priority (Annex 3.1).

According to that same Article in the NWL, water policy and program are also supported by eight instruments, among which we find: (a) water planning at the different geographical levels; (b) concessions, assignments, and permissions rules; (c) the collection of fees; and (d) the social supports for access to water and sanitation (Annex 3.2).

Water planning, the main instrument of water policy and program, contains nine elements, of which the most important one is the *National Water Program*. Water programs at different space levels: basin, state, aquifer; special and emerging programs, subregional programs by BCs' Advisory Councils (Article 12 bis 6 of the NWL), and so on, are also part of this planning (Annex 3.3).

BCs, in coordination with BAs, propose to Conagua the preference order for water uses, in which, in accordance to water policy, domestic and urban public use are given prioritized. In Article 15 transitory of the NWL, there appears a preference order that aggregates livestock and agricultural use as priorities (Annex 3.4).

The *National Water Program 2007–2012* (NWP 07-12) had water management by hydrological basin and social participation in decision making as basic

principles. The NWP 07-12 included eight guiding objectives (Annex 3.5), from which water productivity in agriculture occupies the first place, a place that does not correspond to the preference of uses established in the National Water Law itself.

There is a set of strategies for each of the eight guiding objectives of the NWP 07-12, with its accompanying indicators and goals; in spite of that, the *National Water Program* is still a very general instrument not specifying economic sectors, geographical spaces of specific instruments for the achievement of its objectives, and implementation of its strategies.

At the most disaggregate level of water policy, there is a set of Mexican Official Norms (Spanish acronym: NOM) which are mandatory on the subject of environment and natural resources.[2] On the subject of water, Semarnat has issued seven NOM. Three of them about water quality; directly, Conagua has issued 14 and the group of the Secretariat of Health, 6. Additionally, six Mexican Norms (Spanish acronym: NMX) of voluntary observance, have been published in order to regulate varied aspects related to water.

The *2030 Water Agenda* elaborated by Conagua in March 2011, including 13 technical studies analyzing alternatives for sustainable water use by 2030, was added to the different elements of water policy. The set of proposed initiatives and actions are in tune with international guidelines laid out at different world water forums, which focus on balanced basins, clean rivers, universal coverage of potable water and sewage services, and the attention to climate change catastrophic impacts.

In spite of the fact that Mexico has a reasonably adequate legal framework on water, a group of institutions among which by regulating, running, and watching over water management, Conagua stands out, water policy with diversified instruments including citizen participation, transparency, and accountability, the following problems in water management can be observed:

1. A lack of long-term vision: sector's policy is formulated and modified every six years with the change of administration;
2. A bias toward agricultural use of water and the development of hydro-agricultural infrastructure persists, and is still present in the budget allocation that neglects sanitation, sewage, and water quality needs;
3. A water planning system and the possibility for social participation that is more formal than real;
4. A lack of political will and resources to watch over the sector's regulations; and
5. An inefficient water management that is not solved with higher budgets or applying tariffs, but requires a profound evaluation of priorities and budget exercise.

[2]They are also mandatory on sanitary, labor, and security issues.

Annex

Annex 3.1: Basic principles of water policy and programming. *Source* The authors.

1. Water is federal public, vital, vulnerable and finite good, with social economic and environmental value and its preservation and sustainability are a priority and national security issues;
2. National water policy based on the integrated and decentralized management of hydric resources by hydrologic basin that privileges local actors' decisions;
3. Attention to the water needs for welfare, development, and sustainability. Marginalized population is a priority;
4. The State regulates water uses in basins, aquifers, and transfers. Water concessions and assignments shall take its availability into account;
5. Unsustainable use of water will be avoided and its interrelations to other natural resources vital for water will be taken into account;
6. Environmental services provided by water must be acknowledged, quantified, and paid for, and its reuse must be promoted;
7. Measures for appropriate water quality for human consumption shall be taken in order to have an impact on public health;
8. Water users must pay for its exploitation, use, or utilization;
9. Those who pollute water shall restore its quality, the principle "whosoever pollutes, must pay" shall be applied and there shall be economic incentives for its efficient and clean use;
10. Education on the subject of water shall be essential;
11. Domestic and public urban use shall have preference.

Annex 3.2: Basic instruments of water policy and programing. *Source* The authors.

1. Water planning at different geographic levels;
2. Concessions, assignments, and permissions (for water exploitation, use or utilization; use of national goods and discharge permissions) regulation;
3. National waters management;
4. Collection of fees (for exploitation, use, or discharge);
5. Social participation;
6. The resolution of conflicts on the subject of water (prevention, conciliation, mitigation);
7. Social supports (for access to water and sanitation);
8. The National Water Information System.

Annex 3.3: Water planning elements. *Source* The authors.

1. The *National Water Plan* (six-year period);
2. Water programs by hydrologic basin or group of basins;
3. Specific subprograms by region, hydrologic basin, aquifer, state, or sector;
4. Special or emergency programs;
5. Integration and updating of the catalog of water exploitation or utilization programs, and those for its preservation and quality control;
6. Classification of water bodies according to the use they are devoted to, and the elaboration of water balances in quantity and quality, as well as by basin, HAR, and aquifer, according to their own capacities;
7. Strategies and policies for the regulation of water exploitation, use, or utilization and its preservation,
8. Mechanisms for consultation, agreement, participation, and the taking on of specific commitments for the realization of programs and their financing;
9. Multiannual investment programs and annual operative programs for investment and action by the National Water Commission (Spanish acronym: Conagua)

Annex 3.4: Preference of water uses in Mexico. *Source* The authors.

1. Domestic;
2. Public urban;
3. Cattle and livestock raising;
4. Agricultural;
5. Ecologic preservation or environmental use;
6. Electric power generation for public service;
7. Industrial;
8. Aquaculture;
9. Electric power generation for private service;
10. Land washing and sliming;
11. Tourism, recreation, and therapeutic purposes;
12. Multiple uses;
13. Others

Annex 3.5: Guiding objectives of the *National Water Plan. Source* The authors.

- Improve water productivity in the agricultural sector.
- Increase access and quality in potable water, sewage, and sanitation services.

- Promote integrated and sustainable water management in hydrologic basins and aquifers.
- Improve technical, administrative, and financial development of the water sector.
- Consolidate users and organized society's participation in water management and promote the culture of good water use.
- Prevent risks sprung from meteorological and hydro-meteorological phenomena and meet its effects.
- Evaluate the effects of climate change in the water cycle.
- Create a contributing and of National Water Law abiding culture.

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