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**REQUIREMENTS FOR DRAFTING A MODERN WATER CODE  
AND WATER LEGISLATION IN THE ESCWA REGION**

by  
Dante A. Caponera

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## **PART A. REQUIREMENTS FOR DRAFTING A MODERN WATER CODE**

by  
Dante A. Caponera\*

### **I. BASIC PRINCIPLES**

1. A water code should be as simple as possible and should require a minimum organization for its enforcement. In order to avoid legal controversy, it should not be ambiguous or circumlocutory in its language.

2. Legal provisions concerning water may be found in constitutions and in civil, administrative, penal, health and other types of law. Measures concerning the institutional administration of water laws at every level may be contained either in the water code itself or in other special legal enactments.

### **II. OWNERSHIP OF WATERS**

3. It is advisable to designate clearly, either in the water code itself or in some other basic legal enactment, the concept and the kinds of water ownership.

4. For achieving successful administrative control over the use of water resources as required by modern water economics, technology and sociology, there is an increasing tendency to consider water as community, public, crown or state property. This trend is inevitable and beneficial, and requires that a distinction be made between water ownership and the ownership of land under or above which the water is located. Such a distinction seems logical for the following reasons:

- (i) Water, being mobile, does not, under natural conditions, remain attached to the land;
- (ii) in the case of underground waters, which are also mobile, the ownership of lands and wells and the extent and location of the water-bearing formations may be definitely established; however, the amount of water available for extraction at any specific time cannot be definitely determined. Ownership of any property, including water, requires an exact delimitation of the amount of that property. Such rights are almost equivalent to property rights, in that they may designate the source of the water, the point of extraction, the location of the diversion or well, the purpose and location of use. In the case of irrigation, the water right may or may not be attached to the area of use;

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\* Former Chief, FAO Legislation Branch; Chairman of the Executive Council of the International Association for Water Law (AIDA).

- (iii) in many countries there are religious, social or political grounds for the designation of ownership (Islamic law).

5. In consideration of the above, jurisdiction over, or ownership of all water, surface or underground, wherever and however it may occur, should be declared as state, crown, domanial or public property.

6. A water code must consider the public interest as its essential base. For this reason no designated public waters should then be utilized for any purpose without a government permit, concession or authorization. The ownership of private waters may be governed by the provisions of legal enactments other than the water code, according to the legal system prevailing in the country.

### III. THE RIGHT TO USE WATERS

#### A. In general

7. The right to use waters is a concept distinct from water ownership, although, often, this distinction does not appear in existing water legislation. It is important with respect to the administration of water resources, whether publicly or privately owned. In any case where waters are public property, the consequence is that any use may be subject to a government authorization, permit, license or concession.

8. Correlatively, the use of privately owned waters, where they exist, is free and not subject to government authorization, permit or concession; their use is, however, limited by the general principles of law governing the use of private property.

9. There may be cases in which some public waters are utilized without specific authorization, for minor domestic uses or for other uses. A water code should specify these cases.

10. A right to use waters may be acquired by ministerio legis, i.e., by the mere effect of the law through inheritance, gift, sale, acquisition or donation of the land on or under which the waters are located. This concept is based on the riparian doctrine, according to which the landowner owns everything located on or below his land. A right of use may also be acquired by appropriation, through the prior use and registration of the water right. Finally, it may be acquired through the granting of an authorization, permit, license or concession by the water administration. According to the system prevailing in any one country, different legal provisions will be required in a water code for handling different situations.

## B. Existing water rights

11. The water rights acquired by ministerio legis on the basis of the riparian doctrine should be recognized with the same amounts of water which existed before the enactment of the water code. These existing rights of use may, however, in the case of public interests or conflicts, be made subject to the control of the water administration. These existing water rights, although the code should consider them as "rights of use", should be regarded as private property and the water code, in acknowledging this property, should leave it, as far as possible, in the hands of its current owners. It is advisable to regard any water use, including those deriving from ministerio legis, as a use under the water code and to integrate gradually those existing rights into the authorization system.

12. If it is government policy to require centralized control over water resources so as to ensure maximum rational exploitation, the water rights which were in existence before the enactment of the water code should be given consideration and, where possible, should be acknowledged, subject to the same restrictions as a right granted under the authorization system. If this is done, these water rights may be reduced or modified if in the public interest. Appropriate legal provisions should be established for any such procedures.

13. The water rights acquired under the appropriation doctrine before the enactment of a modern water code should receive the same treatment as those deriving from the riparian doctrine. In this case, however, policy decisions should be taken by the government authorities and established in the code, concerning their "legal nature". If they are to be considered as real property rights, they may be regarded as private rights to use waters duly registered, and as having priority over other rights; however, in this case, the new water code would have to establish procedures and powers to be conferred on the water administration for their review and their re-allocation as "rights to use" under the new authorization system to be established. If they are to be considered or interpreted as "prior rights of use" public waters, they will automatically fall within the authorization system to be established.

14. In any one of the above systems, the community, the state or the government should, as far as possible, not alienate its overall right to control water uses, but grant only "rights of use". Recognition of ancient and pre-existing water rights should not be given ipso facto by the water administration, but only after a review and enquiry by the administering organization, taking into consideration the interests of all public and private bodies concerned. Preference should be given to granting new permits or concessions to established users to the extent that they are making prudent and beneficial use of the water.

15. Under a new water code, sale or transfer of existing private water rights should not be permissible without the consent of the water administration.

### **C. Issuance of water use permits, authorizations or concessions**

16. The use of public waters (whether owned by the state, the government, the community or the crown) should be subject to specific authorization, permit, license or concession, to be granted by the water administration. This may occur either in countries where all water resources are state property or in countries where the extraction and use of water is placed under government jurisdiction. This basic rule should definitely be stated in any modern water code.

17. The different types of water use must be specified in the water code so as to make a clear definition between those uses which the water code considers lawful as opposed to others which the law does not recognize. Different methods may be followed in this respect. A distinction may be made between the uses of water for:

- (i) drinking, household and domestic purposes, including watering of domestic animals;
- (ii) municipal, rural or community water supply purposes;
- (iii) irrigation, reclamation and other agricultural purposes;
- (iv) hydro-power production;
- (v) mining, cooling, consumptive uses in processing or manufacturing and other undustrial purposes, including, if necessary, re-use of waters;
- (vi) transportation, navigation, floating and similar purposes;
- (vii) commercial or similar purposes;
- (viii) other public purposes.

A further distinction may be established, either within each of the above purposes or separately with respect to:

- (i) large or small diversions or utilizations;
- (ii) types and means of utilization;
- (iii) geographic location of the place of utilization;
- (iv) timing and periods of utilization.

18. Whatever definitions of types of use are accepted, the water code should specify exactly the limits to each type or category. Some of these definitions and still further distinctions may be left to the discretion of the water administration or of the authorities which frame local regulations. If the law considers some waters as private property, usufruct rights should be clearly fixed, always keeping in mind the public interest.

19. Procedures for the issuance of permits, authorizations, concessions or licenses according to the legal system prevailing

should be established in the water code. Some countries may limit the central or provincial governmental authorization system to the most important water utilizations, leaving the power to administer minor water uses or to require further authorizations to local authorities or to future regulation.

20. Different types of permit, authorization or concession may be established for different types of use. The more water to be used, the more complicated and detailed should be the procedures involved for the granting of an authorization, permit, concession, etc. The preliminary inspection or investigation made by the water administration should become more detailed and meticulous in accordance with the magnitude or importance of the intended use of water.

21. The water code should specify:

- (i) the authorizing bodies competent to grant or recognize water use permits, authorizations or concessions, bearing in mind the need to consider water uses by river or sub-river basins, if possible;
- (ii) the procedures for investigating, and for requesting and issuing water permits, authorizations or concessions, including the publicity to be given to the application and procedures for consideration of objections or claims;
- (iii) the different types of water use permits, authorizations, licenses and concessions, according to the categories of use or amounts of water utilized, as well as their respective duration (temporary, intermittent, etc.);
- (iv) the characteristics, content and conditions of water use permits, authorizations and concessions (quantity of water, area of use and diversion, servitudes and rights of way, inalienability, transfer, payment of water rates, technical requirements, obligations attached to the permits or concessions granted, or other provisions).

22. Authorizations, permits, licenses or concessions for the use of water should be subject to abrogation for causes set forth in the water code, which might include: failure to comply with specified conditions; non-payment of water rates; misuse, waste and pollution of water; change in type of water utilization; illegal transfer; change in conditions; non-use of water for a certain period of time. The procedure in the case of renunciation or abandonment of a water permit or concession should also be considered in the water code, as well as with respect to the situation arising at the end of a period of validity of any permit, authorization or concession.

23. The water code could also stipulate the matters and reasons to be considered for the suspension of the right to use (temporary or final), i.e., in the case of an act of God, or failure to comply with the conditions contained in the permit, authorization or

concession, waste or misuse of water, lack of proper upkeep and maintenance of hydraulic structures, etc.

24. The water code should establish guarantees in order to ensure the stability of the right to use waters by the grantee for the duration of the permit, authorization or concession.

25. The contract granting the permit, authorization or concession should set forth definitively the obligations, limitations or other restrictions placed upon the water user, according to their relative importance. These may refer to technical, financial or other conditions and may include: mode of use, protection of the rights of third parties, reforestation, embankment protection, prevention of soil erosion, pollution, sedimentation, volume of consumption and timing of use, specification and standards for construction works, payment of water rates and fees, etc. The provisions established in the water code and to be expressed in the contract will vary in their details according to the type of permit, authorization or concession.

26. The water permits, authorizations or concessions should be transferable only in accordance with the pertinent provisions in the water code and with the authorization of the water administration. The duration of the validity of the permit should depend upon the kind of utilization, the amount of water granted, the type and size of investment in hydraulic and other works, and other public interests.

27. In the case of competing applications for the use of the same water, the water code should empower the water administration to give preference to those showing the best utilization from a hydraulic point of view and satisfying larger public interests.

28. The legal titles of permits, authorizations or concessions should be listed by the water administration in a special register of water use rights which have been granted, specifying the volume of water granted. The register should be subject to periodic review and modification to show the actual use of water. The water code would thus establish a cadaster of water use, which is an effective way to achieve successful water administration.

#### **D. Priorities**

29. If possible, priorities among different uses of water should not be established in a water code, but rather should be left to the discretion of the water administration, which may establish them on the basis of customary law, national, basin or other water plans through the granting or refusal of water use permits, authorizations or concessions.



#### **E. Water rates, charges and fees**

30. The only priority which might be established in a water code is that for household domestic purposes.

31. If the official government policy specifies payment for the use of public waters, the code should establish policies and procedures for the assessment and collection of water charges, rates and fees. If this assessment is difficult for religious reasons at least the charge would cover the cost for the services to supply water.

32. In the establishment of the value of water and consequently the fees to be paid, the code should consider many possible factors: market forces, social needs, political requirements, public interests, availability of water, government reimbursement policies.

#### **IV. BENEFICIAL USES OF WATER**

##### **A. In general**

33. Some aspects of the beneficial uses of water, which include domestic, municipal, agricultural, industrial, mining, hydro-power, fishing, transportation, floating and other purposes, may be regulated by special laws; however, the water code should tend to regulate those uses which consume water by providing for the issuance of government permits, licenses, authorizations and concessions.

##### **B. Domestic and municipal uses**

34. Minor individual domestic uses should be regulated, either by provisions of the water code or by other general legislation governing the right to use waters without government authorization (civil code, land laws, etc.).

##### **C. Agricultural uses**

35. The permits and authorizations for the use of water for agricultural purposes should contain all those limitations and obligations which may be required in the public interest.

##### **D. Hydro-power production**

36. A section of the water code might contain rules concerning hydro-power production and distribution, if it is deemed useful in order to bring all water uses under centralized administrative control. Even in cases in which electricity is provided by a company, if they use the water, a concession should be required and a fee paid to the water administration.

37. Any such authorization or concession should take into consideration the amount of water utilized and power produced, the points of diversion and return of the water, and the time of use.

38. Rights to use water for hydro-power production existing prior to the promulgation of the water code should be recognized.

#### **E. Industrial uses**

39. Uses of water for industrial purposes should be brought under the control of the water administration and the water code.

40. Permits, authorizations and concessions for the use of water for industrial purposes should be granted by the same water administration.

#### **F. Other public uses**

41. Other uses of public waters such as navigation, transportation, floating, site and wildlife preservation, recreation, etc., may be governed by special legislation and administered by other departments than that of the water administration. However, the water code should establish the necessary coordination and previous consultation among all agencies concerned in order to consider all aspects of water use and to prevent one use from interfering with another existing or potential use.

42. With respect to water which has unique medicinal or thermal properties, special provisions may be made in the water code for their protection and use.

### **V. HARMFUL EFFECTS OF WATER**

43. If the water code establishes a permit system for any use of water, the damaging influence of water may be, to a large extent, avoided through appropriate provisions, obligations and limitations inserted in the permits, authorizations or concessions and the rules and regulations attached thereto.

44. While purely medical aspects of such problems must necessarily fall under the responsibility of the health authorities, the water administration should always consult with such authorities before granting permits, authorizations or concessions for any type of water utilization.

## VI. UNDERGROUND WATERS

45. While underground waters are often regulated by special legislation and administered by different departments at the national and local levels, this practice should not be pursued in a modern water code.

46. Since the occurrence of underground water is a part of the overall hydrological cycle, the traditional division between surface and underground waters should be disregarded in modern water legislation; legal provisions with respect to the regulation and administration of underground water should be dealt with by the same water code and administered by the same water administration as those relating to surface waters.

47. However, owing to the special nature of underground water, such as its invisibility and the inherent uncertainties and risks involved in its extraction and use, it is advisable that a modern water code contain a chapter relating to underground water. This specialized water legislation is greatly needed for facilitating the conservation and wise use of underground aquifers.

48. The water administration should be authorized by the water code to establish, by a simple legal enactment (decree, regulation, ordinance, or other), groundwater districts in which the search for, extraction and utilization of underground water are subject to control by the water administration.

49. Privately owned waters may be governed either by special provisions in the water code or by other legislation governing private ownership of land (civil code, land laws, customary laws, etc.). The rights of the landowner to use underground water freely on his land for minor domestic purposes (drinking, household uses, watering of domestic animals and small gardens) could be recognized in a water code, but the landowner must observe the limitations imposed by the code, harim, or other.

50. With the exception of the above-mentioned cases, the search, extraction and utilization of underground waters should be subject to permits licenses or authorizations which should be granted in a manner prescribed in the articles of the water code.

51. While most prescriptions and procedures concerning the issuance of permits, authorizations or concessions for the use of surface water would also apply in the case of underground waters, the chapter of the water code on groundwaters could contain provisions with respect to the recharge of groundwater aquifers, and limitations of consumption through various means, including the installation of water meters by the water administration.

52. Furthermore, the water code should establish procedures for the issuance of permits or licenses to all well drillers, so as to

be able to control them. Furthermore, before beginning any drilling operation or modification of existing wells, etc., a licensed driller should make sure that the person for whom he drills has obtained the required permit or authorization to drill.

53. Any person who intends to search for underground water should be obliged by the water code to secure an exploration or prospecting permit or license, which should be granted by the water administration only after all necessary precautions and requirements have been accepted or complied with by the prospective user.

54. After an underground aquifer has been found, the extraction and use of such water must be subject to a water use permit, just as in the case of surface waters.

55. Furthermore, the water code may contain special provisions with respect to procedures and requirements in the case of water the discovery of which is incidental to other activities, for instance, its interference with the mining of minerals and oils, the obligation to recharge, health requirements, pollution abatement and control, waste and misuse of water, etc.

## VII. OTHER PROVISIONS GOVERNING WATER RESOURCES

56. In a special section, the water code may contain provisions relating to the control of hydraulic structures, with respect to their design, construction, operation, maintenance and inspection. The code may specify the institutions exercising responsibilities in this field, namely:

- (i) the state, for waterworks and hydraulic structures constructed, operated or maintained by the state;
- (ii) the water users' associations, for those structures built and maintained by those bodies; and
- (iii) private individuals or special autonomous agencies whenever waters are used and works constructed and maintained for their exclusive individual benefit.

57. Other legal enactments governing different aspects of a country's economic life often contain provisions which may directly or indirectly affect water resources. This is the case with laws regulating crown lands, housing, land settlement, paddy lands, railways, electricity, mining and other natural resources. These legal enactments should not continue to be isolated from one another in water-tight compartments. Each law should be related to others. While it is necessary that different activities be governed by special legislation and administered by other departments, the water code should establish proper and adequate legal and administrative coordination among the various agencies and departments responsible for activities which have or may have an

influence on successful overall administrative control over water resources as such. As an example, no building permit should be issued before the housing authority has had an assurance from the water administration that, after construction, water will be available. The same applies with respect to land settlement schemes, electricity plants, etc.

## VIII. WATER ADMINISTRATION

### A. Functions of water administration

58. In the context of the preceding discussions concerning basic elements of a comprehensive water code, the principal administrative functions would be, among others:

- (i) to maintain a current inventory of:
  - (a) available water resources, both surface and underground;
  - (b) existing uses and users of water - water right holders;
  - (c) unused or unappropriated water.

With this information in hand, the administration is in a position to give sustainable guidance to planners concerning the possibility of exploiting water resources for further use, on the basis of plans.

- (ii) to grant permits or rights for the extraction and use of water in accordance with the provisions of the water code;
- (iii) to supervise or enforce the distribution of water among the users in accordance with their legal rights.

### B. Organization

59. A central organization will be needed to direct and supervise the administration of the water law. If the law is of national scope the organization should be at the national level. If the law is provincial in scope, the organization should be at that level. In some countries, conditions and problems will be found which are peculiar to certain regions or surface or underground basins. Under such circumstances, it would be advisable to establish separate branch offices in each region, all under the supervision and control of the central office. Ideally the best unit for an adequate water administration is the basin. In some cases, the amount of work involved in carrying out the functions of a water rights administration indicates the need for a decentralized action.

60. In some regions the creation of a local water users' organization may greatly facilitate the functioning of a water administration, if such organization is endowed with appropriate

authority and is adequately supervised by the regional or central organization.

#### **IX. WATER LAW IMPLEMENTATION AND ENFORCEMENT**

##### **A. Judicial and administrative control over water ownership, use and distribution**

61. The government authorities, individuals, associations or agencies to which the right to use waters has been granted or whose right has been recognized should be empowered to dispose of this right by expeditious legal procedure. The right of expropriation should be delimited and defined.

62. The granting of new water use rights may entail restrictions, limitations or deprivation of property rights, and the water code should contain two important provisions in this respect: (a) for the payment of adequate compensation for loss or reduction suffered; and (b) to ensure promptness in establishing such restrictions and to make sure they will not be hindered by lengthy discussions on indemnity.

63. The water code should empower the water administration, under appropriate procedures, to inspect and install water measuring devices or other measuring or controlling apparatus.

##### **B. Administrative procedures for claims against the water administration**

64. While the water code may confer the most extended powers to the water administration for ensuring efficient control over water resources, provisions should be made for administrative remedies or appeals against the decisions of the water administration.

65. The first appeal against these decisions should be addressed administratively to the chief of the water administration, who would make a decision on an administrative basis or on technical, economic and public interests grounds.

66. The same water administration could be empowered to adjudicate, on an administrative basis, individual conflicts on water rights.

67. Appeals against the administrative decisions rendered by the water administration acting as a parajudiciary body could be referred either to regular courts or to special water courts.

##### **C. Water tribunals or courts**

68. Owing to the specialized aspects of water resources control, in many countries the water laws have established special courts

dealing exclusively with water matters. Such courts may also be established as sections of existing second-degree or district courts, with a further section for appeal attached to the supreme court. The competence, procedures, jurisdiction and composition of these courts could be specified in the water code.

69. Their competence could include: (a) review and adjudication, in law and not in fact, of the administrative decisions rendered by the water administration acting as a quasi-judicial body, relating to the public domain, recognition of existing water rights, use of water, indemnities and compensations to be paid;

(b) conflicts between holders of private water rights as well as between the water administration and autonomous or semi-autonomous agencies or associations, with respect to the ownership and use of waters; (c) penalties, sanctions and other punishments against offenses to the water code or other relevant legislations.

70. The procedures could follow those in existence, in accordance with the legal system prevailing in the country.

71. The composition of such courts should include a judge, as president, and two specialists in water resources (technical and economic fields) of whom one is appointed by the water administration. In this way, any judgement rendered would follow the provisions of the water code, the public interests, and local customary law and requirements.

#### **D. Penalties**

72. The water code should establish and/or coordinate penalties and sanctions to be imposed for any offense or misdemeanor committed against the provisions of the water code or against those of any other legal enactment containing obligations regarding water matters. Penalties should be established against users who do not respect water regulations, permits, licenses, concessions or against illegal users or other individuals who willfully cause any harm to hydraulic structures.

73. Penalties should be graduated to suit the degree of offense and could range from simple administrative fines to imprisonment; they could provide for the destruction of illegally built structures or works at the expense of the offender who fails to comply with a notification to do so. The penal provisions of the water code could also provide, in the case of a repeated offense, for seizing or impounding, temporarily or permanently, any equipment utilized for an illegal construction of hydraulic works or devices.

#### **E. Repealing of pre-existing water legislation**

74. A consolidated water code<sup>1</sup> should provide for the amendment or repeal of any existing legal enactment or part thereof, the

provisions of which may be conflicting or have been superseded.

75. This is indispensable in order to clarify existing situations and to avoid legal queries with respect to the interpretation of the water law. Such amendments or repeals must be indexed specifically in any new water code.



## PART B. WATER LEGISLATION IN THE ESCWA COUNTRIES

The shortage of water constitutes a limiting factor to economic and social development throughout the area of the ESCWA countries. Groundwater resources which are not fully known or exploited are considered to be present beneath the surface of most of the area, and exploration has shown that there are valuable reserves of good quality groundwater under even its most arid portions. The amount of groundwater which can be extracted varies from place to place; small amounts of potable water suffice to meet the needs of man and animals, though high production is necessary for any extensive irrigation scheme.

In view of the above, it is not surprising that ESCWA governments are actively investigating and developing their water resources. In so doing, however, it is found that existing government policies, laws and organizations have to be changed or modified to deal with water potential and problems presented on a new scale; many concepts enshrined in the habits of the people have to be abandoned.

For instance, lack of water for man and animals has, in the past, made it difficult to graze wide areas of good pasture; but this lack of water has also prevented over-grazing. New water development can destroy the existing ecological balance: unwise development of water resources may lead to over-grazing around watering points, to the deterioration of pastures, to the destruction of the more palatable vegetation and to the initiation or acceleration of erosion, mainly aeolian erosion. Hence, legal rules and regulations for the strict control of stock-watering points must be established from the beginning.

In addition, the institutions responsible for water resources management are undergoing continuous modification, so that it is difficult to see which ones are responsible for the control of water.

River basin institutions, which are a modern means to prepare master plans, are being seriously considered in many ESCWA countries.

Finally, since the water laws of the ESCWA countries are influenced by Moslem principles of law, innovators may find it difficult to adapt water laws to modern requirements of water management, with the consequence that in many countries customary Islamic principles of water regulation often still apply.

The impossibility of obtaining information on up-to-date water legislation in many of the ESCWA countries has made it difficult to have a clear vision of the situation, and, as a consequence it is possible that some errors or inadequacies have occurred in the present text.

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## BAHRAIN

Bahrain is a state undergoing rapid change in every sector.

Although there is no surface water, underground water resources in Bahrain are plentiful. Nevertheless, it is government policy to ensure that water brought to the surface is put to good use.

As far as ownership of water is concerned, the relevant principles of the Shari'ah and the rules of Moslem customary law apply. These basically cover the "community in the water" principle, the "right of thirst" and groundwater appropriation procedures.

Legislation provides, however, for the licensing of well drilling and, on the basis of the water supply policy, for government control of all water uses.

At the national level, a Water Committee is responsible for the national water supply conservation and development policy and advises on the granting of drilling permits. The Ministry of Development and Engineering Services has a water supply department, and the Ministry of Agriculture also has responsibilities for assisting and advising farmers in methods of water conservation and drainage. The Ministry of Municipalities and Agriculture has overall responsibility for water supply and issues well-drilling permits. Other Ministries have responsibility for sectoral aspects of water resources administration. These are the Ministries of Development and Engineering Services, which is charged with the construction of waterworks and the Ministry of Public Health, responsible for water quality control. The Municipal Councils take care of the administration of towns and rural settlements, and the village Muktars cooperate with the municipalities, including on matters of water conservation.

## EGYPT

In Egypt, water legislation derives from Moslem legislation, with elements of French law relating to ownership adopted in the 19th century and from British experience in India for the development of the irrigation systems. In spite of many centuries of irrigation practices in Egypt, the first attempts at written water law is the Canal Act of 1894, which has determined the conditions for water use and exploitation, as well as water pollution control. Previously, the Khedive Decrees of the years 1881 and 1890 were concerned with the possible installation of permanent water-drawing equipment powered by steam, wind or hydropower, as well as animal-driven wells.

With its successive decrees and regulations, the Canal Act of 1894 constitutes the framework of the present-day legislative patterns regulating the key problems of water management.

In summing up the characteristics of the water laws of Egypt, it must be said that the problem of water management has not been treated in a comprehensive manner, leaving considerable freedom in decision making and interpretation of the regulations.

The Decree 74/1971 was the first attempt to regulate irrigation and drainage, aimed to secure a comprehensive approach to the problem of agricultural water management.

According to Article 13 of the provisional Constitution of 24 March, 1964, surface and groundwater resources in Egypt may fall under government, cooperative or private ownership; they may also be owned for the support of public or private charities.<sup>1</sup>

Whereas the right to use private water stems from the ownership of the land on or under which it occurs, the right to use public water is subject to a government authorization, concession or permit, including payment of water rates. In the case of public waters, different procedural rules apply according to the intended end-uses of the resource.

No permission, however, is required to build wells. Moreover, the owners of wells may use the waters therefrom to irrigate their lands at all seasons of the year when these wells do not communicate in any way with a canal but derive their waters solely from underground water tables.<sup>2</sup>

For the purposes of water pollution prevention, any well, the water of which is certified by the health authorities as polluted or exposed to pollution, must be promptly closed by the owner or, in default, by the health authorities at the owner's expense.<sup>3</sup>

Water law is strictly connected with land legislation. The former Ministry of Irrigation was authorized to determine the desert and wasteland suited for reclamation, considering the possibility of the availability of water.

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<sup>1</sup> Executive Order No. 186 of 14 September, 1952, abolishing the wagf for purposes other than charity, Art. 1.

<sup>2</sup> Law No. 4 of 15 May, 1903, forbidding the watering of charaki lands, Art. 1.

<sup>3</sup> Order of 9 April, 1936, of the mudir of Kenh on the closing of wells and removal of pumps, Art.s 1 and 4.

According to the former Constitution, the natural resources of territorial waters constitute the property of the State which exercises authority over them with due regard to the needs of the "national economy". The Constitution of 1971 in Section 123 reads, "... the law prescribes the rules and measures pertaining to granting concessions for the exploitation of natural wealth resources..." Section 808 of the Civil Code provides that he who shall build an irrigation ditch in compliance with the regulations is entitled to its use.

The water permit, which consists of the concession for land irrigation and a permit to build an irrigation canal, must be supplemented with a license for the setting up and operation of a mechanical device for supplying water (Section 47-80).

The maintenance of the irrigation or drainage system regarded as public property is effected from public funds with the use of equipment or labor of users of adjacent land.

The maintenance of the land improvement system and direct engineering supervision stays with the farm cooperative.

The flood control measures have lost their significance since the building of the Saad el Aali (improperly called the Aswan) dam. These rest with the public, under the District Inspectorates of the Ministry of Irrigation.

The public structures designed for water conservation and water flow are also under special protection. No equipment is allowed to be set up, and a permit issued by the Ministry of Irrigation is required for any kind of work.

A number of central government ministries have responsibility for sectoral aspects of water resources administration in Egypt. Among such ministries, mention should be made of the Ministry of Agriculture and Agrarian Reform, which, inter alia, may expropriate wells and springs used for agricultural purposes in desert areas, once the suitability of these sources for economic development has been established; and the General Inspectorate for the Irrigation of Egyptian Deserts under the Ministry of Irrigation is responsible, inter alia, for the drilling of wells and the digging of springs in oases. The Ministry of Health is responsible for the control of water quality.

In conclusion, it may be said that Egyptian water law needs consolidation as regards legal control of water, and better coordination is needed. In a future codification, apart from the priority to be recognized for agricultural uses of water, other interests should be considered: those of industry, power, public utilities and so forth.

## IRAQ

Iraq is the country of Mesopotamia, between the Tigris and Euphrates rivers, where the development of legislation and regulation of water use developed with the development of irrigation. The historical King Mammurabi of Babylon conceived a code of strict regulation for the conservation of the canals and handed out heavy punishments against any offense concerning water.

In modern times, all internal legislation has been conditioned by various international agreements signed between Iraq and neighboring countries sharing the Tigris and Euphrates rivers.<sup>4</sup>

The Interim Constitution of 1970 provides that natural resources are the property of the nation, including water resources.<sup>5</sup>

Extracted spring and well water occurring in privately owned land, however, is subject to private appropriation, and the installation of a water pump to extract natural spring waters located within private land is not subject to the issuance of a license.<sup>6</sup> However, the irrigation authority has the power to enter private lands in order to inspect and investigate the works that have been or are being undertaken therein.<sup>7</sup>

Since Iraq benefits from a reasonable supply of surface water, no need has been felt thus far for special legislation regulating the use of groundwater; existing wells serve mainly for the supply of water for drinking and domestic uses which are governed by local customary law. The National Development Plan provides, however, for the Ministry of Municipal and Rural Affairs to develop groundwater projects and, in particular, artesian wells to supplement surface waters in periods of shortage. To this end, the Directorate General of Electrical and Water Projects of the Ministry of Municipalities has been entrusted with the exploration and exploitation of groundwaters and with the operation of deep

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<sup>4</sup> The Paris Treaty of 23 December, 1920; the Lausanne Treaty signed 23 July, 1923; the Treaty of Friendship and of Good Neighbourly Relations, between Iraq and Turkey in 1946\*; the Protocol between Iraq and Turkey of 17 January, 1971, on economic and technical regulations; another Protocol of 26 December, 1980, on technical and economic cooperation.

<sup>5</sup> Resolution No. 792 of 16 July, 1970, promulgating the New Interim Constitution, Art.s 13 and 16(a).

<sup>6</sup> Law No. 124 of 1970 issuing the second amendment to Irrigation Law No. 6 of 1962, Art. 3.

<sup>7</sup> Irrigation Law No. 6 of 1962, Art.s 3 and 12.

wells for domestic, animal watering and irrigation purposes where surface water is not available. The implementation of groundwater projects is the responsibility of the Groundwater Exploitation Administration of the State Organization of Excavation and Agricultural Stations which operates under the Ministry of Agrarian Reform.

Although salinization of coastal aquifers due to excessive extractions of groundwater has been reported, no legislation for the qualitative and quantitative control of aquifers appears to have been enacted.

However, well drilling in water supply areas to be declared by the President of the Republic is prohibited.<sup>8</sup>

Groundwater administration is incorporated in the overall government water resources administration, which follows a use-oriented pattern.

The Irrigation Law (No. 6/1963) has entrusted the government with the responsibility of executing, operating and maintaining the irrigation works of the country. This law has made the land users responsible for their private irrigation works, but the irrigation authorities have the right to overall supervision of them. The authorities are also responsible for water allocation and distribution.

Also, irrigation by pumping can only be done after a permit has been obtained from the irrigation authorities; Articles 15 and 16 outline the penalties for any damage to irrigation structures and improper use of irrigation waters.

The main institutions responsible for water management are the Supreme Agricultural Council, under the chairmanship of the President and comprised of the Ministers of Agrarian Reform, Agriculture, Irrigation, the Chairman of the General Union of Peasant Societies, and five full-time members who are highly qualified in the field of water. This body sets the agricultural policy of the country.

Other ministries concerned are the Ministry of Irrigation, with the Directorate General of Irrigation, of Irrigation and Drainage Projects, Dams and Reservoirs; the Ministry of Municipalities, which plans, supervises and constructs water schemes, both in rural and urban areas (except for the city of Baghdad); the Ministry of Industry, responsible for the planning, construction, operation, and maintenance of water purification plants and industrial water treatment plants and effluent disposal; the Ministry of Health for the control of water quality; the

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<sup>8</sup> Water Supply Ordinance No. 16 of 1953, Section 16.

Ministry of Higher Education and Scientific Research, which, through its Institute of Applied Research on Natural Resources, searches for new sources of water and studies the problems of drainage and soil salinity.

## JORDAN

Until the 19th century Islamic law was the only source of law. In the middle of the 19th century the Ottoman Méjellé Code was enacted, which was meant to supplement the Shari'ah and Moslem customary law. After the First World War, Great Britain assumed mandatory powers for Palestine and Transjordan, and in 1922 an Order in Council provided for the simultaneous applicability of the Ottoman laws and of British statutes. Several legal enactments have been issued during recent years and different types of water administration have been created to cope with the increasing problem of water management.

The institutional framework for water resources management has evolved over the years to meet different requirements from time to time. The Water Authority of Jordan (WAJ) and the Jordan Valley Authority (JVA) were the institutions managing water until 1987, when the government created a combined Ministry of Water and Irrigation with both organizations.

According to the law establishing the Natural Resources Authority (N.R.A.), underground waters are defined<sup>9</sup> as water contained below the surface of the ground, excluding, however, that subsequently contained in artificially constructed cisterns, pools, tanks and basins.

The ownership status of groundwater follows the general rules on the ownership status of water resources. However, such water as has been brought to the surface is subject to private ownership.

In addition, the N.R.A. has full powers to supervise, control and limit the use and disposal of all surface and underground water in Jordan, and it is responsible for the exploration and exploitation of underground sources.<sup>10</sup>

In accordance with the Law on the Settlement of Land and Water

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<sup>9</sup> Underground Water Control Regulation, No. 88 of 1966, Art. 2.1.

<sup>10</sup> Law No. 12 of 1968 on the establishment of N.R.A., Art. 16; Underground Water Control Regulation No. 88 of 1966, Art. 3.

Rights,<sup>11</sup> the use of underground water resources in an amount exceeding either the amount specified in the registered water right or in excess of 5 cubic meters per day are subject to a use permit.

If the purpose for which water is used is irrigation, the rate specified in the permit establishes the extent of the water right; it is then registered in the Register of Rights in accordance with the provisions of the Law for the Settlement of Land and Water Rights.<sup>12</sup> Such a water right is attached to a specific plot of land, is not transferable without the land to which it is attached, and is subject to the control of the N.R.A.<sup>13</sup>

If the purpose for which water is used is other than for irrigation, the permit constitutes a personal right and may be transferred separately from the land on which the water occurs or is used. Any holder of an underground water-use permit<sup>14</sup> benefits from a legal right of way on the land where the water occurs; the landowner must, nevertheless, be compensated for any damage thus caused.

However, the use of groundwater for drinking, domestic and household purposes within a daily average not exceeding 5 cubic meters is free from the acquisition of a water-use permit.<sup>15</sup>

Any person wishing to undertake the profession of well driller must obtain a license from the N.R.A.; the N.R.A. thus controls well drilling through the registration of drillers and of their drilling equipment.

The drilling of any well, or any modification of existing ones, is subject to a construction permit issued by the N.R.A.; such a permit specifies the nature and extent of the works and construction standards. The N.R.A. may refuse to issue a well-construction permit if such a construction is likely to interfere with surface water rights of third parties.

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<sup>11</sup> Law No. 40 of 1952.

<sup>12</sup> Law No. 40 of 1952.

<sup>13</sup> Underground Water Control Regulation No. 88 of 1966, Art. 14.

<sup>14</sup> Law No. 12 of 1968 on the establishment of the N.R.A., Art. 16.

<sup>15</sup> Underground Water Control Regulation No. 88 of 1966, Arts 5 and 6.



The N.R.A. may refuse to grant an extraction permit, or may modify the conditions set down in a permit, if the extraction is likely to prejudice the reasonable conservation of groundwater resources or to cause their depletion.

In addition, the N.R.A. may establish, by notification in the Official Gazette, the minimum distance between wells to be drilled in any area where intensive drilling may cause damage to the groundwater resources.

Groundwater administration falls within the purview of overall government water resources administration, and of the N.R.A. in particular.

According to Article 25 of Law No. 18 of 1988, establishing the Water Authority of Jordan (WAJ), all water resources, both surface and underground, regional waters, rivers and internal seas, are considered to be State-owned property and are to not be used or transported, except in compliance with the law. On the other hand, any water which is not under the management of the Authority shall not be used in excess of personal or domestic needs. The sale of water is prohibited.

According to the Jordan Valley Authority (JVA) Law No.19 of 1988, Article 18 provides that the Authority shall have full powers for the allocation of use of all surface and underground waters which are developed under the supervision of the Authority. When the Authority is contemplating an irrigation project, it shall first consider the rights to water as are registered in the Water Register, and any excess of water shall be considered government property. Article 24 of the JVA law provides that it shall have full powers to fix the upper limit of the amount of water to be used on the basis of water availability and the crops planted, and to supervise the use of water distribution and fix its price.

Well-drilling licenses are issued only by the WAJ for limited volumes of water to be extracted yearly. Any violation of this rule is punished.

Water pollution control has also been initiated by the law establishing the WAJ. In particular, Article 6 of this law provides that the survey, development, study, regulation of water quality control shall be undertaken by the WAJ. Licensing of professional drillers has been established. In the Jordan Valley, the JVA Law provides in Article 38 that no person is allowed to pollute water resources of the valley without the minister's written permission.

Water resources development, planning, maintenance and operation are under the responsibility of the Ministry of Water and Irrigation, through Article 6 of the law establishing the WAJ, and Article 3 of the law establishing the JVA.

## KUWAIT

The codified legal system of Kuwait is largely based on the Egyptian system.

Except for the small oasis of Al Jahra, 15 miles west of the capital, Kuwait is a desert country with a hot and humid climate; its water resources are scarce and consist almost exclusively of brackish underground waters.

The Constitution lays down the fundamental principle that all natural resources are State property.<sup>16</sup> Save for the "right of thirst" and small appropriations of water for domestic and household consumption which are governed by Moslem customary law, the State controls all water uses.

Artesian well exploitation and corresponding water uses are subject to government authorizations or licenses.

The Ministry of Electricity and Water is the main government agency responsible for water supply. Its Water Department provides for domestic, municipal and village water supply, for which it undertakes sea-water and brackish underground water distillation and distribution systems. It also undertakes or licenses and controls the drilling of deep wells and groundwater supply uses.

The licensing of agricultural uses of well water is the responsibility of the Agriculture Department of the Ministry of Public Works.

At the local level, provincial governors coordinate the activities of the various ministries within their area of jurisdiction.

## LEBANON

The water legislation of Lebanon is very complex due to the fact that it derives from the influence of Moslem law, the Méjellé Code and French legislation from the time of the Mandate. Its provisions have grown haphazardly, and not systematically in the form of a comprehensive Water Code. There are many regulations governing water resources, and, even now, little coordination exists among the many institutions which are responsible for water management.

In this connection, according to Arrêté 144/S of 10 June, 1925, the following are the object of public domain, and as a

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<sup>16</sup> Constitution of the State of Kuwait, 11 November, 1962, Art. 21.

consequence are inalienable and imprescriptible: "Water of all natures ... underground waters and the springs of all sorts... the rivers of water courses, the swamps and ... the works executed for public utility and for the utilization of hydraulic forces ... the irrigation channels ... and the fluvial dams."

Therefore, every use of water is subject to a permit and only for a temporary period, subject to payment of water rates and to the rights of third persons. The permit is mandatory; otherwise the user may lose this right.

Only the drilling of wells at less than 150 m depth and the use of wells for less than 100 m<sup>3</sup> per day (Arrêté 320, Articles 1.7 and 3) are permitted.

According to Arrêté 320, Art. 1.2, it is prohibited, unless an authorization is secured from the administration, to interfere in any possible way with the waters of public domain, .. to core or deepen, to regulate the waterways or to drill wells temporarily or permanently. In general it is prohibited to undertake any work influencing the water regime or its flow and to dump into the water anything which might cause its pollution or endanger public health.

The authorization may be granted for a year or more (Arrêté 320, Art. 4.7) and may contain the special conditions imposed by the authorization (144/S.9). They determine the manner in which the water is taken, the conditions imposed for the discharge of waters, the monitoring of the hydraulic works, ... the measures to be taken either for the protection from floods or their prevention, and for the protection of public health, for the supply for domestic uses, etc.

Other rules regulate water uses if a concession is required.

Finally, the Head of State may oblige landowners to request an authorization for water use.

As can be seen, the authorities have at their disposal the legal tools which gives them the necessary powers to manage water resources.

It is not known whether this comprehensive legislation has been enforced during the prevailing conflicts in the country.

## OMAN

The water resources of Oman include several ribbon oases watered by wells and underground channels (Al-falaj), and by many intermittent wadis.

The Ibadite doctrine of customary water law predominates in

this country.

It is interesting to examine more in detail the customary law of Oman, as it is the only country where the Ibadite School prevails.<sup>17</sup> This customary law contains a large number of provisions on groundwater. Since water is extracted by means of wells and aflaj, (singular falaj: underground galleries), a distinction must be made between these two sources of water: well water and falaj water.

Well water is classified into three categories. The first category includes the well intended for the wayfarers and the needy. It is held in common by all mankind, though some Ibadites stipulate Moslems only. The second category includes wells dug in the desert or wasteland for private purposes. The persons who dig such a well can claim no ownership rights over the water or the well, but may enjoy priority in the use of the water and can claim a harim for the well. The diggers of such a well are, however, obliged to offer surplus water to others and to give preference to human beings before animals. When abandoned, the well reverts to the first category.

The third category includes the well dug for private use on private land. The water of such a well is considered, according to majority opinion, to be the private property of the digger, though some Moslem jurists insist that the water of a well can only be considered as personal property after it has been extracted and that possession has taken place. Examples of the application of this law can be seen in the interior of the country and in the desert land of Dhofar.

As far as falaj water is concerned, the property of falaj water belongs to those who have contributed to the construction of the falaj. Sometimes those having contributed to the repairs thereof are compensated by means of a share in water use. Water distribution is not based on volume but on periods of time during which water is supplied. This is understandable, since the amount of water produced by the falaj varies during the year.

Falaj water flows through the main canal into secondary canals alongside fields. When it is his turn, each farmer holding a water right diverts the water to his field at the beginning of the allotted time and closes the inlet again at the end of that period.

Most water use rights (or shares - kaburas) relate to well and falaj water. These shares were originally based on the amount of

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<sup>17</sup> Most of the information contained here is abstracted from Wilkenson, J.C., The Organization of the Falaj Irrigation Systems in Oman, FAO Publication; and Caponera, D.A., Water Laws in Moslem Countries, Vol. II, FAO Publication, 1978.

labor input or on contributions paid for the construction or the repair of these waterworks. These water rights may be inherited and bought or sold, independently of the lands served by this water. Through the years, many changes in these rights have taken place, most of them recorded in books.

The right to use water from privately owned wells is (i) free for everyone for drinking; (ii) reserved for the exclusive use of the owner for irrigation purposes; and (iii) unlimited as to the total amount which may be drawn.

Water occurring on awqaf or Baid al-Mal land is administered by the Ministry of Awqaf and Islamic Affairs. It is considered public property and may only be used in a manner consonant with the public interest. It follows that wells dug for drinking purposes may only be used for those purposes, while canals or falaj constructed for the benefit of land assigned to a public purpose may only be utilized accordingly.

At the users' level traditional Ibadite-Omani customary water law regulates in detail water resources administration, including conservation, utilization and the settlement of disputes. Local customary administrative organizations are self-supporting and deal mostly with the operation of aflaj water distribution systems.

The number of water officials in each case depends on the size and the methods of operation of any falaj system.

In the case of larger aflaj, the arif is the official in charge of water distribution. He is an expert in the methods of measuring time for ensuring the water distribution according to established individual water rights. This office is generally hereditary and, in many villages, his word is law. He is paid, partly or wholly, either by the landowners in proportion to the size of their holdings, from the falaj share, or by water rights allocated to him.

Other minor officials may include the holder of the falaj book (Amin al-daftar mushka), his clerk and the auctioneer (dallal). All important matters, such as water shares, timing of water distribution, income and expenditure, are recorded in these books which are checked by some community members, usually the sheiks, or by the local school master, upon specific request. These latter activities are unpaid.

Customary law provides for the protection and maintenance of aflaj works. The money required to cover maintenance and repair costs is obtained from a poll-tax or sales of water. If the shares to be sold are insufficient to cover costs, a contribution may be asked from all users of irrigation water on the basis of their respective water shares.

The characteristics and legal status of these special water shares (qu'ada and zayida) have been more or less formalized by the rulings of the religious authorities (ulama). These shares (qu'ada) are administered by an agent (wakil) and are generally sold at auction for a limited period of time at regular intervals. The price may depend on the state of the falaj flow, on the season or on whether it is a day or a night share. It is fixed by the wakil according to demand.

In the Dahirah area, contrary to what takes place in northern and central Oman, the falaj is often considered the property of one or a few leading families. In this case, while water distribution follows the same pattern as in other areas. The price of water will not only fluctuate with the availability of water, the quantity needed and the cost of maintenance, but also according to the personal circumstances of the leading families. Control over the use of the money is, in these cases, impossible.

Customary law also provides for the establishment of the harim which constitutes a protected area around wells and aflaj. While no established distance is fixed in the case of wells, the harim generally extends to 25 m.

As a consequence, in an effort to expand and develop new agriculture lands, pumped wells are drilled at distances greater than that which the harim would call for. However, the use of modern extraction methods is having serious negative effects on aflaj within the hydrologic sphere of influence.

The Sultanate of Oman has taken steps to develop and implement suitable regulations. A Water Resources Council has been established,<sup>18</sup> which has promulgated a water policy, and is considering a draft Water Code that would introduce a comprehensive permit system and would gradually codify the customary law.

## **QATAR**

As there are no surface waters in Qatar and groundwater aquifers are scarce and often brackish, most of the country's fresh water supplies are produced from sea water and brackish groundwater distillation, a process made economically feasible by oil production revenue financing.

The relevant provisions of sectoral legislation together with the principles of the Shari'ah and the rules of Moslem customary law apply to water resources conservation, development and use, including groundwater.

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<sup>18</sup> Sultani decree 45/25 of 18 September, 1975 and Sultani Decree 76/77 of 2 November, 1977.

In the field of natural resources and water ownership in Qatar, the State has assumed the role of trustee of such resources for the benefit of the whole community and, consequently, fully controls their utilization. Deep well waters are exempted from land ownership liens.

While small domestic and household water uses remain subject to the provisions of the Shari'ah and the rules of Moslem customary law, all other uses of water are, by law, subject to government authorization, permit or concession. Provision is made for expropriation of individual and collective property ownership in the public interest.<sup>19</sup>

In the absence of a centralized water administration, the Water Department of the Ministry of Power and Water is the principal organ of the State responsible for water resources management. The Department is charged with the supervision of sea and brackish water distillation plants, groundwater exploration and exploitation, water supply networks and with the administration and control of water uses for domestic, municipal and industrial purposes. It issues the required water-use permits, authorizations and concessions, collects water charges and fees and controls water regulation implementation. In addition, the Ministry of Justice functions as the Land Registration Department.

#### SAUDIA ARABIA

The Hanbalite School of the Sunnite doctrine and the Shari'ah constitute the basic law, including water law, of Saudi Arabia. However, several draft water codes have been prepared with a view to modernizing the ruling customary law.

In addition to the rules of customary law which regulate the digging of wells and their operation and maintenance, as well as the legal regime of underground water rights in accordance with Islamic law, legislation regulates the drilling of wells in connection with the distribution of public lands. Relevant provisions cover the requirement for drilling permits, for drillers to be qualified technicians and for well spacing to respect a minimum distance of 500 meters.<sup>20</sup> Furthermore, well drilling is prohibited within declared protected zones and areas.<sup>21</sup>

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<sup>19</sup> Provisional Constitution of 1970, Art. 16.

<sup>20</sup> Operational Procedure of Distribution of Public Land Ordinance, Royal Decree of 1968, III, B and ff.

<sup>21</sup> Royal Orders No. 13 April, 1387 A.H.; No. 2092 of 7 February, 1391 A.H.; No. 8949 of 2 April, 1391 A.H.; and No. 17687 of 19 August, 1391 A.H.

The Draft Water Code provides, however, for all surface and underground waters to constitute part of the national wealth, for all Saudi nationals to have joint use rights thereto, subject to the public interest, for existing rights to be protected, and for all water rights to be governed by the terms and conditions of a corresponding permit. Provision is also made for the pricing of water, for the expropriation of water rights against fair compensation and for the free transfer of water rights, provided their original conditions are not modified thereby nor are corresponding land rights interfered with in accordance with the principles of Islamic law.

By ministerial resolution,<sup>22</sup> a national policy setting priority criteria for the digging of drinking water wells has been established. Government water resources administration, including groundwater, is basically centralized in the Ministry of Agriculture and Water.

The Draft Water Code includes the formation of a National Water Committee consisting of the Minister of Agriculture and Water, the Deputy Minister of the Interior, the Director General for Water, the Deputy Minister of Finance and National Economy, the Deputy Grand Mufti, the Deputy Minister of Commerce and Industry, and four members to be appointed by Royal Order representing the farming and industrial sectors in Hidjaz, Najd, Asir and the Eastern Province.

The National Water Committee is responsible for the framing of the overall water-use policy in the Kingdom, the issuance of regulations for technical and administrative procedures to be followed by the Water Rights Department, the issuance of operational procedures, the issuance of resolutions on the closing or sealing of wells, the declaration of prohibited or restricted zones for well drilling, the specification of maximum depths of wells in the various areas and the removal of structures constructed contrary to regulations, the issuance of resolutions for the expropriation of existing water rights when deemed necessary in the public interest, and the issuance of resolutions on matters concerning compensation payments and facilities and services for the maintenance and operation of water installations.

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<sup>22</sup> Ministerial Resolution No. 328 of 19 May, 1386 A.H., regarding the formation of a Ministerial Committee to lay down a Public Policy for the Digging of Wells for Drinking Water and the Extension of Drinking Water Networks.



## SYRIA

The principle of people's ownership of natural resources has been institutionalized in the Constitution of the Syrian Arab Republic.

Private ownership continues to be governed by the 1949 Civil Code to the extent that the provisions of the latter do not conflict with the principles of the Constitution. The principle according to which the ownership of the soil includes in height and depth what is above and below it up to the limit required for the use thereof, is thus still applicable.<sup>23</sup> Consequently, the landowner similarly enjoys ownership rights over springs rising on, and over underground water occurring under his land.

The right to use public surface or underground water is subject to an administrative license.

On the basis of the water resources available in each basin, the Minister of Public Works and Water Resources sets the maximum quantity of waters the use thereof may be authorized, the area that can be irrigated, the restrictions to be imposed on the method of drilling and extraction of underground waters, the conditions for their conservation and the extent of their utilization in proportion to requirements and depending on the situation of each region. Licenses have a ten-year duration and can be renewed upon expiry.<sup>24</sup> Special provisions apply to the utilization of surface and underground waters by means of pumping equipment.<sup>25</sup>

The drilling of wells of any depth whatsoever is also subject to a prior authorization issued by the administrative authority concerned. The authorization is governed by the provisions on utilization of surface and underground waters by means of pumping equipment.<sup>26</sup>

The Ministry of Public Works and Water Resources is responsible for overall water policy and planning. This Ministry is also in charge of the issuance of water-use permits and licenses, and for fixing the ceiling of quantity of water which may

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<sup>23</sup> Legislative Decree No. 84 of 10 May, 1949, implementing the Civil Code, Art. 769.

<sup>24</sup> Law No. 165 of 27 September, 1958, on the installation of pumping equipment on public waters, Art.s 1, 3, 5, 7 and 11.

<sup>25</sup> Ibidem, Art.s 8, 13 and 15.

<sup>26</sup> Order Law. No. 79 of 16 March, 1960, making the drilling of wells subject to a prior authorization issued by the interested administrative agency, Art. 1.

be utilized, the area which can be irrigated and the restrictions which may be imposed on water utilization. It issues the authorizations for installing pumping equipment with engine power exceeding 10 h.p.

From an institutional point of view, the Ministry of Agriculture and Agrarian Reform exercises control over the agricultural uses of water and over the cooperatives; the Ministry of Public Health monitors drinking water from the standpoint of health; the Ministry for the Euphrates Dam is responsible for the Euphrates project and for the implementation of this dam. A High Council for planning, for the Euphrates dam and for aquatic life also exists, to advise the government on sectorally relevant matters.

At lower levels there are the Mouhafazat, who provide for the water supply, electricity and canal networks and ensure the cooperation of the population with a view to adopt measures against floods and, in general, for the conservation of public domain waters.

#### UNITED ARAB EMIRATES

The United Arab Emirates is a federation of loosely federated States. Each State enjoys full sovereignty over its internal affairs. So far, there is no single authority which administers water, nor is there a national policy for water. Both the Federal Ministry of Electricity and Water and the Federal Ministry of Agriculture and Fisheries are responsible for separate well-drilling programs.

Almost no surface flowing water exists in the Emirates. Underground water drawn from wells, springs and a system of underground galleries known as falaj constitutes the most significant source of fresh water supply in the federation.

Shari'ah law remains the fundamental law of the federation. In practice, this means that, since most of the population is Moslem of the Hanbalite School, Sunnite doctrine, the interpretations of that school apply in all matters concerning land ownership and tenure as well as water rights.

In the States of Ras al-Khaimah, Fujairah and in Al-Ain in Abu Dhabi and Sharjah where there is a relatively significant amount of agriculture, water rights are governed by the prevailing custom. Most agricultural communities are founded around small holdings not exceeding 120 hectares. Where irrigation water is drawn from a falaj, priority is given to users nearer to the water source, provided their land has a water right attached to that particular falaj, or, in the case of recent falaj construction or reconstruction, proportionately to the land whose owners have paid

a share in the corresponding expenses.

#### **WEST BANK AND GHAZA (PALESTINE AUTHORITY)**

The Palestine Authority includes two territories: the West Bank and the Ghaza Strip.

Before Israeli occupation in 1957, the water laws in the two territories were as follows:

Ghaza: Palestine (Amendment) Order in Council of 4 October, 1940, and the relevant provisions of the Ottoman Méjellé Code. Under this regime water could be either public or private, originating from the cultivation of land or a contribution in the construction of wells, dams, canals and other waterworks. Under the Mandate, all surface waters were declared public.

West Bank: Jordanian legislation was in force before Israeli occupation. A dual regime of water ownership existed: public and private. Surface water occurring on private land belonged to the landowner, provided it had been duly registered in the Register of Rights in accordance with the Law No. 40 of 1952, (on adjudication of land and water rights) Art. 17.2.

As regards groundwaters, only such waters brought to the surface were subject to private ownership. Large expanses of water, such as waters contained in lakes or reservoirs or flowing in rivers and streams were, in accordance with the Shari'ah, considered Mubah, that is, waters belonging to the community. Waters not registered in the Register of Rights or on which no rights had been claimed were acquired, ministerio legis, by the State, according to Law No. 40 of 1952, Art. 8.5.

With the Israeli occupation, water resources were put under the 1959 Water Law of Israel, according to which water resources in the State are public property, under the control of the State and intended for needs of its residents. Private ownership of water was abolished.

From the beginning of the occupation, a large number of military orders were issued concerning water management, starting with Order No. 291 of 1968, which superseded the Jordanian and Mandate water legislation.<sup>27</sup> It introduced the principles contained in the Israeli Water Law of 1959.

In practice, today, within the Palestinian Authority the management of water of the Israeli settlements is controlled by the

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<sup>27</sup> Such as No. 389 of 1970; No. 450 and 451 of 1971; No. 457 of 1972, etc.

Israeli authorities, and little is left to the Palestinian Authority. This is the subject of heavy negotiations.

#### YEMEN ARAB REPUBLIC

On the basis of the Constitution and Islamic law principles, both surface waters and groundwaters are public property belonging to the whole community. The right to use water is also regulated by the basic provisions of the Shari'ah; they follow the law regime of the land in which they are located.

Although the government of Yemen has undertaken a number of water resources development projects which are gradually changing the traditional water-use patterns, traditional Moslem laws and customs remain characteristic of the water legislation and administration.

Since time immemorial, the seasonal and geographically restricted surface hydrology has compelled its population to make utmost use of underground waters.

Although, today, land irrigated with well water still represents only a minimum part of the total irrigated area, the relevant provisions of the Shari'ah and customary rules have been widely applied and developed.

According to the Constitution and to the Shari'ah groundwater resources are to be considered as State property, either as res nullius or res communis; they are under State control.

The right to use water is limited, depending on the availability or scarcity of water, in order to best satisfy human requirements. Save for the imprescriptible "right of thirst", which subsidiarily includes the watering of animals, these various limitations can be roughly outlined as follows:<sup>28</sup>

- spring water occurring naturally must benefit all and, if the amount of water is limited, preference is given to those dwelling nearest to the well. Spring water tapped by man benefits the joint developers first, but surplus water must be released for use by other immediate dwellers; spring water developed by man on his own land enjoys first priority, his right being, however, subject to the servitude of release for the surplus.

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<sup>28</sup> Maktari, A.M.A., Water Rights and Irrigation Practices in Lahj, a Study of the Application of Customary and Shari'ah Law in South-West Arabia, Oriental Publication No. 21, Cambridge Univ. Press, 1971.

- well water developed on mawât land and subsequently declared of public use (al-sabilâh), or well water developed on wakî land is mubâh and its use free for all; similarly, the use of well water developed by man is subject to the servitude of release for the surplus; it returns to the benefit of the whole community once the well is abandoned. Some jurists (Zaidites generally) assert, however, that well water developed by man on his private land is subject to an exclusive ownership right.

### CURRENT TRENDS IN WATER LEGISLATION AND ADMINISTRATION

From the content of the domestic water legislations of the countries we have briefly reviewed in this paper, it can be inferred that current tendencies are to treat water, from a legal point of view, as one natural resource which constitutes an essential component of the national wealth and to vest the control of its conservation, development and use with the central government, for the benefit of the whole community.

Such a tendency is necessarily based on a recognized principle of public interest, to which private water-ownership rights, where they exist or where they happen to be substituted for private water-use rights, constitute a basic constraint.

It therefore appears that modern tendencies in water legislation aim at institutionalizing, in one form or another, the concept of community of interests, which concept, in fact, constitutes the traditional basis of Moslem customary water law.

Other major tendencies include:

- transfer from a use-oriented to a resource-oriented water law and administration;
- the modification of private water ownership rights, whenever they exist, into water-use rights, no longer of a permanent nature;
- the introduction of para-judiciary functions for the water administration;
- the introduction of the permit system for all water utilizations;
- the drainage basin, or other hydrological water resources management area, tends to become the ideal physical unit for water planning and control;
- the need to introduce water resources policies and planning at every required level: national, basin and local;
- the consolidation of existing fragmentary legislation into one basic water code or act which should provide for:
  - \* fundamental policy principles and legal regime of water resources and rights;
  - \* flexibility of implementation;

- \* multi-disciplinary nature of water law and administration;
- \* delimitation of powers of various levels and sectors of water management;
- \* power to issue subsidiary legislation for details of implementation in order to cope with varying conditions and circumstances.