I. Introduction

It goes without saying that water is one of the most important resources for sustaining human life. In the past, when the population was still relatively small, there was an adequate amount of water to go around; therefore there was no need for detailed rules and regulations for controlling its utilization. However, at present, the situation regarding water resources has changed dramatically, with a burgeoning population and rapid economic development leading to a wide variety of problems such as: a storage of water, the uneven allocation and distribution of water resources, a deterioration in the quality of the water itself, an increase in pollutants, etc. This situation has prompted the various parties concerned to realize the necessity of having a clear definition of what constitutes common water resources, as well as clear-cut rules and regulations governing them, to ensure a stable water supply and good quality water for the well-being people everywhere. For a country like Thailand, therefore, which has experienced rapid economic development and a tremendous increase in the exploitation of water resources over the past three decades, it is considered appropriate and timely to carry out a study in the form of a review of the existing system of water laws, its strengths, weaknesses, and also the potential for change and improvement etc. with respect to the utilization of water. This information is needed if an efficient and effective program to development and manage water resources in Thailand is to be realized in the future.

The information that is presented in this Paper has been prepared with the main objective of providing a general evaluation and assessment of the current rules, regulations and laws governing the development, utilization and management of water resources, and also to present a view on future trends regarding water laws in Thailand.

From a review of the available literature, during the early stage water legislation in Thailand has closely followed the regal traditions of the country, i.e. it has been influenced by Hindu, Chinese, Buddhist, and more recently Roman systems law.

Historical evidence of the beginning of the Ayudhya Period, B.E. 1893-2310(1350-1767 A.D.) has shown that Indian culture exerted a strong influence, particularly in the fields of language and administration. And when the King of Ayudhya captured the Khmer capital of Angkor Thom, the Khmer belief in a “Royal God” or “Divine King” was adopted, i.e. thereby an introducing the concept of absolute monarchy together with a
centralized system of administration. As Buddhists, the Thai Kings, still ruled over the
country in compliance with the “Ten Rules” similar to those observed by the Indian
Kings who lived during Lord Buddha’s time. It was recorded that during this period
many laws were promulgated, such as the “Laws governing Land and Boundaries” which
were relevant with respect to the utilization of water. Some of these laws remained in
force until the early Rattanakosin (Bangkok) Period.

King Rama I, the founder of the present Chakri Dynasty and the first King of the
Rattanakosin Period (B.E.2325 (1782 A.D.) up to the present time), in an attempt to
restore and crystallize the country’s system of legislation and administration, appointed a
commission to revive all legal manuscripts that had survived after the devastating fall of
Ayudhya Dynasty. The committee recompiled and arranged the whole body of legislation
into 27 Chapters, some of which contained provisions on water.

During the reign of King Rama IV, who recognized the necessity of opening up the
country to the western world, His Majesty order the revisions of several legal codes.
Some works on the development of water resources had already started, mostly in the
form of “link” and “conservation” canals in the lower part of the main river, such as the
Chao Phraya River. King Rama V went even further, reorganizing and modernizing the
whole legal system during his reign (from B.E.2411-2453(1868-1910)). A great deal of
effort also went into the development and enactment of legislation to provide rules and
regulations to support the development work of various agencies, such as the
Conservation of Canals Act for the Canal Development. These laws were drafted in such
a way as to adhere to Thai custom while at the same time incorporating the principles on
which modern European codes rested, with the objective of empowering or providing
legal support for the newly established department so that it would be able to carry out
its tasks effectively. Some of these laws have remained in force down to the present time,
though some may require major amendment. Laws were enacted pertaining to the
reorganization of the Courts, the Civil Procedural Code and the Penal Code. Later on, the
Civil and Commercial Code (Books I to III) was promulgated during B.E. 2466-2467
(1923-1925). Book IV on Goods and Property was enacted during the reign of King
Rama VII. After B.E. 2475 (1932), the form of the Thai Government was changed from
an absolute to a constitutional monarchy. Several Procedure Codes, such as the “Civil
Procedure,” were promulgated. New Courts also came into being during the same period
by a reorganization.

After the Second World War, a number of major projects involving the development of
water resources works, such as the Chao Phraya Division Dam, the Bhumibol and Sirikit
Dams and the Greater Chao Phraya Irrigation Project has started. Many acts, legislative
instruments, and ministerial notifications/orders have been enacted with the intention of
creating legal support for many government agencies which were either reorganized from
existing organizations or created to handle a particular function relating to the
development of water resources. Problems and conflicts sometimes arose when the
mandate or the functions of these agencies were found to overlap.
II. Legislation in Force

In Thailand, legislation controlling the development and use of natural resources, such as land, forestry and minerals, was enacted many decades ago. Since which time it has undergone a process of gradual evolution. Yet perhaps the most important natural resources of all, i.e. water, is not completely covered by any specific national act or statute. In order words, there is no overall law governing water in Thailand.

From a review of the literature on water laws, the regal provisions concerning the development and management of water resources in Thailand, are directly or indirectly derived either from some basic legal texts, or from traditional and customary law, or from special laws regulating one or more uses of water. And often, it is noticeable that the same law may regulate more than single aspect of the use or misuse of water. Some of the specific laws concerning water/water resources are listed below:

(2) The Civil and Commercial Code of Thailand B.E.2466(1923) and its amendments (No. 10, B.E. 2525: Articles 1304, 1339-1342, 1345, 1349, 1352, and 1355;
(3) The Penal Code of Thailand B.E.2499(1956) and its amendments No. 9, B.E.2530: Articles 228, 229, 231, 234, 237, 238, 368, 375, 380, 387 and 396;
(4) The Royal Proclamation on the Establishment of Public Water Supplies B.E.2451(1908);
(5) The Conservation of Public Water Supply Canals Act, B.E.2456 (1913) and its amendment No.2, B.E.2526 (1983);
(6) The Act for the Eradication of Water Hyacinths, B.E.2456(1913)
(8) The Conservation of Canals Act, B.E.2446 (1903) and its amendment No.2, B.E.2483;
(9) The Maintenance of Canals Act, B.E.2446 (1904);
(10) The People's Irrigation Act, B.E.2482 (1939) (a revision of the Control of Weirs and Dikes Act B.E. 2477) and its amendments (No. 2, B.E.2523; No 3, B.E. 2507; No.4, B.E.2518; No.5, B.E.2530); and subsequent Ministerial Regulations;
(11) The State Irrigation Act, B.E.2485 (1942), its amendments (No. 2, B.E. 2497; No. 3, B.E.2507; No.4,B.E.2518; No.5,B.E.2530); and subsequent Ministerial Regulations;
(12) The Dikes and Ditches Act, B.E.2484 (1941) and it amendment No.2, B.E.2505 (1962);
(13) The Groundwater Act, B.E.2520, its amendment No.2, B.E.2530 and subsequent Ministerial Regulations;}
(14) The Act Governing the Development and Promotion of Energy, B.E.2535 (a revision of the National Energy Administration Act of B.E.2496 (1953) and its amendments (No.2, B.E.2507; No.3, B.E. 2522 and No. 4, B.E. 2530);
(15) The Electricity Generating Authority of Thailand Act (a revision of the Yanhee Electricity Authority Act, B.E.2500, the Lignite Authority Act, B.E.2503 and the North-Eastern Electricity Authority Act, B.E. 2505) and its amendments (No.2, B.E.2521; No.3, B.E.2527; No.4, B.E.2530; No.5, B.E.2535);
(16) The Navigation of Thai Waterways Act, B.E.2456 (1913) and its amendments (the latest No.13, B.E.2525);
(17) The Control of the Mooring of Vessels in Rivers and Canals Act, B.E.2479 (1936)
(19) The Fisheries Act, B.E.2490 (1954) and its amendments (No.2, B.E. 2496; No.3, B.E. 2528);
(20) The Right to Fish in Thai Waters Act, B.E.2482 (1939)
(21) The Public Health Act, B.E.2477 (1934), and its amendments (No.1, B.E.2482; No.2, B.E.2484; No.3, B.E.2497 and No.4, B.E.2505): Article 34 to 40, Chapter 1: Sanitation, Part 5;
(22) The Sanitation Act, B.E.2495 (1952)
(23) The National Economic Development Board Act, B.E.2502 (1959) and its amendment;
(24) The Act for the Expropriation of Immovable Property, B.E.2477 (1934) and its amendments (No. 2, B.E. 2480; No. 3, B.E. 2495; No.4, B.)
(25) Royal Decree establishing the Local Improvement Organization, B.E.2498(1955)
(26) The City and Town Planning Act, B.E.2495(1952)
(27) The Public Cleanliness and Orderliness of the Country Act, B.E.2503(1960)
(28) The Control of Building Construction Act, B.E.2479(1936) and its amendment (No.2, B.E. 2522) and the Bangkok Municipality Ordinance;
(29) The House and Land Control Act, B.E.2504(1961) and its amendment;
(30) The Factories Act, B.E.2485(1942) and its amendments (No.2,B.E. 2518 and No.3,B.E.2522);
(31) The Highways Act, B.E.2482(1939)
(32) The Metropolitan Waterworks Authority Act, B.E.2510(1967) and its amendments (No. 2, B.E. 2516; No. 3 B.E. 2522; No.4, B.E. 2530 and No.5, B.E. 2535);
(33) The Provincial Waterworks Authority Act, B.E.2522(1979)
(35) The Act governing the Enhancement and Conservation of the Quality of the National Environment, B.E.2518, its amendments (No. 2, B.E. 2521; No.3, B.E. 2522 and No.4, B.E.2535); and the subsequent Ministerial Regulations/Notifications;
(37) The Forestry Act, B.E.2484(1941) and its amendments (No.2,B.E.2491; No.3, B.E.2494;No.4,B.E.2503;No.5,B.E.2518;No.6,B.E.2522 and No.7,B.E.2525);
(38) The National Forestry Reserves Act, B.E.2507(1964) and its amendments (No.2, B.E.2522 and No.3, B.E.2528);
(39) The Agricultural Land Consolidation Act, B.E.2517(1974) and its amendment (No. 2, B.E. 2534);
(40) The Land Reform for Agriculture Act, B.E.2518(1975) and its amendments (No. 2, B.E. 2519; No.3, B.E. 2532);
(41) The Land Development Act, B.E.2526(1983);
(42) The Agricultural Economics Act, B.E.2522(1979);
(43) The Agricultural Land Consolidation Act, B.E.2517(1974);
(44) The Land Allocation for livelihood Act, B.E.2485(1942) and its amendments (No. 2, B.E.2504 and No.3, B.E.2511);
(45) The Land Code, B.E.2497(1954) and its amendments (No.2, B.E. 2526 and No.3, B.E. 2528);
(46) The Administrative Statute/Declaration, November 20, B.E.2540(1997);
(47) The Arbitration Act, B.E.2530(1987); and
(48) Traditional and customary rules, which still play an important role, are recognized in the form of written codification when not contrary to public interest.

III. Water Resources Policy

Article 79 in the Chapter on the Principle Policy of the State of the Thai Constitution of October 11, 1997, establishes a national water development policy by stating that "the State shall promote and maintain public participation in conserving, maintaining and utilizing the environmental resources in such a balanced and sustainable way, including controlling and eliminating pollutants, which can cause damage to the health, or social well-being of its citizens." Furthermore, Article 84 stipulates that the State shall carry out activities to provide water for agriculture uses in an equitable manner. Also, Article 87 stipulates further that "it is the duty of the State to promote and maintain fair competition in providing public services and utilities which would benefit the general public."

IV. The Ownership of Water

In Thailand, at present no specific legal instrument exists in any law that clearly establishes the ownership on water or that specifies to whom water belongs. Nonetheless, in accordance with generally accepted principles of law and special legal provisions in various acts the ownership of all water resources is vested in the State. Article 46 of the Constitution, in Chapter 3: the Right and Liberty of the Thai Citizen, establishes the right of the community to conserve, manage and utilize natural and environmental resources, i.e. water resources, in a balanced and sustainable manner. Article 56 acknowledges the right of Thai citizens to participate in State and community projects involving the exploitation and protection of natural resources.

The basic legal text asserting the state’s ownership of water resources can be found in Article 1304 and 1305 of Book IV of the Civil and Commercial Code, which establishes
that the public domain of the State includes all kinds of State property which is used for the public interest or reserved for the common benefit, such as:

(1) …. 

(2) property for the common use of the citizen, such as …. shorelines, waterways, lakes, … Such property “which forms part of public domain of the State is inalienable, except by virtue of a special law or a Royal Decree.”

At the same time, while the Constitution guarantees the principle of “private ownership” i.e. the right to private property, Article 49 of the Constitution itself provides that “expropriation of private property (by the State) is prohibited unless necessary for the purpose of public services, national defense, the acquisition of a natural resources, town planning, the conservation and promotion of environmental resources, agricultural development … in each case fair and prompt compensation shall be paid to the owners thereof or to other persons entitled thereto who suffer losses from such expropriations.”

As a consequence of the aforementioned legal principles and provisions, it may be summarized that in Thailand, the State holds, and has reserved for itself, full right to control, regulate, distribute and allocate water resources for any kind of use.

V. The Right to Use Water

A. Acquisition of Water Rights

The right of use natural resources is one of the fundamental concepts recognized by the Thai society. Article 25 of the Constitution of Thailand, promulgated on August 3, B.E. 2495 (1952), contains provision on the right to use natural resources. As all water resources are deemed to be state property, the right to use water freely is acquired by ministerio legis, i.e. by virtue of the Law through inheritance, gift, sale, acquisition or donation, without the administrative interference of the responsible authorities. However, while the “ownership of land” extends above and below ground. The extent of one’s right to use water, servitude and rights of way are described in various articles of the Civil and Commercial Code.

In Section 2 (Land Rights and Exercise of Rights), Article 1335 of the Civil and Commercial Code declares that “Subject to the Provisions of this Code or other laws, the ownership of land extends above and below ground.” Nonetheless, this provision regarding land ownership does not automatically entail ownership of the water located on or under that land, but merely guarantees the right to use that water. Article 1355 states that “the owner of a piece of land along or through which
a waterway passes in not entitled to draw more water than is necessary to fulfill his reasonable need to the prejudice of any other piece of land along the waterway.”

1. Extent of the Right to Use Water Freely

As to the right to use water resources, paragraph 2 of Article 1339 of the Civil and Commercial Code states a general principle that “water that flows naturally onto lower land and is necessary to such land may be retained by the owner of the higher land only to such extent as is indispensable to his land.” This provision thus imposes a general limitation on the free utilization of water by individuals, in such a way as not to allow any one party to monopolize, for his exclusive benefit and to the prejudice of other users, the water flowing through his land.

In this connection, Article 6 of the People’s Irrigation Act provides that “no person shall use water from any private or People’s irrigation more than that is necessary or shall allow such water to flow to waste when the official has ordered him not to do so.” The word “official” here refers to any of the following government officers: Provincial Governor/Commissioner, District Commissioner/Officer, Village Headman, Village Elder, Chief of Irrigation or his assistant, and the officer-in-charge of irrigation control.

2. Servitude and Rights of Way on Water

As to servitude, Article 1339 and 1340 state the general principle that “the owner of a piece of land is bound to take water which flows either naturally or as a consequence of the artificial drainage of higher land onto his lower land” If any damage is suffered by reason of such artificial drainage, the owners of the lower land may, without prejudice to any claim for compensation, require that owner of higher land, at the latter’s own expense, carry the drainage right through the lower land to a public waterway or drain.

Another servitude or obligation imposed upon the land owner that he is duty-bound to allow the laying of water pipes, drainage pipes, electric wires or the installation of similar facilities for use by the owners of adjoining land, subject to special rules regarding compensation, costs, alienation of land, etc.

Other provisions deal with the rights of way i.e. allowing others passage across adjacent land, ponds or marshes or allowing others to lead cattle onto or through another person’s unenclosed land for purposes of grazing or watering, provided always that it is not a plantation and has not been prepared for cultivation, sown or covered with a crop; however, the owner of the adjacent land may forbid such actions.

B. Authorizing the Use of Water/Issuing Permits for Use of Water
While the right to use water for various purposes may be exercised freely and without any particular formalities by any individual user, a number of limitations have been set in various laws and regulations with respect to the utilization of major amounts of water, utilization affecting a larger community and specific kinds of usage for which a permit has to be secured.

In the case of private irrigation, any person desirous of constructing irrigation works affecting an area larger than 200 rais (32 hectares) must apply for permission from the local authorities and from the District Office. The granting of permission has to be referred to different authorities, according to the size of the area to be irrigated. Thus, for irrigation works benefiting an area not exceeding 500 rais (80 hectares) that are located in the same district, the District Office is competent in such cases to grant the necessary permission, but must report to the Provincial Office and the latter, in turn, shall report to the Ministry of Agriculture and Cooperative (MOAC). If the irrigation works benefit an area not exceeding 1,000 rais (160 hectares), and are located in the same province, it is the task of the Provincial Office to consider the matter and report to MOAC. When the area that will benefit from irrigation exceeds 1,000 rais or extends over two or more provinces, it is the duty of MOAC to consider the granting of permission.

Article 7 of the People’s Irrigation Act includes a further provision to the effect that, “owners of all private irrigation works already in operation before the date upon which this Act went into force shall apply for permission within twelve months from the date of its enforcement.”

The applicant must submit information concerning:

1. The area of land under cultivation at the time of application which will benefit from such irrigation
2. The alignment of the waterway, source of water, villages and permanent structures existing in the area;
3. The alignment and site of the proposed irrigation work;
4. The nature, width, and depth of the original waterway to be used and the dimensions of proposed irrigation structures;
5. The number of rice-field owners within the area who will receive water from the proposed irrigation project; and
6. Whether there are any other irrigation works in the area, together with detailed descriptions of them.

The Provincial Office has the right to order the distribution of water to neighboring plots of land and the conversion of the private irrigation works into people’s irrigation works (Article 9), to do what is deemed reasonable for a better water distribution (Article 10) and to prohibit any action a Chief Irrigation Engineer or an assistant (Article 13), order the compulsory requisitioning of services and accessories for any people’s irrigation works (Article 14), fix the extent of such
services and accessories (Article 15) in proportion to the area under cultivation by the owner of the land (Article 16).

In cases involving so-called "contractual irrigation" (defined as “an irrigation work constructed by any person for the purpose of remuneration”), a concession is required. Such concessions are granted by MOAC on the basis of an application specifying the following particulars, in addition to the technical data required under Article 8 of the People’s Irrigation Act for a permit to construct irrigation works:

1. the rate of remuneration which will be collected from the cultivators,
2. the number of areas under cultivation to be irrigated in return for remuneration,
3. the area of waste land turned into land under cultivation, and
4. the period of the concession that has been applied for.

Concessions are granted with the proviso that the concessionaire act without violating other users’ rights (Article 33), comply with the conditions specified in the concession (Article 34), report on the results of the work (Article 35) and allow inspection of the site (Article 36).

In case involving “state irrigation” i.e. irrigation works provided by the State to supply water from any waterway or reservoir which has been designated as a waterway for irrigation purposes, by the Royal Irrigation Department (RID) of MOAC, under article 5 of the State Irrigation Act, such authorizations are necessary in order to:

- cultivate or erect any structure in the waterway (Article 23);
- obstruct the waterway (Article 25);
- cause a leakage of water (Article 26);
- excavate, remodel or tamper with structures in the waterway (Article 34); and
- lead or allow animals to tread on the embankments, berms, and compounds of such state irrigation structures (Article 27).

In cases involving the use of water for fishing purposes, the Fisheries Act provides for a large number of cases in which it is necessary to request and obtain permits, licenses and concessions from the Fishery Department of MOAC. The Act divides fisheries into the following four categories:

1. preservation fishery;
2. leasable fishery
3. fishery reserve; and
4. public fishery

which shall be designated within each province by the Provincial Council with the approval of MOAC.
Furthermore, according to this Act, a permit, license or concession is required for:

(1) fishing or cultivating aquatic animals in preservation or leasable fisheries or fishery reserves (Articles 9, 11, 13);
(2) excavating or building trapping ponds in state domains (Article 14);
(3) erecting any structure or growing lotus rice, jute or other aquatic plants in any of the various categories of fisheries (Article 17), or draining water there from (Article 18)
(4) using explosives in fisheries (Article 30), or altering them (Article 21) or tapping (Article 22) any fisheries,
(5) excavating or building cultivation ponds in state domains (Article 23); and
(6) engaging in fishing, trading in aquatic animals, etc. (Article 25) or possessing fishing implements (Article 26).

Permits and licenses for fishing have a limited validity (Article 43) and are subject to a fishery tax (Articles 27-30, 33, 38-40, 42, and 44) according to the various kinds of fishing, transfer of licenses or permission, etc. These permits or licenses may be withdrawn, renewed, and penalties are also imposed on offenders.

VI. Order of Priorities

Though there are several provisions in the State Irrigation Act (Articles 14-16 and 35) and the Electricity Generating Authority of Thailand Act (Article 38) regarding the acquisition, diversion, conditions of use and allocation of water from the impounding dam, diversion dam, or storage dam, yet no specific law or other legal enactment exists with respect to the order of priorities among different water uses, different existing rights or different areas.

Priorities of use are usually established in the administrative procedures and in the development plans issued either by the Council of Ministers or by the Ministries.

For example, in the lower Chao Phraya Basin the allocation criteria for releasing water for various purposes, adopted in a form of an operation guideline, are as follows:

1. Top priority is always given to domestic consumption as it considered a basic need and necessary for the living of the people.
2. Supplementary water for agriculture is available during a dry spell or a drought period of the wet-season in order to avoid damage to the newly planted crops, and during a dry-season for the dry-season cropping. (Note: It is recognized that water demand for irrigated agriculture is the highest among all other uses and is equivalent to nearly 80 percent of the total water demand.)
3. Certain amount of water is allocated as a “river maintenance flow” and must always be released downstream.

4. Hydro-power is normally operated in the evening for peak-power generation to supplement the power generation from other power plants which are interconnected in the national grid system.

VII. Legislation on The Beneficial Uses of Water

A. Domestic and Municipal Uses

1. Legislation in Force

Legal provisions governing the domestic and municipal uses of water can be found in the following act:

1. The Conservation of Canals Act,
2. The Conservation of Public Water Supply Canals Act,
3. The Metropolitan Waterworks Authority Act,
4. The Provincial Waterworks Authority Act,
5. The Municipality Act.

According to the above legislation, the first public water supply system to provide water for domestic use was established for the City of Bangkok, by a Royal Decree on the Establishment of a Public Water Supply, which stipulated that the latter be placed under the control of the Sanitation Department. The Department is responsible for excavating a canal to supply water to the town (Articles 1 and 2) and for establishing a pumping station and the infrastructure for distribution. To insure portability of the Municipality Act, responsibility for providing water for domestic purposes to cities and people residing in municipal areas was given to the municipalities, under the control of the Ministry of Interior, MOI (Article 77).

Thus every municipality is empowered to act autonomously to provide a water supply in the area under its jurisdiction. Furthermore, wherever it is deemed expedient to improve the distribution system, one or more water supply systems may be combined by the Royal Decree (Article 58). It should be noted that municipalities are responsible for providing and maintaining the drainage system (Article 53 and 56).

The Conservation of Canals Act concerns the operation and maintenance of existing and proposed canals, for the benefit and convenience of the people. Article 5 of the Act empowers MOAC to designated an area and acquire land along canals for the construction of roads and transportation purposes. Article 6 prohibits the dumping of waste and garbage into waterways or canals or into ditches which will drain into canals and includes penalty clauses for violators. Article 7 specifies certain areas along the canal to allow draft animals to cross, and forbids them to cross outside these areas. Article 9 prohibits any person from damaging or destroying canals and banks. According to Article 10, after the rehabilitation work and other improvements have been carried out to any
canal, MOAC is empowered to establish rates and collect fees from the users of such canals for the operation and maintenance of the canals. Article 11 empowers MOAC to establish rules and regulations concerning:

- the size of vessels and barges that can navigate the canals;
- the location of bridge crossings where boats and barges can anchor; and
- any other regulations as may be deemed necessary.

The Metropolitan Waterworks Authority Act draws distinction between "public waterworks", i.e. works constructed by the Metropolitan Waterworks Authority which are public utilities, and "private waterworks" (Articles 4 and 7). The Act establishes the Metropolitan Waterworks Authority (MWA) and entrusts it with the following responsibilities:

- to survey, acquire and procure raw water sources for using in waterworks;
- to produce, supply and distribute treated water in the Bangkok Metropolitan area (including Nonthaburi and Samut Prakan provinces) and to control the standards of private waterworks systems in such localities; and
- to engage in other businesses that relate to, or are beneficial to, the waterworks (Article 6).

MWA is empowered to carry out various development activities, including construction and procurement, in addition to being engage in operation and maintenance works concerning equipment, services and facilities of MWA; Apart from that, the MWA is involved in the exploration and planning of distribution or expansion works within the localities referred to in the Act; in determining water fee rates and charges for services and facilities and the procedures for the payment; in establishing the standards for private waterworks systems, and in issuing safety regulations regarding the use and maintenance of MWA's property.

In supplying and distributing water, MWA has the power to lay pipelines and install equipment under, above, along or across land belonging to any person, provided that such land is not a dwelling place and that MWA informs the owner or users of the land in advance. Article 40 states that for the purposes of ensuring that the production, supply and distribution of treated water meet the required standards, any person who wishes to build or expand a private waterworks system in the localities under Article 6 shall obtain approval from MWA and comply with the standards prescribed by MWA.

MWA has already issued several Ministerial Announcements concerning:

- standards for private waterworks;
- water supply standards (Office of Industrial Products Standard, Ministry of Industry IS. 259-2521);
- capacity of the plant to produce a supply of treated water;
- the demand of water for:
  - household uses,
- commercial buildings and public service buildings,
- industrial uses; and
- piping system, water meters and other ancillary equipment.

The Municipality Act establishes a municipal organization consisting of the Municipality Congress and the Municipal Council (Article 14). Under the provisions of Articles 50 and 53, it is the responsibility of the Sub-district Municipality to provide public utilities, including roadways and waterways, and to keep the roads, waterways or public walkways clean, in addition to ensuring the efficient disposal of waste and garbage. Within the municipality itself the Sub-district Municipality may provide, a supply of clean water or a waterworks (Article 51).

In enacting the Provincial Waterworks Authority Act, the State expressed its intention to improve and expand waterworks and services in provincial areas. Consequently, transferred and consolidated all existing provincial waterworks, the Construction Unit of the Department of Public Works and the Rural Waterworks Authority (PWA), under the Ministry of Interior. PWA has the following responsibilities:
- to investigate and develop raw water sources;
- to produce, transmit and distribute clean piped water in provincial areas for the rural population in specially designated "water supply service areas";
- to determine water supply rates, equipment and service charges and payment procedures; and
- to establish rules, regulations and conditions of use (Article 7).

PWA is also authorized to provide water supply services in areas which MWA is unable to cater to. PWA may provide services in an area under MWA’s jurisdiction, if MWA so agrees (Article 8). As regards the production, transmission and distribution of water, PWA is empowered to construct and install water supply lines under, above, along or across any land belonging to any person, as long as such land is not a dwelling place. It is also empowered to designate certain areas as "special zones for the laying of water supply lines" (Article 30).

2. Conservation of Canals

In B.E. 2456(1913), as a consequence of enforcing the various Laws and the Proclamation on the Establishment of Public Water Supplies, the Conservation of Public Supply Canals Act was promulgated. In accordance with this Act, control over water supply canals was established, and provisions set forth for keeping the water clean and potable (Articles 4,5 and 8) and for dealing with offenses and imposing punishments (Articles 9 and 10).

In carrying out the provisions of the Act, MOI has the power to appoint canal conservation officials (Article 3) and to issue regulations concerning public water
supplies (Article 11). In addition, fishing and navigation in such canals now require a permit as well (Article 6).

Under the Conservation of Canals Act, general rules are established in order to maintain and conserve water and the canal structures as determined by Royal Decree, to be issued jointly under the authority of MOI and MOAC (Article 13).

The sama Act lays down other general rules for the protection, maintenance and conservation of the canals (Articles 6-10) which come under the joint control and responsibility of the Ministries. The Ministries are empowered to issue regulations for carrying out the provision of this Act and to appoint canal conservation officers (Articles 4 and 12).

B. Agricultural Uses

1. Legislation in Force

The agricultural uses of water in Thailand are governed by the following laws:

(1) The Conservation of Canals Act,
(2) The People’s Irrigation Act,
(3) The State Irrigation Act,
(4) The Dikes and Ditches Act,
(5) The Control of Weirs and Dikes Act,
(6) The Agricultural Land Development Act, and
(7) The Land Reform for Agriculture Act.

Since there is a tradition of both private and public irrigation development in Thailand, there are separate laws governing public and private development. As regards to the above Acts, water for irrigation purposes may be used in accordance with four different systems: private irrigation, people’s irrigation, contractual irrigation and state irrigation.

Private irrigation is considered to be the oldest system of irrigation practiced in Thailand. The method of irrigation is governed by Articles 7 to 10 of the people’s Irrigation Act, as well as the relevant provisions in the Civil and Commercial Code.

As for the “people’s irrigation” system, which means “any irrigation system jointly constructed by the people for the benefit of cultivation by the people within that locality”, it is also governed Articles 11 to 29 of the People’s Irrigation Act. Article 11 empowers the Provincial Commissioner to determine and declare “the area of any river, stream, creek, swamp, canal, marsh, bog, source of water of any waterway” as belonging to that category and to monitor and prohibit any action that would obstruct irrigation within an area so designated. While such a system is placed under government control, the irrigation works could be constructed either by individuals or by the State or
jointly, and have to be approved by the majority of the users benefiting from them (Article 12). Special provisions deal with the appointment of Chief Irrigators or assistants (Article 13), with the compulsory requisition of services and accessories to undertake the work (Article 14) and with the procedures to determine the amount as well as any exemptions or substitutions, or to make a financial assessment of such compulsory requisitions (Articles 15 and 18). Other provisions relate to the orders to be issued and the powers of those officials having jurisdiction over people’s irrigation as well as to the rules for settling claims and disputes, for the expropriation of immovable property, etc. (Articles 19-29). Penalties for offenders are stipulated in Article 38 of the Act.

Article 4 of the People’s Irrigation Act defines “contractual irrigation” as “irrigation works constructed by any person for remuneration, which is to be obtained from those who are desirous of making use of the water from such irrigation works for purposes of cultivation.” This type of undertaking is dealt with in Articles 30-37 of the Act which prescribes, for the construction of such works, a concession from the Ministry (MOAC). The concession establishes all the conditions concerning the extent of the works, the remuneration, the reports to be submitted, and other obligations on the part of the person holding such a concession. Penalties are established for offenses against the provisions concerning contractual irrigation (Articles 39-41).

As for the “state irrigation” which is defined by the State Irrigation Act as “any work constructed by the State to supply water from any waterway or reservoir for cultivation and includes the prevention of damage to the area under cultivation due to water as well as provisions governing navigation within the irrigation area.”

One very important point to note here is that this Irrigation Act does not, as its name would seem to imply, govern the use and distribution of water for agricultural purposes only, but also provides for control, maintenance and management activities, on the part of RID, of other water uses or activities, such as water conservation (or the storage of water to create a water supply for domestic, municipal and industrial purposes), drainage, land reclamation, flood control, as well as water communication and transportation.

The State Irrigation Act brings most of the above-mentioned activities under the control of RID and divides waterways into four categories:

1\textsuperscript{st} category: waterways for supplying, draining, conserving or retaining water for irrigation purposes;

2\textsuperscript{nd} category: waterways for navigation and irrigation within the area that is expected to benefit from irrigation works;

3\textsuperscript{rd} category: waterways reserved for irrigation purposes only; and
4th category: waterways as an ancillary means of irrigation.

Furthermore, the Act provides detailed rules and regulations regarding the powers on the part of the irrigation Engineer to make use of, control, operate and maintain the irrigation water and land along designated “irrigation waterways.” MOAC is charged with designating the category to which an irrigation waterway belongs.

The Agricultural Land Consolidation Act establishes provisions and regulations on the implementation and management of the agricultural land that are consolidated, including the development of irrigation and drainage systems for such land (Article 4). The Land Reform for Agriculture Act provides rules and regulations for reforming and reallocating land for agricultural purposes and for improving all inputs for agricultural production such as water, etc.

C. Industrial Uses

1. Legislation in Force

The industrial uses of water and, in particular, the development, production and management of hydropower, are governed by the following laws:

(1) The Act for the Development and Promotion of Energy (a revision of the National Energy Authority Act),
(2) The Energy Conservation Promotion Act,
(3) The Electricity Generating Authority Act,
(4) The Metropolitan Electricity Authority Act,
(5) The Provincial Electricity Authority Act,

2. Generation and Distribution of Hydro-power

In the beginning, the first installation to produce hydro-power was carried out by RID. However, as a result of reorganization and more recent legislation, a National Energy Administration (NEA or The Department of Energy Development and Promotion or DEDP at present) and the Electricity Generating Authority of Thailand (EGAT) were established, with a view of unifying the production, standardization, transmission, and distribution of power for the whole country. DEDP’s functions are defined as follows:

(1) To survey, collect data, analyze, experiment with and examine matters related to sources, production, transformation, and utilization of energy;
(2) To study, plan, and establish projects related to energy and other relevant activities;
(3) To conduct research and study, develop, demonstrate and bring about pilot projects related to production, transformation, and utilization and conservation of energy sources;
(4) To design, construct, and maintain production sources, transformation sources, transmission systems, and utilization system of energy, e.g. generation of
electricity from renewable energy and new sources, and water pumping by electricity;
(5) To establish rules and standards related to production, transformation, transmission, and conservation of energy sources, and to monitor and oversee that such rules and standards are observed;
(6) To establish prices for the use of energy, under DEDP's execution;
(7) To provide, control, implement, purchase, sell, rent, transfer to or accept transfer of production sources, transformation sources, transmission systems, and distribution systems of energy, and to issue licenses for energy production or expansion of energy production; and
(8) ..., to serve as a coordinating center for cooperation and support for related activities.

DEDP has the power to assign other governmental offices to carry out a particular task on its behalf (Article 9), to request technical, financial and statistical information necessary for the execution of its tasks form other agencies (Article 10), to enter private land or premises for a specific reason in the execution of its duties (Article 11), to make use of or possess immovable property or to expropriate the same in compliance with the Act on the Expropriation of Immovable Property (Articles 15-23). It may, by Royal Decree, designated any particular type, volume and process production or mode of utilization of energy as being controlled energy (Article 24). It may grant license to produce, or to expand the production of controlled energy (Article 25). Finally, penalties are set forth for offenses against the Act (Articles 33-37).

Under the provisions of the Electricity Generating Authority of Thailand Act, EGAT is entrusted with the production of power for the whole of Thailand. Act since 1969 EGAT has become the leading agency responsible for nearly all hydropower development works in the country, and for large-scale projects in particular.

The Provincial Energy Authority (PEA) and DEDP have been actively involved in carrying out smaller hydropower projects are primarily intended to provide electricity to rural communities and remote areas of the country.

D. Transportation/Communication Uses

1. Legislation in Force
The laws relating to the uses to which water is put as transportation are as follows:
(1) The Navigation in Thai Water Act,
(2) The Act Controlling the Mooring of Vessels in Rivers and Canals;
(3) The State Irrigation Act,
(4) The Act on the Prevention of Collisions between Vessels, and
(5) Ministerial Regulations (Ministry of Communications and MOAC).

2. Navigation and Transportation Uses
Water transportation has long been important to Thailand, both socially and economically, due to her many rivers, canals and her long coastline. Historically, inland waterways have been one of the main routes for public transportation and communication. In the Central Region of the country, many towns and villages are located on or close to the river, e.g. the Chao Phraya River. As a result, urban, commercial and industrial developments have been concentrated along the river banks.

The State Irrigation Act defines the expression "navigation lock"(Article 4), and an irrigation waterway "belonging to the second category as a "waterway used for navigation in common with irrigation ..." as determined by MOAC (Article 5). Article 14 empowers the Minister to issue ministerial regulations concerning the use of craft and the payment for the use of irrigation waterways, and maintenance fees to be collected from persons utilizing such waterways for transportation purposes; the same law lays down general rules prohibiting the damaging of navigation locks, weirs, etc. (Article 29), and the closing or opening of navigation looks and barrages (Article 32). On the basis of Article 14 of the Act, a Ministerial Regulation has been issued empowering RID to collect irrigation waterway maintenance fees from "persons plying boats and rafts through navigation locks, regulators or even dams by means of slipways every time, and each time paying the fees as fixed in schedule attached hereto," and from "persons regularly using motor or steam vessels with passengers or with boats and rafts taken in tow for hire on irrigation waterways of the first and second category and paying the fees at the rate fixed in the schedule annexed Hereto"(Article 2). Article 3 of the same ministerial regulation quotes the categories of boats and craft exempted from paying irrigation waterway maintenance fees.

The Navigation in Thai Water Act defines "Thai waters"as "Thai territorial waters and any harbors, anchorages, rivers and canals within His Majesty's Dominions"(Article 7) and provides further that the granting of any permission to be given in writing under this Act shall be done by the Harbor Master, who may also charge fees for such permits (Article 8). the Act and its amendments regulate in detail all navigation requirements, formalities, and rules concerning Thai waters, including inland klongs and canals (Articles 68-69), rafts, floating houses, fishing boats and buoys across the river (Articles 70-95), encroaching on rivers and the throwing of ballast, etc., into rivers (Articles 117-120), as well as general regulations concerning the licensing and registration of vessels and boats (Articles 134-312), pilots (in amendments) and other provisions regarding navigation requirements and different types of fees and rates to be collected.

On the basis of the above legislation it should be noted that no clear distinction is made between inland water and territorial waters under Thai sovereignty, even though different government ministries, departments and authorities are responsible for such waters.

The Act Controlling of the Mooring of Vessels, makes it the responsibility of the municipalities in metropolitan areas or local authorities, to specify areas within which mooring is permissible only for periods not exceeding three days, unless permission has been obtained (Articles 7 and 8). Furthermore, it stipulates that it is the duty of the owner of any leaking boat not self-moving to remove his vessel so as not to cause any obstruction to navigation (Articles 5 and 6). This Act confers power on the municipalities to issue rules and regulations on the methods of mooring in order to facilitate navigation on the rivers or canals under their jurisdiction (Article 8).

The Act to Prevent the Collision of Vessels empowers the Minister of Communications to issue regulations on the following matters:

1. use of all sorts of signals, buoys, and
2. traffic regulations (Article 5) which shall apply to Thai waters, and vessels of any nationality (Article 6).

E. Medical and Thermal Uses

At present, no special regulation or act exists concerning the use of water for medical and thermal purposes.

F. Fishing

1. Legislation in Force

   (a) The Act Governing the Right to Fish in Thai Waters.

   (b) The Fisheries Act.

2. General Remarks

   In the past, all fishing rights and privileges belonged to the king, who could grant them to any person. The person holding the concession was entitled to issue any fishing regulations and to sublease part of that right to third persons.

   According to the Fisheries Act, waters are classified into four categories:

   (1) public waters,
   (2) reserved waters,
   (3) leased waters, and
   (4) preserved waters.

   Any person could fish in public waters, subject to the ministerial orders and regulations. Fishing in reserved waters required a special license, while monopoly right to fish in leased waters were auctioned off publicly at the office of provincial administration;
Preserved waters are those in areas designated by provincial governors, and are regard as fish sanctuaries where no fishing is allowed. All fishing gear, except for minor implements used for catching fish for consumption, were licensed and taxed. As the primary aim of this Act was to secure revenues, the responsibility for its administration was vested in the Department of Revenue under the Ministry of Finance.

Later on, the first fisheries official service was established under MOAC for developing the culture of aquatic animals, managing and maintaining fishing grounds, and advising on regulations governing the use of fishing gear, fishing seasons, illegal fishing, etc. However, the main responsibility for fisheries remains under the Revenue Department.

3. Fishing in Thai Waters

The right to fish in Thai waters was redefined by the Right to Fish Act which applies exclusively to Thai nationals. According to Article 5 of the Act, aliens and foreign companies are excluded from such a right and, unless agreements have been signed to the contrary. The prohibition extends to foreign vessels or to vessels with foreign vessels with foreign crew as well (Article 7). Specific provisions of this Act deal with the exercise of the right for foreign vessels and fishery users in possession of a fishing license at the time the Act was promulgated to fish in Thai waters (Article 15).

The new Fishery Act defines “fisheries” as any “land with still or running water such as the sea, a river, a canal, swamp, marsh, pond and beach, which belong to the public domain of the State, including forests and ground which are inundated during the flooding season …. and being within territorial waters, or any other waters in which Thailand exercises or may be entitled to exercise her fishery rights, as such waters publicly appear to be delimited by local or international law or usage, by treaty or in any other way” (Article 4).

In accordance with this Act, the responsibilities for both administration and development were then transferred to the Department of Fisheries, MOAC (Article 4-5). Fisheries are divided into four categories: (1) preservation fisheries, (2) leasable fisheries, (3) reserved fisheries, and (4) public fisheries, the latter to be designated by the Provincial Council in each province with the approval of the MOAC (Articles 6-7). Except in the case of public fisheries, no fishing is allowed in any other categories without a permit, as in the case of preservation fisheries (Articles 8-9), a lease, as in the case of leasable fisheries that is granted by calling for tenders (Article 10-11), or a license, as in the case of reserved fisheries (Article 12-13). The Act contains a series of provisions prohibiting the installing of traps, the draining of water, the use of drugs or explosives, or altering or otherwise tampering with fishing areas (Articles 17-22).

The Act also set up the procedures for registering of and applying for permits for fisheries, as well as rules governing the validity, duration and characteristics of the permits, leases and concessions and the payment of fishery taxes (Articles 24-46). It also includes provisions concerning the control of fisheries (Articles 52-60) and penalties for offenses (Articles 61-72). MOAC is empowered to appoint officers to take charge matters pertaining to the administration of fisheries, to issue orders declaring the close of the fishing season, to regulate revenues from fisheries, etc. (Article 5).
VIII. Legislation on The Harmful Effects of Water

In Thailand, while no specific legislation instrument concerning the harmful effects of water exists, some provisions concerning specific issues such as flood control, protection against overflow, drainage, etc. can be found in various acts.

Article 16 of the State Irrigation Act, states that RID has the power to “prohibit, restrict or lay down conditions for the use and drainage of water in the waterways belonging to the 4th category.” Article 23 prohibits any person from cultivating or constructing any structure encroaching upon the … “limits of an embankment or flood embankment, unless duly authorized,” and Article 25 prohibits any person from obstructing an irrigation waterway. unless temporarily authorized to do so by RID. Article 30 also prohibits any person from doing “anything which causes damage to an embankment … flood embankment…”

Since all irrigation structures, as well as embankments, and the uses to which water is put, are placed under the direct control of RID, any action by individual users which might cause damage due to floods or obstructions, could be prohibited from carrying out such an action by RID officials. Furthermore, any repair work that needs to be done to ensure public safety, may be carried out directly by RID at the expense of the offending party.

It may be observed that there are no specific measures that deal directly with soil erosion and siltation in any of the various Acts. Nevertheless, these subjects are deal with indirectly in terms of various regulations and restrictions dealing with the protection of the nation’s forests, the control of watershed areas and the control and monitoring of land use that appear in several articles in other acts, including the Act Governing the Enhancement and Conservation of the Quality of National Environment, the Act dealing with the Protection and Conservation of Forests, the Forestry Act, the Land Development Act, the Minerals Act, the National Forestry Reserves Act and the National Parks Act. Ministerial Announcements on the “Watershed Classification Program” have issued by the Ministry of Science, Technology and Environment, with the goal to control land use to preserve watershed areas throughout the country.

IX. Water Wastage, Quality and Pollution Control

Legislation concerning the quality of water, pollution control and environmental protection in Thailand includes the following:

1. The Conservation of Public Water Supply Canals Act,
2. The Conservation of Canals Act,
3. The Cleanliness and Tidiness of the Country Act,
4. The Act Governing the Enhancement and Conservation of the Quality of the National Environment,
5. The Municipality Act,
6. The Public Health Act,
7. The Sanitation Act,
8. The Building Control Act,
9. The Factories Act,
10. The State Irrigation Act,
(11) The Fisheries Act,
(12) The Groundwater Act,
(13) The Minerals Act,
(14) The Metropolitan Waterworks Act, and
(15) The Provincial Waterworks Authority Act.

Since a considerable numbers of laws are involved, only a brief summary of some of the more important provisions and linkages of these are discussed below.

Article 21 of the state Irrigation Act, stipulates that in supplying or diverting water for irrigation purposes, either RID or the district officer is empowered to order the land owner or users of such irrigated lands to carry out whatever necessary measures, within a designated period of time, to prevent the water that has been diverted from flowing to waste in order to allow neighboring land to be irrigated in a reasonable manner. Failure to comply with such an order renders the offending party subject to punishment. The Act empowers the official to carry out corrective works at the expense of the said offending party (Article 22). Many articles of this Act refer to the various ways in which water is misused, which are prohibited and which RID may prevent from occurring or may rectify at the offender's expense.

Article 4 of the Act on the Conservation of Water Supply Canals, prohibits the discharge of filth, carcasses or garbage into canals supplying water, as well as the washing of utensils and clothes, and the watering of animals along such canals. Furthermore, no person may allow his livestock to graze or take baths in the immediate vicinity of the canal, etc. (Article 3). Penalties are also stipulated for any offenses committed in this respect.

Article 6 of the Canals Act prohibits the dumping of dust or garbage into canals. Article 9 states that no one is allowed to cause damage to a canal. Article 11 gives MOAC the power to draw up regulations stipulating the fees for conservation. Article 28 of the State Irrigation Act prohibits anyone from dumping refuse, waste, garbage and toxic chemicals into an irrigation waterway or from rendering the water therein harmful to agriculture, or to public health or making it harmful to drink.

Articles 4 and 5 of the Sanitation Act provide for the setting up of local "sanitation district" under the control of the local authorities. One of the responsibilities of the district, among other things, is the provision and maintenance of a water supply for domestic purposes. Article 19 states that the administrative functions of the sanitation district are to be carried out by a "Sanitation Committee." Article 25 goes on to define the functions and responsibilities of the sanitation district, which include the following:

- to provide and maintain land and waterways;
- to provide and maintain drainage ways;
- to ensure that streets, walkways and public areas are kept clean;
- to provide clean water or water supply systems and
- to protect against and prevent public disasters.

Article 26 of the Act contains penalty clauses for violations of the regulations governing a sanitation district but defines such violations as misdemeanors only.

Provisions concerning the preservation of health from activities associated with the utilization of water are scattered throughout various legal enactment. The Public Health
Act empowers the municipalities and local authorities to issue regulations on the supply of water for public consumption and for prohibiting the public from using the water from any well which is likely to endanger public health (Articles 34-40). In Chapter on Nuisances, the Act provides that the local official has a duty to remove, prohibit and abate nuisances in public or private places which tend to impair or area likely to be harmful to the health, safety or right and liberty of the public. He also has a duty to look after and to keep all streets, roads and watercourses within his district free from nuisances. The authorities may also provide special places for public bathing and the cleaning of clothes, set aside water for animals to bathe or other purposes, and to monitor such places and, whenever appropriate, determine the fees to be levied on the users (Article 37).

The Public Health Act empowers local authorities to issue rules and regulations concerning the control, supervision and regulation of environmental quality, e.g. domestic water supply sources, and activities which may cause a public nuisance or endanger the health of the public. The Act and its subsequent amendments stipulate comprehensive regulations on the disposal of rubbish, fifth and dirt, and authorize the local authorities to issue bylaws or rules establishing the procedures governing the disposal thereof. Under the Act, local authorities are empowered to control business activities which are likely to damage public health or to cause unsanitary conditions in or around dwelling places or watercourses.

The Act Governing the Cleanliness and Tidiness of the Country regulates and controls public nuisances, including activities that disturb the public and activities that mars the environment. Articles 16 and 17 of the Act specifically prohibit the dumping of rubbish and waste into public waterways or canals.

The Building Control Act empowers local authorities to issue bylaws controlling the number and type of bathing and toilet facilities inside a building. It also contains provisions and specifications regarding a building's storm water and wastewater drainage systems. Article 8 of the Act stipulates that "... the Minister, in accordance with the recommendation and suggestions on the part of the Building Control Committee, can issue Ministerial Ordinances and Regulations to govern standards, size, specifications, usage and building permit fees for building, as well as the construction, moving and modification of buildings, including specifications on drainage and sewage." Article 87 states that "... wastewater from factories, hospitals, open fresh-food markets, restaurants, condominiums, dormitories and from disgusting activities must be properly treated in wastewater treatment systems before being discharged into public drains."

The preamble of the Town and Country Planning Act declares the goals of the Act as follows: "to regulate and control the orderly development and expansion of the town and urban community and to reduce or prevent environmental degradation." Article 4 defines "town planning" as an activity that concerns the use and control of land, the safety and welfare of local residents, and the economic and environmental conditions of the town and urban community." The Act establishes "Town Planning Board"(Article 6), and a "Local Town Planning Committee" (Article 50) and entrusts them with the specific task of preparing a general town plan and a specific town plan, by issuing Decrees in accordance with the steps and procedures stipulated by the Act. Article 68 contains
specific provisions on the laying and construction of drainage channels on private property.

The Factories Act empowers the Ministry of Industry (MOI) to control and regulate the discharge of effluents from factories by setting up clear-cut standards governing effluents and a permit system. The Act imposes certain responsibilities and duties on industries using processes resulting in the discharge of pollutants or heavy metals into public waterways. In cases involving non-compliance, MOI has the full authority to order a factory to rectify or to modify its production system in order to solve the problem; otherwise, it shall be subject to punishment or closed down.

The Groundwater Act is currently being implemented in certain specific areas where the overexploitation and quality of groundwater have become critical problems. The Act prescribes technical measures to protect groundwater from pollutants and introduces standards for groundwater to be used for drinking purposes. Emphasis is placed on the monitoring of water quality in aquifers that have been adversely affected as well as in neighboring aquifers through a network of observation wells, and also on the monitoring of the recharging of aquifers.

Provisions in the Minerals Act govern the development and operation of mining activities, in particular the use of water and public waterways including pollution control, the discharging of waste and safety aspects.

The Navigation Act includes regulations covering the transportation of dangerous substances along Thai waterways.

The Act governing the Enhancement and Conservation of the Quality of the National Environment which passed by the National Legislative Assembly on February 27, 1992, marks a significant step in the development of a legal framework for natural resources utilization and protection for Thailand. The NEQ Act set up a National Environmental Board (NEB) and an Office of the National Environmental Board (ONEB). The Act entrusted the NEB with performing functions which are directly concerned with the formulation and implementation of policy, as well as with coordination with other government agencies in matters relating to the protection and conservation of the nation’s natural resources and the quality of the environment.

Article 6 of the Act accords to individual the rights and duties regarding the enhancement and conservation of the quality of the natural and environmental resources, including waste water and water quality control. Article 32 in Chapter III: Environmental Protection, Part I: Environmental Quality Standard, set up specific water quality standards for river, canal, swamp, marsh, lake, reservoir and other public inland water resources in accordance with the water use classifications for each river basin. Groundwater quality standards are also principles criteria and evidences relating to and also taking into account the practicability of such standards from the view points of economic, social and technological considerations.

Article 36 deals with an “Environmental Quality Management Plan” which includes a short-, medium- and long-term water management plans. Article 43 empowers the State, through the NEB, to designate a unique watershed area as a “conservation area” and to issue specific measures for controlling and monitoring the utilization and conservation of
such area. Rules and regulations regarding the preparation procedures and requirements of an environmental impact assessment (EIA) are stipulated in Part 4.

Article 69 to 77 deals specifically with the aspects of controlling, monitoring and treatment of point source of water pollution and wastewater. Some specific issues which are dealt with in the Act are:

- National Environmental Board;
- Environmental Fund;
- Environmental Protection Standards/Environmental Management Plans for Protected Areas,
- Environmental Impact Assessment
- pollution control measures;
- Quality/Emission/Effluent Standards (water quality, groundwater quality, effluent standards, guidelines and regulations);
- Monitoring, inspection and control of environmental quality;
- “polluter pays” principle, service fee and penalty;
- Civil liability; and
- Environmental quality promotional measures.

NEB is empowered to issue ministerial orders and regulations covering certain designated projects, e.g. large-scale hydropower or irrigation projects, for which an environmental impact assessment (EIA) study has to be carried out by the agency implementing the project. The EIA report, together with the mitigation plan to alleviate the impact of the project, is to be submitted to the Government, through ONEB, for consideration before the project is approved and can be implemented.

The following list contains samples of the project or activities (only of a specific size and at given locations) which require an EIA report: storage dams and reservoirs, irrigation projects, mining, industrial estates, commercial ports etc.

ONEB, the implementing body of NEB, is entrusted with the responsibility of preparing technical advice, formulating a “National Environmental Protection Action Plan,” issuing ambient and effluent standards, and promoting public awareness and engaging in public relations activities.

ONEB also acts as a secretary to several ad-hoc committees, set up by the Council of Ministers and NEB, that are responsible for various aspects of pollution control, hazardous waste management, etc. Some of these committees which are concerned or directly related with water resources are:

- Committee on Environmental Legislation
- Committee on Watershed Classification
- Committee on Land Use
- Environmental Committee on Water
- Committee on Marine Environment

X. Underground Water Sources

Though groundwater has a role in providing water in Thailand dating back to the last six or seven decades, a specific law concerning groundwater came into force only in B.E. 2520, when the Groundwater Act was enacted.

In the past, the development of groundwater for water supply was under the responsibility of the following agencies:

the Department of Mineral Resources, the Department of Public Works, the Metropolitan Waterworks Authority, the Department of Health, and the Office of Accelerated Rural Development.

Under the Groundwater Act, the Department of Mineral Resources (DMR) is empowered to look after the investigation, evaluation, and conservation of groundwater as well as its development. The Metropolitan Waterworks Authority (MWA), which is responsible for supplying water to the Bangkok Metropolitan Area, also uses groundwater for about one-third of its public water supply. In Bangkok and its suburbs, several thousand of public and private wells is also used for industrial purposes, but only a small percentage is used for agriculture or livestock production. In areas around Bangkok, groundwater is being pumped both for domestic use and industrial purposes, which causes serious problems in some areas in the form of land subsidence. Due to these problems, particularly in the eastern part of Bangkok and the Samut Prakarn province, the use of groundwater is now regulated and controlled more strictly and the number of wells still in operation is limited only to those areas that can not be served by the MWA system.

The Groundwater Act contains provisions for controlling the exploration and drilling for groundwater, the use of groundwater, the recharging of aquifers through wells and the protection and conservation of groundwater resources. Several Ministerial Regulations issued under the Act cover the following:

- the licensing of drillers;
- the issuing of licenses for the exploitation and exploitation of groundwater,
- measures designed to protect groundwater resources; and
- other control measures.

The provision of groundwater for agricultural use is undertaken by RID, although only within limited areas. At present, only one large-scale irrigation project in the North, near Sukhothai Province, has been developed, using deep groundwater tube-wells.

XI. Administration of Water Rights

A. Government Organization
In Thailand, like many other countries, different ministries, departments, agencies and committees are in charge of the administration and control of water resources. Table 1. and 2. provide the listing of various agencies and committees that are currently dealing with the development and management of water resources.

The following paragraphs will briefly summarize functions and duties of some of the more important agencies.

1. Ministry of Agriculture and Cooperatives, MOAC

MOAC is the main ministry with broad jurisdiction and control over the development and conservation of water on the following related activities: (1) irrigation, (2) drainage, (3) land reclamation, (4) flood control, (5) water transportation/communication on irrigation waterways, and (6) the conservation/storage of water and maintenance of the flow of river water.

The above-mentioned responsibilities are carried out mainly by RID through its technical divisions, such as: the Project Planning Division, the Design Division, the Survey Division, the Operation and Maintenance Division, etc., as well as through the regional irrigation offices and special offices dealing with specific projects, such as the projects launched under the Royal Initiative of His Majesty.

MOAC, through RID, also jurisdiction over water wastage and misuses of water in irrigation waterways or reservoirs through its local officers acting in co-operation with other local authorities. Quality control, pollution control and the preservation of health, are also the responsibility of RID, together with other ministries and local authorities.

MOAC, through the Department of Fisheries, has jurisdiction and control over the use of water for fishing purposes in all Thai waters, including inland waters as well as territorial waters under Thai sovereignty.

**Table 1. Government Agencies Involved in Water Resources Development**

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<td>Royal Irrigation Department</td>
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<td>Royal Forestry Department</td>
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<td>Department of Agricultural Extension</td>
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Office of Accelerated Rural Development
Metropolitan Waterworks Authority
Provincial Waterworks Authority

Ministry of Public Health
Department of Health

Office of the Prime Minister
National Economic and Social Development Board
Office of the National Water Resources Committee
Electricity Generating authority of Thailand

Ministry of Industry
Department of Mineral Resources
Department of Industrial Works
Industrial Estate Authority of Thailand

Ministry of Communications
Department of Harbor
Meteorological Department

Ministry of Science, Technology and Environment
Department of Energy Development and Promotion
Office of National Environmental Board
Department of Pollution Control
National Research Council

Ministry of Defense
Hydrolographic Department, Royal Thai Navy
National Security Command Headquarter

Table 2. Committees Involved in Water Resources Development

National Level
National Water Resources Committee
National Rural Development Committee
National Environmental Board

Ministerial Level
Committee for the Development of Irrigated Agriculture
Agricultural Policy Committee
Environmental Committee on Water Board

2. The Ministry of Communication

The Ministry of Communication, through the Harbor Department, has jurisdiction and control over the use of water and waterways for transportation and navigation purposes;
its responsibilities are similar to the power vested in MOAC, through RID, over irrigation waterways.

3. The Ministry of the Interior

The Ministry of the Interior, through its several departments, have overall control over municipalities and local authorities, exercises jurisdiction over water supply, city flood/drainage system, water quality, pollution control and the preservation of health, together with other agencies of MOAC, the Ministry of Science, Technology and Environment, and the Ministry of Public Health.

4. The Ministry of Public Health

The Ministry of Public Health, through the Department of Health, exercises jurisdiction over the maintenance of water quality, pollution control and the preservation of health in conjunction with various local authorities and municipalities under the overall supervision of the Ministry of the Interior, and other ministries, such as MOAC.

5. Other Government Departments and Agencies

Various government departments, agencies and authorities are legally empowered to monitor special water activities, for example: the overall task of planning with regard to water resources, is shared among the National Economic Council, the Office of the Prime Minister (through the National Water Resources Committee and NESDB) and MOAC; the task of making meteorological forecasts and predicting flood is shared between the Ministry of Communication and MOAC; the issuance of permit for groundwater use by the Ministry of Industry; the collection of water fees is undertaken jointly by the Revenue Department of the Ministry of Finance and RID. The Ministry of Justice, through the juridical system of courts and tribunals, exercises the legal right to adjudicate in cases concerning conflicts of interests regarding the use of water, and through the court system ensures that the various laws relating to the different uses of water are enforced.

B. Water Users' Association/Water Users' Group

The setting up of water user’s associations and water users’ groups as well as their internal organization is under the supervision of the Agricultural Promotion Department, the Agricultural Cooperatives Promotion Department and RID of MOAC. When such associations exist, they are also be governed by the general provisions contained in the Civil and Commercial Code (Articles 72 and 1274-1297). They also fall under the jurisdiction of the Ministry of the Interior, which acts through the Department of Local Administration, and have to be registered with the office of the local registrar and are subject to the payment of registration fees.

C. Assessment of Water Charges/Fees

The Payment of fees and the rate of the charges concerning various activities involving the use of water is a principle that has long been established in several laws and exercised
in Thailand, particularly in the domestic water supply sector. The assessment of water rates and fees is carried out by the ministry under whose jurisdiction a particular type of water usage falls. Such water fees and rates are established by the specific law relating to that use and by other legal enactments such as ministerial orders/regulations or Royal Decrees.

Article 8 of the State Irrigation Act empowers MOAC, by the issuing of Ministerial Regulations, to collect "irrigation water fees from owners of the land benefiting from the irrigation works in any given irrigation area, at not more than 5 Baht per rai annually, by way of issuing a ministerial regulation determining those areas of land for which irrigation water fees are to be collected or which are exempted there from." These fees are collected from the owners or users of the land in the area under irrigation or from users of water from an irrigation waterway, regardless of whether the user is located inside or outside the irrigation area. Farmers irrigation fees are to be placed in a "Revolving Fund for Irrigation Purposes" to be used only for purposes of irrigation, i.e. for the operation and maintenance of an irrigation system, pursuant to regulations issued by MOAC and subject to approval by the Ministry of Finance.

Article 14 empowers MOAC to issue regulations concerning the collection fees for the maintenance of irrigation waterways, for transportation purposes and for the use of fishing gear on irrigation waterways. The Ministerial Regulation issued under this Act also establishes the amount of such maintenance fees and which cases are deserving of exemption. It should be noted that the existing irrigation water fee is very small, and actually too many to cover the administrative cost for collecting it.

In addition to the irrigation fee, the Agriculture Land Consolidation Act provides for the recovery of costs from beneficiaries, in designated land consolidation areas, with regard to the cost of constructing, operating and, maintaining common tertiary facilities, and the cost of land leveling.

The Fisheries Act contains provisions regarding the assessment of water fees for fishing purposes. Article 5 gives MOAC the power to “fix the fisheries tax and fees at a rate not exceeding that in the schedule.” Articles 27-30, 33, 38-40 and 42 of the Act deal with the fishery tax to be paid, with refunds, or cases which would be exempted from such payments.

Provisions governing water fees, as well as service and maintenance charges for supplying water are stipulated in both the MWA Act and the PWA Act. Provisions regarding licensing fees for the development of groundwater and usage also appear in the Groundwater Act.

XII. Special Water Development Agencies

A. General Remarks

In the past, there were no special agencies charged with the development of water resources for a particular field of water utilization, for a specific area or river basin, or for a specific purpose such as irrigation or agriculture. These uses are normally dealt with directly by RID within the framework of its multifarious activities. Recently, however a
number of special agencies have been set up, for example in the production of hydropower, to handle the specific use of water for such a specific application.

**B. Hydropower/Electricity Generating Authority**

As pointed out earlier in Section relating to the industrial uses of water, the National Energy Administration (NEA or DEDP, at present) was created by the Government in a bid to coordinate the development works to satisfy the nation’s energy needs, including the production, distribution and the use of hydro-power throughout the kingdom. In compliance with the terms of reference of NEA, special autonomous bodies have also been set up to deal with the production or distribution of hydropower.

One of these authorities was the Yanhee Electricity Authority (later to be combined with other electricity authorities and become the Electricity Generating Authority of Thailand or EGAT) which was established by virtue of the Yanhee Electricity Act as an autonomous body with statutory powers and functions, which may be briefly summarized as follows:

1. To generate, acquire, transmit and supply electric power; and
2. To undertake all types of activities related to electric power and other activities which will promote the aims of the Authority.

Later on, similar state enterprise authorities were created by subsequent legislation for the purpose of producing and/or distributing electricity in specific areas and regions. These consist of the Provincial Electricity Authority (PEA), created by the Provincial Electricity Authority Act.

**XIII. Control of Hydraulic Structures**

**A. Specific Legislation**

The rules containing provisions on the specifications for the construction and protection of hydraulic structures have been laid down in the Dikes and Ditches Act. Article 5 of this Act specifies that “the dike shall be of sound construction, capable of retaining water at not less than 20 cm over the ground surface level and not more than 30 cm in height.” By Royal Decree, particular localities are specified in which all waterworks and structures are placed directly under government control and any construction of dikes and ditches can only be carried out after the necessary permission has been secured from RID. RID is empowered to issue such permits which specify: the technical requirements, the obligations of the construction company and the details of such structures. RID is authorized to appoint officers (Article 18,) and inspectors (Articles 20-22) to exercise control over the structure of such waterworks.

**B. Other General Legislation**

Other provisions of a more general character on the control of hydraulic structures can be found in the People’s Irrigation Act, which empowers District Officers to interfere with and control irrigation structures. Similar provisions are contained in the State Irrigation Act concerning the classification of irrigation waterways (Article 5) and confer extended powers upon the officials to enter private property to make surveys and explorations in
connection with irrigation works (Article 10), to take possession of and make use of land necessary for hydraulic construction under the law governing the expropriation of immovable property. Article 13 empowers RID to appoint, by notification in the Government Gazette, any “non-RID” personnel as officers whose powers and duties deal exclusively with taking care of and maintaining the boundaries of irrigation waterways and structures. Furthermore, any construction, repair, alteration, or modification of such hydraulic structures in connection with any one of a variety of uses of the water itself, may be carried out only after a permit specifying the technical requirements has been issued or secured in advance.

XIV. Declaration of Protected Zones or Areas

Article 5 of the People’s Irrigation Act stipulated that “in time of drought or for the purpose of public safety or the welfare of the public, the Provincial Commission shall have the power to order the temporary closure of or suspension of the use of any part of an irrigation structure, whatever the categories, or to order any alteration to the diversion of water for such purpose. In case the diversion of water is carried out in time of drought, the person who receives the benefit there from shall bear the expense himself.” Furthermore, should the special need arise, RID may also interfere with any existing use or diversion of water for any purpose and may issue orders with which the individual users are obliged to comply.

A similar provision appears in Article 15 of the State Irrigation Act, whereby RID has the power “… in an emergency, to proceed according to the provisions of the foregoing paragraph before issuing notification thereof.” This includes the power to “close or open, excavate, repair or remodel irrigation waterways wholly or in part for whatever period of time may be deemed necessary, or to have any structure build on such waterways and … to lay down rules of procedure for the sake of safety or for the purpose of irrigation.”

XV. Legislation on The Economic and Financial Aspects of Water Resources

There is no law that deals specifically with the government’s financial contributions to the development of water resources. Overall, activities aimed at the development and management of water resources, i.e. planning and the allocation of funds for the implementation of such projects, are handled directly from within the normal administrative and decision-making framework for the consideration of projects by various inter-ministerial agencies and bodies, such as: the Council of Ministers, the Council of Economic Ministers, inter-ministerial bodies such as the National Economic and Social Development Board (NESDB), the National Environmental Board, the National Water Resources Committee, the Committee for the Development of irrigated Agriculture, the National Rural Development Committee, etc.

Nevertheless, in order to accelerate economic progress and social services in provincial and rural areas and to encourage and make it easier for private and foreign investors to participate in the economic development of the country, a special act containing provisions on investment has been promulgated. This is the Investment Act, whereby the Board of Investment (BOI) was established. Under the Act, BOI may establish special areas called “Investment Promotion Zones.” The Act provides for a package of exemptions from corporate income tax for potential investors, as well as reductions in import duty and business tax, with additional incentives for enterprises or persons who
operate businesses in these areas. These investors are entitled to special rights and
privileges in addition to those they would normally enjoy. In addition, these persons will
benefit from a wide range of utilities and infrastructure facilities provided by the
Government, with the mobilization of government services to be accorded high priority.

From time to time, BOI issues an announcement containing a list of activities eligible for
promotion and specifying the types of business that can apply for promotion privileges
and the conditions that apply in such cases.

The following is a partial list of activities that are eligible for BOI privileges:

- Agricultural Products and Commodities
  - Large-scale Cultivation
  - Processing of Agricultural Products
  - Processing and Preserving of Food
  - Livestock Raising or Meat Processing

- Services
  - Water Transportation
  - Loading and Unloading Facilities for Sea Transportation

BOI also established an “Investment Services Center” as a point of contact for
businessmen seeking assistance in obtaining licenses and permits from government
departments and agencies and to provide advice on issues related to investment.

XVI. Implementation of Legislation

A. Juridical Protection of Water Rights

In general, juridical protection for the right to utilize water for any purpose is governed
either by the general principles of law existing within the Thai legal framework, or by
special articles containing in different acts which deal with or concern the right to utilize
water for various purposes.

The general rules protecting the right to the private utilization of water can be found in
the Civil and Commercial Code. Special rules concerning the protection of water rights
and the settlement of disputes are found in People's Irrigation Act, with regard to the
amount of compensation to be decided by an arbitrator, and the settlement of disputes in
cases that involve changing, altering, amending, joining or terminating any people’s
irrigation scheme within a certain area. Such disputes are to be decided, if they happen to
arise within the same district, by the District Officer, on the basis of a majority vote of
the users; in case of disputes arising between different districts within the same province,
the Commissioner of the Province shall appoint a committee of not less than five persons,
which shall decide the matter according to the opinion of the majority. In case of disputes
arising between neighboring provinces, a committee comprised of representatives of the
provinces concerned and appointed by the Commissioner of the Province and one
member appointed by RID, shall decide the issue on the basis of a majority decision.

B. Water Tribunals, Courts or Judiciary Water Authorities
1. General Remarks

At present, no special court, tribunal or other judiciary authority exists in Thailand for the settlement and adjudication of disputes and claims arising from the development of water resources and activities involving the use of water. Therefore, whenever such disputes and claims arise, they are dealt with and receive legal protection either on the basis of administrative procedure or existing civil courts and tribunals.

2. Settlement of Disputes

Various laws and legal enactments activities involving water resources contain, in some of their articles, specific rules for adjudicating and settling disputes arising from water utilization for different purposes.

   a) Agricultural Uses

Administrative procedures for settling disputes involving the people’s irrigation schemes are already covered by the People’s Irrigation Act. In addition, the Act for the Expropriation of Immovable Property, also set forth the general principle that:

   “Compensation shall be granted to:

   (1) The owner of any land subject to expropriation,

   (2) The owner of any building or other structure being impossible to remove that exists on or in such land ….

   (3) The lessee of the said land, building or structure …

   (4) The owner of any tree of immovable natural object existing on the said land …

   (5) The owner of any building or structure standing on the land that can be removed … provided that the owner is not bound to remove it simply due to the fact that he has been given notice to do so by the owner of the land …

   (6) any person deprived of the right of passage or the right to access a water supply, drainage, electricity or other similar installation through the expropriated land, under Article 1349 or 1352 of the Civil and Commercial Code …”

Articles 12 to 17 of that Act provide further detailed rules concerning the compensation to be paid for property expropriate under it, the procedures involved, the amount of compensation to be paid, and other requirements in connection therewith.

In laying down the procedures concerning expropriation, the Act for the Expropriation of Immovable Property states that, “if it becomes necessary to refer the matter to arbitration under the terms of this Act, the provisions of the Law of Civil Procedure concerning arbitration shall apply, mutatis mutandis.”

Similar procedures for settling disputes appear in Article 34 and 36 of the MWA Act as well as in Article 38 of the EGAT Act. In Article 38 it is stipulated that EGAT and RID shall jointly issue regulations concerning the fixation of the volume of water to be retained in or to be released from the reservoirs and, “If an agreement cannot be reached in regard to the issuance of or compliance with the regulation, a report should be referred to the Minister for consideration. The Minister’s decision shall be final.”

   b) Fisheries
Article 46 of the Fisheries Act stipulated that “In case a competent official, having the power to grant a concession, permit or license, refuses to grant the documents, the applicant is entitled to lodge an appeal with the Minister through the official within thirty days from the day on which the order comes to his knowledge. The official in question shall, without delay, submit the appeal to the Minister, whose decision shall be final.”

3. Judiciary Authorities

The regular courts and tribunals of Thailand are competent to adjudicate and issue decisions concerning damage affecting water resources activities, due to wrongful acts committed either by individual users or by state officials. The legal procedures and appeals are dealt with in Title V of the Civil and Commercial Code, and in the Code of Civil Procedure. Hence, aside from exercising the right to arbitrate in such matters, the Thai Courts hold full jurisdiction over the adjudication of disputes arising from water activities.

C. Penalties

1. General Remarks

The penalties for offenses committed in connection with water use, waste, etc., are stipulated both in the Penal Code and in all the legal enactments concerning the use, distribution and control of water as already mentioned earlier.

2. Penal Code

The Penal Code of Thailand contains many articles which stipulate the punishment to be meted out for offenses concerning water activities. Some punishable activities include the following:

- causing of inundation (Article 228)
- damaging sluice gates, dams, embankments (Article 229)
- tampering with water supplies and electric transmission lines (Article 237) thus causing death (Article 238)
- obstructing public drains, water-courses or sewers (Article 375); and
- polluting water in wells and reservoirs (Article 380).

Other provisions of the Penal Code are concerned with other wrongful acts, directly or indirectly connected with the administration/management, utilization and distribution of water.

3. Domestic and Municipal Uses


4. Agricultural Uses

Punishments are established for offenses under the various acts concerning the agricultural use of water in several places such as in Articles 36-42 of the State Irrigation Act, in Article 38-42 of the People’s Irrigation Act, in Articles 23-27 of the Dikes and Ditches Act, and in Articles 6-9 of the Act on the Conservation of Canals.
These penalties including provisions for the imposition of fines and the imprisonment of offenders, as well as for the imposition upon them of the obligation to restore the premises to its original state in cases where unlawful modifications have been made; and furthermore they empower officials so to undertake such restoration or corrective work at the offender’s expense.

5. Power Generation

All laws concerning generation of hydroelectric power or the setting up of special or autonomous electricity agencies contain penal provisions for offenders. Such provisions appear in Articles 64-70 of the NEA Act (or Article 33-37 of the DEDP Act), in Articles 39 of the Metropolitan Electricity Act, in Article 38 of the EGAT Act, and in Article 40 of the PEA Act. All penal provisions provide for fines, imprisonment or both for whoever obstructs the actions of the authorities or their staff members.

6. Transportation Uses

All laws governing the use of water and waterways for transportation or communication purposes contain some penal provisions for offenders. Such penalties can be found in Articles 36-41 of the State Irrigation Act. Penalties under this Act include fines (in the case of causing leakage in canals and obstructing navigation) and imprisonment. Article 9 of the Act on Controlling the Mooring of Vessels in Rivers and Canals, and several articles of the Navigation in the Thai Waters Act, provide for fines and imprisonment or both, for offenders.

7. Fishing Uses

The Acts governing fishing activities in Thai waters contain penal provisions for offenders. These provisions can be found in Articles 61 to 72 of the Fisheries Act, and in Articles 11-13 for the contemplates, confiscation of the offending vessel and for prosecution by the public prosecutor or the military authorities.

8. Preservation of Health

The public Health Act (Articles 74 and 76) and the Sanitation Act (Article 26) contain provisions establishing punishment for offenses committed under these Acts. These penal provisions deal with the preservation of the health of human beings, or with any act or deed which might endanger the health or life of the community due to the misuse of water.

XVII. Comments on New Water Policy and Legislation

A. Current Water Resources Policy

The current "water policy" of the Thai Government concerning the water resources development and management, as addressed to the Parliament by the Prime Minister, on November 20, 1997, can be summarized as follow:

- In the Section on Policy National Stability, the conservation of natural resources has been emphasized;
- in Section 2: Policy on Economic and Social Development, the policy covers the development and improvement of the production infrastructure, public infrastructure for water supply, and for the agricultural infrastructure development emphasis is placed upon the integrated development" approach;

- in Section on Natural and Environmental Resources Management, emphasis is placed upon: the conservation and development of water resources; controlling of water quality; improving wastewater treatment capability; joint responsibility between state and private sectors in developing treatment facility; distribution of environmental decision making power and responsibility on developing environmental management plan the local community; enforcing strict controls and measures on controlling the utilization and rehabilitation of natural resources in the conservation of environmental and natural resources.

**B. Draft Water Law**

Recently, the Thai Government has initiated a move to draft a new “Water Law.” This initiative includes a review of all legislation concerning water resources, including laws on water pollution and groundwater. Some of the major issues being discussed by lawyers, academicians and researchers are the topic of water rights, “resource-oriented” water legislation instead of the “function-oriented” laws that currently exist and the reorganization of water resources agencies.

The “NRC’s Draft Water Code” addresses issues such as: the definition of water resources and water uses organization; the state’s water sources; water right; water management and administrative organization; the establishment of the National Committee on Water Resources and the River Basin Committee; flood abatement; the conservation and development of water resources; and legal liability, accountability and administrative fees.

As recommended in a research work of TDRI, the reform of the legal and administrative arrangement is a necessary ingredient both for improving the water infrastructure and for supporting the introduction and enforcement of market-based policy instruments. Issues that should be covered in the process of drafting new law include:

- Institutional reforms,
- Economic incentive,
- pricing mechanism, and
- Introduction of economic policy instrument, such as pricing and penalties.

The “Draft Water Resources Act” of the Faculty of Law, addresses the critical issue of streamlining of the power and function of all government agencies that currently deal with water resources and the possibility of setting up a “Ministry of Water Resources.”
However, the above-mentioned issues are very important, they require the political will to carry them through, and rather sensitive in that may require the reorganization of certain agencies; therefore it may be expected to take some time before the Government can resolve these issues and pass a new water law.

Finally, from this review study, one can conclude that water law is one of the most important facet of water resources development and management and the existing water laws in Thailand is still inadequate. In the absence of a proper legal framework that addresses all of the above-mentioned issues, the development and management of this vital resource in the future could not be carried out without disputes and conflicts. To satisfy future needs, Thailand needs a specific water law which clearly defines the rights and obligations of users, assigning the priority of uses, redefine the overlapping mandates, functions, and mechanisms for settling disputes. In drafting the new law, the line of thinking should also be charged from the so-called “function-oriented” and traditional single discipline system into a “resources-oriented”, holistic and multi-disciplinary one.

References

Notes:
Since there exists many legislation (organic laws, decrees, ordinances and regulations) that are dealing directly or indirectly with water, the presented list of legislation is only a partial list compiled from various reference sources by the author. It is by no means an exhaustive list of all legal instruments which deal with water laws.

Even though there exist so many laws in Thailand governing the specific type of uses of water, these laws can be classified as a functional typed

INSTITUTIONAL ARRANGEMENT

At present, there are more than 30 department level agencies under 8 ministries involved with resources planning, development and management. Out of these agencies, 16 of whom are involved in the construction of the projects. Others are involved in planning, budgeting and personnel management.

At the national level, there are two national committees attached to the Office of the Prime Minister, namely the National Water Resource Committee (NWRC) and the National Rural Development Committee (NRDC). The committees are responsible for preparing the guidelines for water resources development and coordination the development activities of all agencies. In general, NWRC is involved more in small-scale water supply projects. NEB is involved in the assessment of the environmental impacts from the project is minimal and the proper mitigation plan is carrying out by the project’s proponent.
At the ministerial level, several committees are set up, usually on an ad-hoc basis, to prepare a policy guideline and oversee the overall water management of irrigated agriculture projects. Two of these which are worth mentioning namely, the Agricultural Policy Committee and the Irrigated Agriculture Development Committee, both of which are chaired by the Minister of Agriculture and Cooperatives. The first committee being involved more with a policy matter while the latter is dealing with the issue of project implementation and a provision of support and extension services to the farmers in the project areas.

At the project level, a subcommittee of the Irrigated Agriculture Development is set up to do all the necessary coordinating activities. This subcommittee is normally chaired by the Provincial Governor or a representative of MOAC. The subcommittee is supposed to coordinate field works and work closely with water user groups and farmers.

In brief, at present the general arrangement could be described as follows:

RID is normally responsible for water allocation and water management aspects of the river basin and the irrigation system, as well as for other uses, such as water supply, inland navigation, prevention of saline water intrusion, flood and drought mitigation and etc.

EGAT is responsible for the implementation, operation and maintenance of the hydropower plants. EGAT is in charge of releasing water for power generation, for irrigation purpose as requested by RID and others. Operation of the storage dams have been carried out in close coordination with RID.

Other agencies who are involved in the use of water from the river and its tributaries are: DEDP, PWA, the Harbor Department of Fisheries, and the Ministry of Industry. In general the total water requirement of these activities is relatively small when compare to the irrigation water demand.

Several other government agencies who are associated with water resources planning and management in terms of supporting services towards the agricultural development as a whole are: the Department of Agricultural Extension (DOAE), the Cooperatives Promotion Department (CPD), the Department of Agriculture (DOA), the Bank for Agriculture and Agricultural Co-operatives (BAAC), the Ministry of Interior (MOI), the Office of Fiscal Policy, the Bureau of Budget, the Civil Service Commission, the Office of National Economics and Social Development Board (NESDB), the Office of National Environmental Board (ONEB) and the Office of the Prime Minister.

There are many agencies carrying out work on water resources development and often resulting in an uncoordinated planning and implementation of the project.

it is remain to be seen how effectively the newly established NWRC who supposed to be a national agency for planning, coordinating WRD works would be able to successfully carry out its task.

NWRC established by executive order

a law to be define its role, function, organization and resources
dry season water allocation
groundwater depleting
deterioration of water quality

Inadequate institutional framework to resolve emerging water allocation problems MOI has already issued directives on the technical matters of groundwater management and conservation as follows:

- the designation of Bangkok Metropolitan as “Bangkok groundwater area”, whereby the use of “groundwater” is subject to control under the Act;
- specifications for drilling and constructing wells;
- methods of groundwater extraction and conservation;
- measures to protect groundwater from pollution, and drinking standards;
- technical principles for disposal and recharging aquifer;
- monitoring of groundwater quality through a network of observation wells.

In the early state of development in 1950s, the main objective of water resources development was supplementary irrigation and flood mitigation. In early 1960s when rice export was the major foreign currency earning of the country, the policy at that time was emphasized on development of large-scale project, where project justification was mainly based upon overall economic rate of return. In late 1970s, after several years of water resources development, it was found that majority of farmers was still living under poor conditions with insufficient infrastructures and public utilities. The national development policy was then switched to emphasize rural development program by implementing hundreds of small-scale projects.