

STATUS OF WATER RESOURCES LEGISLATION AND ADMINISTRATION IN NEPAL

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INTRODUCTION

Nepal is rich in water resources in terms of average annual flow, but about eighty percent of it flows during the four to five monsoon months of the year. All the regions of the country are not equally blessed with this resource either. The four large rivers, the *Kosi*, the *Gandaki*, the *Karnali* and the *Mahakali* have between them eighty nine percent of the total annual flow. Other medium rivers have nine percent of the flow and the remaining scattered pocket areas in the *Terai* have two percent of the total flow (Dixit, 1997). The conflicting claims upon this limited resource from various uses such as domestic need including sanitation, irrigation, livestock and fisheries, hydropower generation, industries, navigation, recreation and preservation of the ecology, therefore, need to be balanced with the supplies limited to certain months of the year and regions of the country. Utilization of water by different communities and sharing the resource between administrative divisions or between two or more villages within a single administrative unit of a district pose legal and sometimes, political problems. In view of the above complexities, utilization of this resource calls for an integrated and a holistic planning based on a clearly conceived long-term vision of the development of this resource as distinct from piecemeal or sectoral approach.

There are approximately six thousand rivers and streams in Nepal of which 33 have drainage area exceeding 1000 sq. km. The rivers of Nepal can be classified into three categories on the basis of their source and discharge – snow-fed, discharge fed mainly by precipitation and springs, and seasonal with little flow during the dry season. These rivers generate about 225 billion cubic meters of water annually. The *Kosi*, *Gandaki*, *Karnali* and *Mahakali* river systems, from east to west of the country, originate in the Himalayas and carry snow-fed flows with significant flows even in the dry season. *Kankai*, *Kamala*, *Bagmati*, *West Rapti* and *Babai* rivers originate in the *Mahabharat* range of mountains and are fed by precipitation, springs and groundwater regeneration. These rivers are also perennial in character and have wide seasonal fluctuations in discharge. The third category of rivers consists of a large number of small rivers in the *Terai*, which originate from the *Siwalik* range of hills. These rivers carry little flow during dry season and are characterized by flash floods in the monsoon.

Water engineers and planners consider a country to have reached a point of water scarcity when it has fewer than 1,000 cubic metres of renewable fresh water available annually for each person in its population. A higher and less severe benchmark is water stress, when a country has between 1,000 and 1,667 cubic metres of annual water availability per person (Engelman and LeRoy, 1993). If calculated, the available flow during the dry months of a year with the present population, the per capita availability in Nepal will fall below 1,600 cubic metres, a situation of water stress.

All the rivers that originate in or flow through Nepal eventually drain into the Ganges River System. The rivers that flow from Nepal contribute 45 percent of average annual flow of the Ganges, and the contribution of dry season flow is as much as 71 percent. The spatial distribution of water volume generated in various months is uneven. The annual precipitation is about 1800 mm and 80% of which occurs during the monsoon from June to September. The largest volume is generated during the month of August when the contribution amounts to about 60 billion m³ while the months of February and March have smallest contribution amounting to about 3.6 billion m³.

Due to the uneven spatial distribution of water a wide range of variation of river flows is to be found across the country. Most of the small rivers are almost dry during the winter seasons while in the monsoon season the flows increase by more than hundred times the mean annual flow, which results in huge damages due to floods, bank erosion and landslides.

Irrigation, drinking water and hydropower are the major uses of water resources within Nepal. While the first two sectors consume water, hydropower is the non-consumptive user. About 15 billion m³ of surface water and 2.5 billion m³ groundwater is used for irrigation annually (Water and Energy Commission Secretariat, Water Resources Strategy, January 2002). It shows that only a small fraction (7%) of the annual flow is used for irrigation.

About 66% of the population has access to piped water. In the urban areas most households have plumbed facilities while in the rural areas, piped water is available through yard taps or stand posts. Domestic and non-domestic water (i.e., for industrial use) demand is minimal, i.e., less than 1% of the annual volume generated by the rivers in the country.

Although, the exploitable hydropower potential of Nepal is 43,000 MW, to date less than 2% of this potential has been utilized. The total installed capacity of the Integrated Nepal Power System (INPS) and generation from independent small hydropower is 487 MW of which 430 is generated from water resources (Nepal Electricity Authority, A Year in Review, August 2003). Of the hydropower plants only 92 MW (*Kulekhani I and II*) is from seasonal storage plants and the rest is from run-of-river schemes.

A number of central level institutions are involved in the formulation of policy, plans and programmes for development of water resources. Central level institutions directly related to planning, policy development and guidance include National Water Resources Development Council (NWRDC), National Planning Commission (NPC), National Development Council (NDC), Environment Protection Council (EPC), and Water and Energy Commission (WEC). In addition to the above, various ministries including Ministry of Water Resources (MOWR), Ministry of Physical Planning and Works (MOPPW), Ministry of Population and Environment (MOPE), Ministry of Science and Technology (MOST), Ministry of Local Development (MOLD) and Ministry of Forest and Soil Conservation (MOFSC) are responsible for policy formulation and development in the sector.

The ministries and departments involved in the planning and development of water resources generally operate in isolation often resulting in lack of coordination. Adhoc and independent development initiatives of the ministries and departments fail to appreciate the potential of water as a resource. Sub-sectoral agencies for power, irrigation and water supply prepare policies and regulations based only on their limited sub-sectoral needs. Uncoordinated development of water resources coupled with the pressure of population have resulted in adverse impacts on the country's ecological systems. As river basins become more and more water stressed, and with an absence of a holistic approach to water resources planning the potential for conflicts in uses of the resource will increase.

I LEGISLATION IN FORCE

Water resources law in Nepal consists of customary law and statutory law. Customary rights are acquired through years of usage as incident to ownership of land abutting the stream or river. The statutory law comprises of numerous acts passed by the legislature of the country including the National Code, 1963 (*Mulki Ain* of 2020 BS). The National Code, 1963 is a revised Code first promulgated in 1853 (1910 BS). In this chapter a list of legislation relating to the development and conservation of water resources has been provided. The list is divided into two groups – statutes and subsidiary legislation.

A. Statutes

1. National Code (*Mulki Ain*), 1963 (2020)
2. Water Resources Act, 1992 (2049)
3. Electricity Act, 1992 (2049)
4. Aquatic Lives Protection Act, 1960 (2017)
5. Local Self-Governance Act, 1999 (2055)
6. Environment Protection Act, 1997 (2053)
7. Forest Act, 1992 (2049)
8. Soil and Watershed Conservation Act, 1982 (2039)
9. Nepal Water Supply Corporation Act, 1990 (2046)
10. Nepal Electricity Authority Act, 1984 (2041)
11. Water Tax Act, 1966 (2023)
12. Irrigation Act, 1961 (2018)
13. Development Board Act, 1957 (2013)
14. Mines and Minerals Act, 1985 (2042)
15. National Park & Wildlife Conservation Act, 1972 (2029)
16. King Mahendra Nature Conservation Trust Act, 1982 (2039)
17. Land Acquisition Act, 1977 (2034)
18. Land Revenue Act, 1977 (2034)
19. Natural Calamity (Relief) Act, 1982 (2039)
20. Town Planning Act, 1989 (2045)
21. The Constitution of the Kingdom of Nepal, 1990 (2047)
22. Nepal Treaty Act, 1990 (2047)
23. Industrial Enterprises Act, 1992 (2049)
24. Foreign Investment & Technology Transfer Act, 1992 (2049)
25. Privatization Act, 1993 (2050)
26. Company Act, 1996 (2053)
27. Consumer Protection Act, 1997 (2054)
28. Arbitration Act, 1998 (2055)
29. Pesticides Act, 1991 (2048)
30. Solid Wastes (Management and Resource Mobilization) Act, 1988 (2044)
31. Pashupati Area Development Trust Act, 1988 (2044)

B. Subsidiary Legislation

1. Water Resources Regulations, 1993 (2050)
2. Irrigation Regulations, 2000 (2056)
3. Drinking Water Regulations, 1998 (2055)
4. Electricity Regulations, 1993 (2050)
5. Electricity Tariffs Fixation Regulations, 1993 (2050)
6. Water Tap Charge (Realization) Regulations, 1975 (2032)
7. Canal Operation Regulations, 1975 (2032)
8. Soil & Watershed Conservation Regulations, 1985 (2042)
9. River Rafting Regulations, 1985 (2042)
10. Local Self-Governance Regulations, 1999 (2056)
11. Local Body (Financial Administration) Regulations, 1999 (2056)
12. Environment Protection Regulations, 1997 (2054)
13. Pesticides Regulations, 1993 (2050)
14. Solid Wastes (Management and Resource Mobilization) Regulations, 1990 (2046)
15. Rural Water Supply & Sanitation Fund Development Board Order, 1996 (2052)

II. OWNERSHIP OF WATERS

The Water Resources Act, 1992 (2049 BS) is umbrella legislation on development and conservation of water resources in Nepal. The Act authorizes the Government to frame regulations on different uses of water, such as drinking water, irrigation, groundwater, and so on. So far as the generation of hydropower is concerned, a separate legislation (Electricity Act, 1992) has been promulgated. [1]

“ (1) Notwithstanding anything written in Section 8, the license relating to the survey of water resources and its utilization for the generation of hydro-electricity shall be governed by the prevailing laws.

(2) The provisions of this Act, however, will apply so far as matters relating to the use of water resources other than generation of hydro-electricity are concerned.” (Section 9 of Water Resources Act, 1992).

The Water Resources Act, 1992 (the WRA) has placed the ownership and control of water resources in the State. The Act says that the ownership of water resources available in the Kingdom of Nepal shall be vested in the Kingdom of Nepal. [2]

“The ownership of water resources available in the Kingdom of Nepal shall vest in the Kingdom of Nepal.” (Section 3 of WRA).

Under this Act, the government is empowered to allocate water for different uses and resolve issues related with the uses. The terminology "water resources" is quite broad and includes surface water, groundwater or water in whatsoever form. [3]

“Water resources” means water that is available in the Kingdom of Nepal in the form of surface water, underground water or in whatsoever form.” (Section 2(a) of WRA).

The definition of water resources is quite broad, and includes atmospheric water as well. It would, therefore, include water collected from the fog with the help of a screen to trap the water particles of the atmosphere.

The National Code of 1853 (*Mulki Ain* of 1910 BS) does not specifically address the issue of “ownership” of water. Unlike the statutory law, which is based on ownership principle, the National Code is based on religious scriptures. It does not talk about “rights”. It is said that rights is western, and the more accurate term here is duty or *dharma*. Water rights would differ according to the meanings attached to water, and the sources and uses of water (Pradhan et al., 1997 and 2000). However, in the classical Sanskrit texts, the king has been considered as the ultimate owner or lord of all resources including water and the subjects had use rights over water for various purposes. He could regulate the use of water for irrigation and could charge fees or tax for using the water sources. But charges were not levied for use of water for domestic or religious purposes.

The chapter on Land Cultivation of the National Code confers the right to use water whoever is first. The basic principle is prior appropriation. But, on the other hand, the

National Code also seems to favour a landholder who has land upstream. The owner of an upstream field has priority in use. A person on the downstream will have a right to use only after the need of the upstream user is satisfied. [4]

*“No person shall get water unless the person who has constructed the ditch (kulo) with his money or by his labour gets water first.
Where water is shared traditionally, it should be maintained as per the share agreed upon previously.
After the upstream field is filled with water, the owner of the field further downstream may take water to his field.
In case any obstruction is caused to the upstream landholder, the person next to him may take water and plant rice.
Later, the upstream landholder may take water and plant the rice.
A new system may be constructed in the upstream provided it will not diminish water for the existing use downstream.” (National Code, 1853, Chapter on Land Cultivation, Section 1).*

It seems from the above provisions of law, a right to construct an irrigation system is granted to all the riparian owners of land. But the guiding principle is “first-come, first-served”. Consequently, prior appropriation has held a strong position.

As water became scarcer with the growth in population, shortcomings of prior appropriation became increasingly apparent. It made no provision for in-stream, non-consumptive uses of water and was inherently wasteful. The common practice has been to apply for the maximum usable quantity, whether actually needed or not. It also relies heavily on prevailing community methods of water use and provides little or no incentive for the introduction of new techniques and better distribution. This seems to be the rationale behind the promulgation of Water Resources Act, 1992.

The WRA, however, has also recognized the right of an individual or the community to use water for drinking or irrigation purposes on an individual or collective basis. These customary rights of the riparian landholders have been protected by the WRA. A license is not required for its use. [5]

“Notwithstanding anything written in sub-section (1), no license shall be required for the following uses of water resources:

- (a) For one’s own drinking and other domestic use on an individual or collective basis,*
- (b) For the irrigation of one’s own land on an individual or collective basis,*
- (c) For the purpose of running water-mill or water-grinder as cottage industry,*
- (d) For the use of boat on personal basis for local transportation,*
- (e) For the use, as prescribed, of the water resources confined to a land by the owner of such land.*

In spite of an individual’s right to use water under customary law, the Water Resources Act does not recognize the notion of the "private water". However, the

notion of the "private water" is specifically recognized by a separate legislation. The Aquatic Lives Protection Act, 1961 (2017 BS) recognizes an individual's right to own water confined to his or her land that is, in the lake, a pond or a reservoir. [6] The terms "water" and "private water" in the Act has been defined as follows:

“(a) “Water” would include waters of lake, pond, seasonal streams, streams, river, water channel, canal, reservoir, manmade reservoir, swamps, water in the cage and water in the paddy field for rearing fish, and would also include their sources.

(d) “Private water” means lakes, ponds, manmade ponds or reservoirs that exist in the land within the ownership and possession of a person, and has been paying land revenue to the government.” (Section 2 (a) and (d)).

It means that an individual is free to store, collect and own water in one's own land. The way water has been defined in the above provision that seems to include the sources of water. The definition is very broad and directly contradicts with the provision of the Water Resources Act, which vests all water in the State.

Apart from the above-mentioned legal instruments that bear directly with the issue of ownership and control of water, the Local Self-Governance Act, 1999 also empowers the local government bodies within their respective territorial jurisdictions to own and manage assets, properties and natural resources. The objective of this Act is to empower the local (government) bodies by providing them with responsibility and authority necessary to formulate as well as implementing the plans. The Act provides that the Village Development Committee or the Municipality shall have the full title over the property and natural resources within their respective jurisdictions. [7] The relevant provision of law goes like this:

“(1) The Village Development Committee shall have the full title over the following properties situated within the village development area, and the Village Development Committee shall have to supervise, repair, maintain and manage such properties:

.....

(d) Natural resources.

(2) The Village Development Committee shall not be allowed to sell and dispose off or otherwise relinquish its title and possession on the properties as referred to in sub-section (1) without the approval of His Majesty's Government.....” (Section 68, LSGA).

Similar authority has been given to the municipalities in their respective jurisdictions (Section 134, LSGA). The Act has not defined the term natural resources but it would certainly include water resources.

The Act also provides the local bodies with power to levy taxes on commercial exploitation of natural resources. [8] Financial authority of local bodies under the above Act is as follows:

“The Village Development Committee may levy taxes as follows in its area at the rate approved by the Village Council, not exceeding the prescribed rate:

*(j)Tax to be levied for commercial exploitation of natural resources and heritage within the Village Development area.”
(Section 55, LSGA).*

These provisions seem to imply that the local bodies have some kind of ownership rights over water resources within the territorial jurisdictions of such local bodies. These conflicting and contradictory provisions have left the issue of ownership far from settled. Under these circumstances recourse to the provision of the National Code will help clarify the legal issue under consideration. Part I of the National Code (Introductory Provisions, Law No. 4) provides that whenever there is difficulty in regard to precedence of one law over the other recourse should be made to the provision of the National Code which says that specific law will prevail over the general law of the Mulki Ain.[9] The relevant provision goes like this:

“Where specific law has been promulgated provisions of such laws take precedence over the National Code. In the absence of specific laws, the provisions of the National Code will apply.”

Since the Water Resources Act being the specific law on the subject of water resources it can be fairly assumed that ownership rights is essentially vested in the State. Similarly, the Local Self-Governance Act is also a specific law on authority and responsibilities of local government body, it can also be argued that the law will take precedence over the Water Resources Act. In view of these contradictory provisions of law it is difficult to say that which law takes precedence.

III. RIGHT TO USE WATERS

Since the ownership of water is vested in the State, individuals or the community have only the right to use water available in the country. Anyone who wants to use the water resources is required to take a license from the State. The Water Resources Act 1992, however, recognizes an individual's right to use water resources acquired through years of usage. It does not have to go through a process of licensing. Domestic use, irrigation of one's own land on an individual basis or on a collective basis, or running water mills is allowed without going through a process of licensing. Where the water has not been put to use in the past, individuals or the community will have to go through a process of licensing in order to avail the right to use water resources.

A. Customary Law.

The age-old or the customary right to use waters has been accorded a status of legal rights under the National Code. The Water Resources Act, 1992, has also protected this right. [9] The characteristic of this right is such that it does not limit the quantity of water entitled to use. Such a right also did not have any time limit; the right to use water was forever.

B. Permit

Under the Water Resources Act, 1992, the government is empowered to allocate water rights, and to license and control usage. The rights of the riparian have been substantially altered in favour of government regulation. The approach of administrative control in the management of water resources is in fact a result of worldwide development, which began in earnest after World War II under the impact of growing demand for water. Permit or license is mandatory for commercial and industrial use and these rights are transferable too. This has made possible for the government to manage the country's water resources more effectively. Under this Act, the riparian landowners are required to apply for license for its use except for domestic use. Exceptions have been made for one's own drinking water or irrigation for one's own land on an individual or on a collective basis. [10]

There are certain other legislation, which grant water rights to special purpose bodies or as an incident of regulated activities. These include special purpose activities such as granting of license for water rafting and collection of license fees, and restriction of access to a stream or closing the stream altogether for the general public within national forests for development and conservation of the forest.

A person or a corporate body, who is utilizing water resources prior to the commencement of the Act, is required to get a license within one year from the date of commencement of the Act. [11] The Act came into effect in August 1993 (Bhadra 1, 2050).

C. Integrated Use of Water

The Act does not specifically provide for integrated water management. However, it requires a person or a corporate body to use water without causing damage to others. [12] It emphasizes for beneficial use of water taking into consideration of other uses.

IV. ORDER OF PRIORITIES

The Water Resources Act has provided for a general order of priority in the utilization of the resource. [13] While utilizing water resources a certain order of priority must be followed. The priorities are as follows:

- (f) Drinking water and domestic uses;
- (g) Irrigation;
- (h) Agricultural uses such as animal husbandry and fisheries;
- (i) Hydroelectricity;
- (j) Cottage industry, industrial enterprises and mining uses;
- (k) Navigation;
- (l) Recreational uses; and
- (m) Other uses.

V. BENEFICIAL USES OF WATER

“Beneficial Uses” is defined in the Water Resources Act as rational uses of water within the available means and resource. [14] Rational use or optimum use, therefore, is not to be interpreted solely in the light of technical possibilities of the resource alone. It is conditional, and should be seen in the context of available means for its development.

A person or a corporate body wishing to utilize the resource is required to take a license. No one is allowed to utilize the resource without first obtaining a license under the Act. However, there are some exceptions, such as domestic use of water, irrigation use on an individual or collective basis, and running water mill in which case a license is not needed. But one is required to use the resource in a beneficial way without causing harm to other. [15] Any dispute with regard to its utilization needs to be resolved on the basis whether or not the use is beneficial. [16] The Regulations provides for the constitution of a Water Resource Utilization Investigation Committee for resolving the dispute between two or more parties or between various uses. Furthermore, if a particular use is found to be against the priority order set by the Act, or is harmful to the local people, the Committee may decide whether or not such use is beneficial by taking various factors into consideration. [17] While deciding upon the case, the Committee can also specify the manner of its utilization, or can prescribe conditions of utilization. [18]

A. Domestic Use

Drinking water for domestic use is free from regulation under the Water Resources Act. Riparian landowners can make use of the water that flow through their land as incident to property. Use of water on an institutional basis for collective benefits of riparian or non-riparian landowners, however, is subject to regulation and requires a license. For this purpose the WRA has made provisions for constitution of water user’s association. Such an association functions as a corporate body and has all the rights, which are available to a natural person.

On the other hand, there is absence of specific regulation with regard to the use of groundwater. People are free to extract groundwater, and there is no limit of depth one can go or amount of water one can pump.

The responsibility of providing public water services rests on several agencies including the local bodies. Nepal Water Supply Corporation, a public corporation, has been charged with the responsibility of supplying water for domestic use in selected urban areas. [19] In other areas of the country including the rural areas, the Department of Water Supply and Sewerage is responsible for providing the service to the public. Such a service may be provided through water user’s association (WUAs) constituted under the Water Resources Act [20] and Water Resources Regulations [21] from among the users or beneficiaries. The WUAs are required to take a license [22] for supplying water to the consumers. The license provides the WUA with a right over the quantity of water as specified in the license. [23] The consumers are required to apply for providing them with water supply service. The consumers are

expected to pay for the service rendered and should refrain from doing something that will harm the system or avail the service on an unauthorized way. [24]

In the rural areas, however, the local government bodies may also provide the service of water supply to the public. The Village Development Committees (VDCs) in the rural areas and municipalities in the urban areas have the authority to plan, construct and operate water supply systems. Similarly, the District Development Committees (DDCs), a district level unit, have jurisdiction over water supply systems that extends to two or more VDCs. [25] These local bodies, however, do not undertake construction activities themselves. The Local Self-Governance Act requires these bodies to constitute water user's groups (WUGs) for organizing, constructing and operating the water supply system. [26]

A. Irrigation Use

Since the ownership of water lies with the State, no person is allowed to utilize water without obtaining a license under the WRA. However, certain exceptions are allowed by the Act where riparian landowners are free to take water for irrigation individually or on a collective basis. They are not required to get a permit or a license to satisfy their farming needs. They can use the water that passes through their land as an incident to the property. However, a license is required for use of water by non-riparian landowners collectively on an institutional basis. The WRA has made provisions for organizing water user's associations (WUAs) for providing irrigation water for the benefits of the farmers. Under the Act a separate regulation, the Irrigation Regulations 2000, has been framed. It provides for, among others, constitution of water user's associations (WUAs). The WUA enjoys a legal personality. It is a corporate body. The WUA is required to obtain a license or permit for withdrawing the public water for supply to the consumers.

The functions and powers of irrigation water user's association are as follows:

- a. To maintain, operate and manage the irrigation system operated by it. The rule further provides that if it requires changing or replacing some parts or equipments that affect the structure, prior approval of the concerned Irrigation Office is required;
- b. To avail water to the farmers in time and quantity as required by the type of crop and condition of the land;
- c. To keep record of the land where service could not be availed recommend for exemption of the service charge paid by the users;
- d. To supply water to new users without causing harm to the previous users currently receiving the service;
- e. To mobilize public participation for maintenance of the irrigation system; and
- f. To construct additional structure to increase the command area considering the amount of water available.

In addition to the above functions and powers of the WUAs as provided for in Rule 5 of the Irrigation Regulations, it further provides that:

- a. While repairing and maintaining the structures if the water user's association requires technical advice, it may request to the concerned Irrigation Office, and if such request is made, the

- concerned Irrigation Office will provide necessary technical advice; and
- b. Water user's association may delegate certain functions and powers to various sub-committees that are formed from among the users receiving the service.

The authority of registration of the WUAs lies concurrently in two agencies under two regulations framed under the WRA. The authority of registration under the Water Resources Regulations, 1993 lies with the District Water Resources Committee [27] whereas, the same authority also lies with the District Irrigation Office under the Irrigation Regulations, 2000. [28] The former is a coordination committee in the district composed of representatives of various agencies in the district under the chairmanship of the Chief District Officer. The second agency is a regular government body in the district under the Department of Irrigation.

Following the government's policy of involving the users or the beneficiaries in the operation and management of irrigation facilities, the Act has made provisions for turning over irrigation system developed in the public sector to WUAs for operation. After turning over of such facilities to the WUAs, these associations exercise authority for regulating the services including laying down of procedures for applying for use of irrigation facilities by a person and the conditions of such use. It can also stop water to a consumer who has failed to pay service fees or has failed to fulfill the conditions of agreement between the consumer and the WUA. [29]

Similar functions of supplying irrigation water, among others, also lies with the local government bodies – Village Development Committees, municipalities and the District Development Committees – at the local level. These local bodies also are required to constitute consumer's committee (water user's association) for construction and operation of the facilities. [30] The Local Body (Financial Administration) Regulation, 2056 (1999) provides a detailed mechanism and procedures with respect of works to be carried through the consumer committees along with functions and powers of the consumer's committee. [31]

B. Fishing

Fishing is regulated by Aquatic Lives Protection Act, 1960, Local Self-Governance Act, 1999 and National Park & Wildlife Conservation Act, 1972. The Aquatic Lives Protection Act prohibits catching of fish with the help of electric current, explosives or any poisonous substances. The above restrictions are limited to public waters. The restriction with regard to methods of fishing in private waters is less stringent. In the case of private waters, the prohibition is limited to using poisonous substances. [32] In addition to the above mentioned general rule, the Act also empowers the Government to prohibit catching, killing or causing harm to certain species of aquatic lives through publication of a notice in the Nepal Gazette. It empowers the Government to issue notice prohibiting in general or during a particular season of catching, killing or causing harm to certain prescribed species of aquatic animals without a permit from the Government or local authority. However, fishing in private water is exempt from the above restrictions. [33]

The Act also requires construction of, as far as possible, fish ladder in dams for storing or diverting water for generating electricity, domestic use or irrigation or any other purpose. Where construction of fish ladder is not possible, a hatchery or aquatic nursery should be established near the site for artificial reproduction of the designated species. [34] The Act also prohibits closing or dismantling fish ladder, dam or any other structure established for the protection of aquatic lives. [35] The Government as well as the local government bodies can award contract for catching fish. [36]

The District Development Committee (DDC) in each of the seventy-five administrative districts and within its territorial jurisdiction has been authorized to issue license for catching fish in the river and impose certain amount of fees as approved by the District Council. [37] In addition to the above, the Local Self-Governance Act, 1999 authorizes the DDC to sell sand, gravel and boulders from rivers within its jurisdiction. [38]

Regulation of fishing within the area of national parks is governed by yet another legislation, the National Parks & Wildlife Conservation Act, 1972. The definition of “wildlife” provided in the Act includes fish, among other animals and birds. The Act prohibits hunting including fishing without a license, and under the conditions and methods mentioned in the license. [39]

C. Generation of Hydroelectricity

The generation of hydroelectricity is governed by the Electricity Act, 1992. No person or a corporate body, foreign or national, is entitled to conduct survey, generate, transmit and distribute electricity without obtaining a license under the Act. However, a license is not required for survey, generation, transmission and distribution of electricity up to 1000 kilowatt of power. But one is required to give information to the Department of Electricity Development before generating, transmitting and distributing electricity of the capacity ranging from 100 kilowatt to 1000 kilowatt. [40] Once a license for survey is issued, it may be valid for a period of five years. Similarly, the license for generation, transmission and distribution may be given for a period of up to 50 years. [41] The licensee will have an exclusive right over the water to the amount and in the area specified in the license. The license can be revoked if the licensee fails to make progress or does something contrary to the conditions of the license. [42]

Supply of electricity to the consumer may be stopped for performing maintenance work or in the event of natural calamities. Similarly, the supply can be stopped if the consumer fails to pay electricity tariff and other charges or uses electricity in an unauthorized way. [43] A person or a corporate body is required to maintain the quality standard of electricity supplied as prescribed by the Government. [44]

D. Mining and Industrial Use

There is absence of specific provisions in the law for granting water rights for exploration and testing or exploitation of minerals or for the use of industries. The Industrial Enterprises Act, 1992 or Nepal Mining Act, 1966 or the Mines and Minerals Act, 1985 do not authorize the use of water for the purpose. The provisions of Water Resources Act would, therefore, apply to these activities and thus are

required to get a license for use of public water. Because withdrawing water from the source may interfere with other uses of water and disturb the rights of others. The only exception allowed is the use of water for running water-mill or for cottage industries, where a license is not required as provided for in Section 4 (2) of the Water Resources Act.

E. Navigation

Inland navigation in Nepal is confined to country boats for crossing the river in the hills or in the terai. The Water Resources Act does not contain any specific provision on the use of water for inland navigation. The scope of the provision of Section 4 (2) of the Water Resources Act is limited. The rights of a person to use a boat for personal purpose and for crossing the river is accepted by the Act, which does not require a license for such use. In all other cases, therefore, it can be assumed that a permit is required for use of water for inland navigation. No detailed rules, however, has been framed under the Act invoking the provision of the Act for framing detailed rules relating to navigation. [45] People generally use river for floating timber or bamboo in certain parts of the country. But there is lack of rules governing safety or the conduct of raftsmen.

The authority to develop inland navigation has been given to the local government body under a separate legislation, the Local Self-Governance Act, 1999. [46] But no detailed rules has been framed for regulation of such activity. The authority to levy fees under the Act, however, has been in use for sometime. [47] The Local Self-Governance Regulations, 1999 authorizes the district body (the DDC) to levy fees for issuing license and renew them on annual basis. The objective of these provisions, however, is limited to collecting revenue for the local body rather than regulation of the activity. [48]

G. Recreational Use

Whitewater rafting, a recreational use of water, is very popular and is one of the most important tourist activities in Nepal. Nepal's terrain is suitable for such sport. The Tourism Act, 1978 provides for registering and licensing of whitewater rafting business. It also provides for renewal and regulation of the activity including suspension and cancellation of such business. [49] The Trekking and Rafting Regulations, 1984 has laid down procedures for applying for a permit, fees to be charged for the permit, and facilities provided for the import of necessary boats and tools for the operation of rafting. [50] The authority to grant a permit has been given to the Ministry of Tourism. Anybody or a group wishing to engage in rafting has to apply to the Ministry in the prescribed format provided for in the Regulations.

The local bodies have the authority to charge annual fees to rafting business for licensing or renewal of such license. [51] The amount of fees to be charged by the local body has been prescribed in the Regulations. [52]

F. Instream Use

The Water Resources Act is not specific about instream use of water. It does not say how much water should be left in the river for instream use. However, there are

certain provisions in the Act that bear on this issue indirectly. The Act says that use of water resources must be beneficial without causing damage to other users. [53] Similarly, the Act further says that while utilizing water resources, it shall be done in a manner that no adverse effect be made on environment by way of soil erosion, flood, landslide or similar other cause. The phrase “similar other use” would include any other use of water in the river including maintaining ecology of the river, maintaining aquatic life, use of the local people for religious or cremation purposes. [54]

VI. RESETTLEMENT AND REHABILITATION

With the exception of a few projects in other sectors, water projects involve a large number of displacements. Reservoir projects generally have problems of displacement and hence resettlement. Moreover, projects taken up in recent years have affected more people per unit of land acquired because of the growth in population. Considering the environmental concerns of the present day, the issue of resettlement will be more complex in the future.

There are several laws that touch upon the issue of resettlement. The Constitution of the Kingdom of Nepal is the main legal document guaranteeing the fundamental rights of the citizen. It guarantees the property rights of all citizens. Furthermore, it states that except for public good (*sarbjanik hita*), the state will not acquire or obtain or exercise authority over individual property. More importantly, it specifies that in case the State acquires or establishes its rights over individual property for public good, the State will compensate for the loss of property and the basis and procedure for compensation will be specified under subsequent acts. [55]

Land Acquisition Act, 1977 (2034) is the main legislation to guide the compulsory acquisition of land in the country. The Act clearly states that if HMG deems it necessary to acquire land for any public work it may, subject to the award of compensation pursuant to this Act, acquire the land. [56] The Act also specifies the type of compensation to be paid to the affected families. It states that the compensation for the land to be acquired under this Act shall be paid in cash. The Act also envisages possibility of two separate rates of compensation distinguishing between families who lose all land and those who lose only some portion of their land. In determining the compensation, the Committee has to consider guidelines of HMG and the loss suffered by persons due to acquisition of land, shift of residence or place of business to another place. If the land has to be acquired for institutions other than the Panchayats (local government committees) and institutions fully owned by the government, the Committee has to consider the followings in fixing the compensation amount:

- Price of land prevailing at the time of notification of land acquisition.,
- Price for the standing crop therein and the house, wall, shed, etc., and
- Damage incurred by the concerned person by being compelled to shift his/her residence or place of business in consequence of the acquisition of the land.

Generally the mode of compensation has been cash compensation for land acquired, notwithstanding of a legal provision of compensation in favour of land for land. If a family loses all his/her land and opts land for land compensation, the government may, if *ailani* (unclaimed land) or other government land is available, provide land to them. These clauses are too general in nature. [57]

The provisions of the Land Acquisition Act fall short of the liberal spirit of the Constitution of the Kingdom of Nepal, 1990. In the existing legal framework, procedural matters regarding land (plus other assets) acquisition and compensation have been dealt with but details are missing. Some of these missing details include

factors determining compensation, procedures of assessment, rehabilitation, depreciation of assets while relocating, the social and psychological aspect of the seriously affected individuals. Existing legal provisions do not require implementers to ask for compensation options to the affected people while deciding to acquire their assets. Although fulfilling everyone's compensation options may not be feasible, but to be insensitive to the choices, especially of those who lose most of their livelihood seriously undermines the spirit of human rights and the Constitution of Nepal. Related to this, is the non-consideration of other modes of compensation seriously except cash. Operationally, cash compensation is the easiest mode of operation but its long-term impact on families who are not used to large cash flow is more negative than otherwise. There is lack of serious consideration for rehabilitation programmes. The law does not meet the high aspirations of host communities affected by acquisition of land.

VII. HARMFUL EFFECTS OF WATER

A. Watercourse and Catchments Protection

The Water Resources Act provides that utilization of the resource should be made without causing substantial adverse effect on the environment. The law requires that utilization must be done in a manner that no adverse effect is caused to the environment by way of soil erosion, flood or landslide. [58] Nevertheless, other legislation for example, the Environmental Protection Act provides that environmental studies be carried before starting the project.

Soil and water conservation, as well as control of floods, landslides and soil erosion, come within the scope of the Soil and Watershed Protection Act, 1982 (2039). The Act authorizes the Government to designate any area as Protected Watershed Area. [59] In the area thus designated, the Soil and Watershed Protection Officer may construct dams or check dams, embankments, terrace improvement works, water channels or diversion channels, retaining walls, ponds and similar other structures for the protection of the area. [60] The Officer may also protect and maintain forest and greenery in the slopes where there is danger of landslides, and also maintain a balance between the nutrients of the soil and water and the environment. The officer is also authorized to restrict activities that might contribute to soil erosion or cutting of the banks or slopes in and around the designated area. [61] The authority of the Officer is quite extensive and extends to restricting certain activities in the areas that are prone to natural calamities. Notwithstanding anything provided for in other laws, and in the area prone to soil erosion nobody can collect or restrain water from any stream, channel, lake or groundwater and divert to a canal for use elsewhere through construction of dams without the permission of the Watershed Protection Officer. [62] However, these restrictions do not apply to development of water resources undertaken by the Government. [63]

At the local level the local bodies (VDCs, municipalities and the DDCs) have been charged with preparing and implementing soil erosion and river control programmes. [64]

B. Drainage and Sewerage

The responsibility for the provision of sewerage services to the public in the urban area lies with the Nepal Water Supply Corporation. Houses and buildings are required to connect their domestic lines to the sewers. In addition to the above service, the Corporation provides storm water drainage service as well. At the local level, the Village Development Committees have been given the responsibility of providing sewerage services in residential areas. [65] Disposal of solid wastes from houses is governed by a separate regulation. Under the Solid Wastes (Management and Resource Mobilization) Act, 1987 (2044), the Solid Wastes Management and Resource Mobilization Centre was established. The Centre was charged with the responsibility of, among others, providing container service, transporting and managing wastes, recycle and produce manure from the wastes and construct treatment plant. The activities of the Centre were limited within the Kathmandu Valley. Since the enactment of the Local Self-Governance Act, the responsibilities of

managing solid wastes and providing drainage service have been given to the municipalities. The Centre has now been closed down.

While the legislation mentioned above dealt with the legal aspects of management of solid wastes and drainage service, the Environment Protection Regulations, 1997 provided for a regulatory mechanism. The Regulations provides that no one shall discharge wastes in contravention of the standard set by the Ministry of Population and Environment. [66] The Regulations also prohibit excessive release of noise, heat and radio-active emission from means of mechanized transport and industrial establishments in contravention of the standard. The Regulations also requires industrial establishments to obtain a Pollution Control Certificate within a specified period of time. It also provides for a mechanism for hearing complaints, taking action and realize from the person or industry the cost of cleaning up operations. [67]

C. Floods and Other Harmful Effects

The Water Resources Act has authorized the Government to frame detailed rules on specific subjects including soil erosion and flood control. The problem of soil erosion has been partially covered by Soil and Watershed Protection Act and the National Park & Wildlife Conservation Act within their respective jurisdictions – within the designated protected area and national parks. There is absence of detailed rules applicable all over Nepal. The Water Resources Act has made provision to frame rules relating to flood control and soil erosion. The Irrigation Regulations, 2000, however, provides for the constitution of Irrigation and River Control Committee in all the seventy-five administrative districts of Nepal under the chairmanship of the Chief District Officer. [68] The functions and rights of the Committee are to protect the irrigation canals and other areas from natural calamity of floods and landslides and monitor the implementation of prevention and control measures carried in the district. The Committee can also submit a report containing suggestions and recommendations to the Government for the development, extension and protection of irrigation programmes as well as for river control. [69]

VIII. WASTES AND POLLUTION

A. Wastes and Misuse of Water

The waste of water or misuse of water is not an issue under the prevailing law. The law does not have specific provisions discouraging wastes while utilizing the resource. The Act is silent on the issue of efficiency in use. But the authority granting the license for utilization can prescribe in the license methods for utilizing the resource. Moreover the right of the licensee is limited to the quantity of water mentioned in the license. The Act, however, provides for detailed rules to ascertain whether the use can be called beneficial when the particular use is in dispute. The Water Resources Act requires a person or a corporate body to use water resources in a beneficial way without causing damage to other. [70] The term “beneficial use” has been defined in the Act as “rational use”, and can safely be assumed that the law prohibits wastes or misuse of the resource. [71] The Act furthermore requires that if any dispute arises in the utilization of the resource, the prescribed committee for resolving the dispute is required to consider, among others, whether or not the beneficial “use or misuse” has been made. [72] In the course of deliberations by the committee whether the use is within the scope of beneficial use or not, the committee furthermore is required to take into consideration of various factors including the impact it would have on the environment. [73] It can therefore be assumed that the use not only prohibits wastes, it also does not tolerate misuse of the resource.

B. Pollution Control

The Water Resources Act does not have provisions for control of pollution. It has left the task of formulating separate rules under the Act. [74] Such a regulation has not been framed yet. However, the Drinking Water Regulations issued under the Water Resources Act has made certain provisions for prevention of pollution. It prohibits pollution of the source or constructing the structure of water supply system in such a way that might pollute water in the source. The Environment Protection Act also has made provision for framing of rules for the control of pollution of water resources. No such rules, however, has been framed under the Act. [75] The Act only has provisions to prohibit disposal of sound, heat, radioactive rays and wastes from any mechanical device, industrial enterprise contrary to the prescribed standard.[76] Under the Act few standards including the emission level of vehicles have been framed.

C. Water Quality

The Water Resources Act requires the government to fix the quality standard of water resources for various uses. [77] Anybody who wants to utilize water resources he or she is obliged to maintain the standard. Such a rule fixing the standard, however, has not yet been issued. The Act also authorizes the government to prescribe the pollution tolerance limit of water resources. [78] The Act prohibits discharge of any litter, industrial wastes, poison, chemical or toxicant in excess of the standard set by the government. Such an act is punishable under the law. The government, however, has not yet issued notice fixing the tolerance limit of water. The Water Supply

Regulations and the Irrigation Regulations also have provisions for ensuring the quality of water supplied to the consumers.

IX. LEGISLATION ON UNDERGROUND WATERS

Water resources is defined as water that is available in the form of surface water, underground water or water in whatsoever form. [79] Since the ownership of water resources is vested in the State, and no one is entitled to utilize it without obtaining a license under the Water Resources Act. However, certain uses have been excluded from the regime of license including the domestic use and for irrigating one's own land. There is no specific rule governing underground waters. It is understood that by the token of the above rule, the use of groundwater for domestic use and for irrigating one's own land does not require a prior permit.

X. CONTROL AND PROTECTION OF WATERWORKS AND STRUCTURES

A. Public Works

The construction, operation and maintenance including the security of the structure of water resources works are the responsibilities of the concerned department or public utilities. The departments include Water Supply and Sewerage and Irrigation, and the public utilities include Nepal Water Supply Corporation and Nepal Electricity Authority. In addition to the above agencies, water user's associations are responsible for general maintenance and rehabilitation of water supply and irrigation facilities handed over by the government for operation by such associations. The Irrigation Regulations has made detailed provisions for the security and proper operation of irrigation facilities. [80] Under this provision the concerned authority is authorized to restrict entry into the area, prohibit inflicting damage to the structure or replacing anything relating to the structure, among other things.

B. Private Works

On the request of the person or a corporate entity the government, if it deems necessary, may make necessary arrangement for the security of the structure related to the utilization of water resources. The cost incurred on account of this is to be borne by the concerned person or the corporate body. [81] So far as the hydropower structure is concerned, the Electricity Act has made similar legal provision. [82]

XI. PROTECTED AREAS

Some areas that are important from the point of view of natural heritage or aesthetic beauty can be designated as protected areas under various laws where certain restrictions with regard to the use of water resources may be imposed. The Environment Protection Act can designate certain areas as Environment Protection Area. [83] Where such areas have been designated as protected area, certain restrictions or prohibitions can be imposed under the Environment Protection Regulations. In such case use of electric current and any kind of harmful plant-based materials or chemicals in the rivers, streams, water fountains, rivulets, lakes, ponds, reservoir of other sources of water are prohibited. [84]

Similarly, protected areas in connection with the control and prevention of the harmful effects of water as well as soil and water conservation can be designated under various other legislation. Under the Soil and Water Conservation Act, the government may designate certain area as Protected Drainage Area. [85] With the authority provided by this provision, certain protection measures including construction of dams, check dams, embankments, drainage and diversion channels, retaining walls and similar other structures can be undertaken. [86] Within the protected area where there is danger of flood and soil erosion, the Water Conservation Officer can prohibit certain activities in the land without his permission. [87]

XII. GOVERNMENT WATER RESOURCES INSTITUTIONS AND ADMINISTRATION

A. Coordination-Level Institutions

Several ministries and agencies have responsibilities for the development and conservation of water resources. These ministries and agencies have been entrusted with sectoral functions relating to water under various acts of Parliament. Apart from the ministries, a number of institutions have been given planning and coordination functions through executive orders. These institutions include National Development Council and the National Planning Commission, National Water Resources Development Council and Water and Energy Commission. The Environment Protection Council has been constituted under the Environment Protection Act.

The **National Development Council** (NDC) is a high level policy and planning body. The Prime Minister chairs the Council. Its membership is drawn from various walks of life including political circle, social workers, technocrats and bureaucrats. Its mandate is to guide the National Planning Commission on matters of policy and periodic plans. It is a forum where opinions of people about the plan and development projects are expressed.

The **National Planning Commission** (NPC) is also chaired by the Prime Minister. Its membership includes one Vice-Chairman and five members, all technocrats. It is a planning body with an over all function of formulating periodic and annual plans and oversees their implementation. With a view to formulate development budget, the NPC estimates availability of the resource and allocate to different sectors. The sectoral ministries, in turn, prepare and integrate the budget with inputs from field and other offices through a decentralized planning process. The budget thus prepared is presented before a joint committee comprised of the Budget Division of the Ministry of Finance and the Secretariat of the NPC for discussion.

The **National Water Resources Development Council** (the NWRDC) is an institution of recent origin. It was constituted in April 1993 for wider participation of the cross section of people for an open discussion on issues of national importance. It is a high-level water resources policy and coordination institution chaired by the Prime Minister himself. The membership of the Council is broad-based with representatives from political parties and includes leader of the party in opposition, and people from outside the government. It is a political forum for discussion on national issues relating to water resources with a view to building national consensus. The Water and Energy Commission Secretariat functions as its Secretariat. The mandate of the Council include:

- Contribute to creating a congenial environment for national consensus on the development and utilization of water resources to suit the development needs of the country.
- Decide on national water resources policy with a view to maximizing the benefits and in the national interest.
- Determine policy foundations necessary for speedy and sustainable development of water resources.

- Identify the basis for coordination between various sectors and agencies.
- Issue directives to the government for enhancing national and international understanding on water resources development.

The procedural rules of the Council provide for the Council to meet at least once a year. It also requires the concerned agencies and officials to provide progress and evaluation reports, monitoring reports of development projects relating to water resources and other relevant information for consideration of the Council. The rules also require the member-secretary to monitor implementation of decisions.

The **Water and Energy Commission** (the WEC) was established through an executive order in 1976. The Minister for Water Resources chairs the Commission. It was reconstituted in January 1999 with wider representation, and includes secretaries of 11 ministries, and five members from outside the government. The functions of the Commission are as follows:

- To review and cause to review multipurpose, large and medium scale water resources projects and recommend for their implementation.
- To formulate and cause to formulate policy and strategy for conducting study, research, survey and analysis with regard to various aspects of water resources and energy development in accordance with the priority and aim of the government.
- To analyze and cause to analyze bilateral and multilateral projects relating to water resources development and energy, formulate policy in this respect and to review and analyze such projects.
- To enact and cause to enact necessary laws pertaining to the development of water resources and energy.
- To establish and cause to establish coordination between national and sectoral policies relating to water resources and energy.

The **Water and Energy Commission Secretariat** (the WECS) was established to provide technical and administrative support to the WEC and carry out its decisions. It also serves as the secretariat of the NWRDC. The government has recently designated the WECS as national water planning unit.

The **Environment Protection Council** (the EPC) was constituted under the chairmanship of the Prime Minister in October 1992. The membership of the Council includes members of the Council of Ministers related with environment, representatives of political parties, ex-officio members and seven experts. The functions of the Council are to provide policy guidelines, advice to the government and to maintain coordination between various agencies of the government related with the management and protection of the environment.

B. Policy Level Institutions

The **Ministry of Water Resources** (the MOWR) is responsible for formulation of policy, plans and programmes relating to irrigation and electricity sub-sectors. It is responsible for implementing and enforcing the legal and regulatory provisions of Water Resources Act and Electricity Act. It grants license for survey, generation and distribution of electricity. Detailed responsibilities include formulation of policies and plans for the development, management and conservation of water resources; promotion, construction, operation and maintenance of multipurpose projects; development of human resources; promotion of private sector in the development of electric power; and negotiate and conclude bilateral and multilateral agreements on utilization of water resources.

The **Ministry of Physical Planning and Works** (the MOPPW) has the mandate for developing policy, plans and programmes relating to water supply and sanitation, among other things. It is responsible for fixing the quality standard of water supply for domestic and other uses.

The **Ministry of Science and Technology** (the MOST) is responsible for carrying out research on energy including alternative energy. The Department of Hydrology and Meteorology (the DOHM), which functions under the Ministry is responsible for collection, processing and publication of hydrological and climatological data, crucial for the planning and development of water resources and agriculture.

The **Ministry of Forest and Soil Conservation** (MOFSC) administers the regulatory mechanisms of the Forestry Act, 1992 and the Soil and Watershed Conservation Act, 1982 through the concerned departments under the Ministry. It is responsible for the development, management and protection of watersheds.

The jurisdiction of the **Ministry of Local Development** (the MOLD) is to oversee implementation of local development programmes in the water supply and irrigation sub-sectors at the local level. Also, it looks after the interests of local institutions, and it is the liaison ministry for local bodies.

The **Ministry of Population and Environment** (the MOPE) assumes a comprehensive role in the management and conservation of the environment under the Environment Protection Act, 2053 (1996 AD). The Ministry is responsible for setting standards of water quality and industrial effluents, among others. It requires water projects to undergo Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) depending upon the size and scope of the project to ensure that the project will not substantially affect the environment.

C. Implementation Level Institutions

The **Department of Irrigation** (the DOI) under the Ministry of Water Resources is responsible for the development and management of surface and groundwater. The functions of the Department are (a) planning, design and implementation of major and minor irrigation systems; and (b) sustained operation and management of the

completed systems. The Department also plays a major role in formulating irrigation policy.

Department of Electricity Development (the DOED), previously **Electricity Development Centre** (the EDC) assists the Ministry in the regulation of power sub-sector including licensing, promotion of private sector, inspection and quality control, study of river basins, conduct feasibility studies and help select projects for private sector financing and development.

The **Department of Water Supply and Sanitation** (the DWSS) is the lead implementing agency in water supply sub-sector. A Director General heads the department. The DWSS is responsible for all rural water supply and sanitation projects. It is also responsible for 23 urban water supply systems, which do not fall within the jurisdiction of the Nepal Water Supply Corporation. Its mandate is to formulate plans and programmes for the development of this sub-sector.

The **Department of Hydrology and Meteorology** (DOHM) has been placed under the Ministry of Science and Technology. The regional offices have been patterned along Nepal's major river basins, Kosi Basin, Narayani Basin and Karnali (including West Rapti) Basin. It also has a separate section on Bagmati Basin. The department provides basic information about the flow of rivers in the country. The collection, analysis and publication of hydrological and meteorological data are vital to planning for the development of water resources.

The **Department of Forest** and the **Department of Soil Conservation** have the responsibility of implementing the policy and programmes relating to development and conservation of forests and soil conservation. The latter department has authority to prohibit blocking, diverting or storing water of any river or streams by any means or for any purpose in the protected watershed area without its permission.

Regional Directorates. The DOI and DWSS have regional directorates in all five development regions. These directorates, as operational-level agencies, exercise basically a coordinating role and have limited authority of a departmental head. These directorates coordinate the activities of district offices within the region and serve as quality control agencies for the department at the centre. Generally they operate under delegated authority from the Director General. The DOHM maintains regional offices on the pattern of river basins. The NEA has regional offices (eastern, central and western) that more or less correspond to three river basins of the country.

District Offices. The DOI and DWSS all have district offices in each of the 75 districts of the country. These offices are the main operation-level offices. These offices operate the sanctioned budget for their respective districts. The NEA and NWSC have field-level offices in the districts where they have service delivery activities.

D. User's Level Institutions

Water User's Associations. A large number of water user's associations are also engaged in the management of water supply systems and irrigation networks at the

local level. Following the government's strategy of involving the beneficiaries and the people for planning, implementation, management and operation of water resources projects, the institutional mechanisms of water users' association have gained popularity. Various provisions in the law have been made for the constitution and operation of these organizations. The government's efforts have been to support and enhance their capacity to take over the responsibility from the government agencies. These organizations are already taking over the functions of the government agencies for service delivery at the local level.

E. Regulatory Institutions

As there are various community organizations, NGOs and the private sector working in producing goods and service delivery, it has become necessary on the part of the government to provide for an appropriate institutional mechanism for their regulation. The purpose of regulation, however, is not to put restriction. Regulation needs to encourage or promote competition for better service and its sustained use.

The Water Resources Act, 1992 and the related regulations provide for a set of instruments for regulation of the use of water. As the ownership of water resources is vested on the government, the use of water is regulated through a system of permits. A system of license has been introduced. The **District Water Resources Committee** in each of the 75 districts is empowered to grant license for their utilization. [88] Domestic uses have been put outside the domain of licensing for practical reasons. The Committee is chaired by the Chief District Officer and includes members from various district-level sectoral offices. They include district-level offices of agriculture, forestry, water supply, irrigation, project office of electricity, if any. The Committee also includes representative from the District Development Committee and the Local Development Officer is member-secretary. The office of the Local Development Officer is designated as the secretariat of the Committee. The Water Resources Regulations also provide for a joint meeting of two or more district committees if the related use extends beyond the jurisdiction of one district. Similarly, the Secretary of the MOWR grants permits for survey, generation and distribution of hydropower. In this case, the DOED processes the application for a request for license.

The WRA and the regulations under the Act provide for dispute resolution mechanisms. A **Water Resources Utilization Investigation Committee** at the national level has been provided, the membership of which consists of a representative of the MOWR as chairman and one representative each from the concerned DDC and the regional office of the National Planning Commission Secretariat. [89] If the dispute is related with two or more districts, one representative from each of the concerned DDCs will be the member of the Committee. The Regulations provide for the guidance of the Committee detailed factors to be considered while deciding on the dispute.

The Water Supply Regulations under the WRA, on the other hand, provide for two committees for the resolution of the dispute, one for water users' association and the other for individuals. [90] The committee is called **Water Source Dispute Resolution Committee**. The Committee for water users' association is consists of

the DDC chairman as Chairman and representative of the District Irrigation Office, Administrative Officer of the District Administration Office as members and the Chief of the District Water supply Office as member-secretary. The Committee to decide on the dispute relating to water supply systems operated by individuals consists of a member nominated by the government as Chairman and one representative each from the MOPPW and the MOWR and Chief of the District Water Supply Office as member-secretary.

The Electricity Act provides for the constitution of a Tariff Fixation Commission. [91] In exercise of the powers given by the Act, the Government has framed the Electricity Tariff Fixation Rules, 1993. The function and the mandate of the **Electricity Tariff Fixation Commission** (the ETFC) are to fix the tariff of electricity and other fees. The Commission has power to review the tariff fixed by it from time to time. The membership of the Commission consist of a representative of HMG and other members include an economist and five others from among the agencies relating to generation, transmission and distribution and the consumer. [92] The tariff is fixed taking into consideration of various factors including the rate of depreciation, return for the investment, royalty, operation cost and the consumer price index. The tariff is revised as and when necessary.

XIII. AUTONOMOUS AND SEMI-AUTONOMOUS AGENCIES

A. Nepal Electricity Authority

Nepal Electricity Authority (NEA) is a public corporation with the franchise for power generation, transmission and distribution throughout Nepal and engages in power exchange with India. [93] It is now required to work with private sector entities. The Minister of Water Resources chairs the Board of the NEA.

NEA is a vertically integrated utility with the responsibility for generation, transmission and distribution of electricity including the construction and maintenance of necessary infrastructure facilities. The NEA is the single buyer and is also a single largest seller.

B. Nepal Water Supply Corporation

The **Nepal Water Supply Corporation** (the NWSC) has been established under the Nepal Water Supply Corporation Act, 1990 (2046). The Act provides for the constitution of a Governing Board with a person appointed as Chairman by the Government. [94] Generally, the Secretary of the MOPPW chairs the Board. The General Manager is the operational head of the Corporation. The jurisdiction of the NWSC covers three urban centres of the Kathmandu Valley. Other urban centres under its jurisdiction include Biratnagar, Dharan, Janakpur, Birgunj, Hetauda, Pokhara, Bhairahawa, Butwal and Nepalgunj. The NWSC Act provides the Corporation with the mandate to plan, construct and operate water supply systems under its jurisdiction.

C. Local Government Bodies

Local government bodies include District Development Offices (DDCs), Village Development Committees (VDCs) and municipalities. They are spread all over the country in 75 districts, 58 municipalities and nearly 4,000 village development committees. These local bodies look after development and management of projects and service delivery at the local level. Under the Local Self-Governance Act, 1999, they are expected to take over the responsibility of the district-level offices of sectoral ministries gradually as they develop their capacity to assume the responsibility.

With the objective of devolving local authorities with necessary powers in keeping with the principle decentralization, the Local Self-Governance Act (LSGA) has been enacted to promote "institutional development of local bodies capable of bearing responsibility by providing such responsibility and power at the local level as is necessary to formulate and carry out plans". The Act has vested the local bodies with a wide range of powers and functions concerning local development activities in various sectors including water resources. The Village Development Committees (VDCs) have powers to prepare, implement and operate drinking water schemes in the villages. Similar functions or responsibilities concerning irrigation and hydropower development have been given to local bodies.

XIV. FINANCIAL ASPECTS

A. Pricing of Water

Subject to a valid license for utilization of water resources [95] a person or a corporate body is free to develop and extend the services to the consumers against payment of charges or fees. The licensee may make services available to any person on the basis of terms and conditions mutually agreed and realize the charge in consideration of such services rendered. [96] In the case where the services generated by the government is made available to any person, the service charge may be fixed as prescribed and realized in consideration of such services rendered to them. [97] A provision has been made in the Water Resources Regulations for constituting a three-member committee for determining the rate of the fees to be charged by projects developed by the government. [98] The committee, while determining the rate of the charges, is required to take into consideration of factors such as the rate of depreciation, return from the investment, the mode of operation of the facility, and changes in the consumer price index.

The Water Supply Regulations [99] and the Irrigation Regulations [100] also provide for the constitution of service fees fixation committee at the local level. These committees are composed of representatives from the concerned department together with the representative of the concerned user's group.

The development of hydropower in the country is opened to the private sector for investment, foreign or domestic both. The license for generation, distribution and transmission may be given for a maximum period of 50 years. [101] The government guarantees the purchase of power produced by a private producer, domestic or foreign. The rate for the purchase of the power produced is decided by mutual agreement between the private producer and the Nepal Electricity Authority. However, the Electricity Act provides that the tariff to be charged to the consumer needs to be assessed by an independent agency. The government is required to constitute a Tariff Fixation Commission. The Commission again is required to fix the tariff and other charges on the basis of the rate of depreciation, reasonable profit, mode of operation of the plant, changes in the consumer's price index, royalty, among other things. [102] There is absence of similar provision for fixing the tariff in the case of water developed and supplied by the Nepal Water Supply Corporation. The Corporation is authorized to fix the tariff for the water supplied to the consumer and sewerage service provided. [103]

B. Realization of Water Rates and Charges

It is the responsibility of the consumers to pay the charges fixed by the facility operator. On the failure to pay the service charge or fees levied, the facility operator can stop the supply to the consumer. The Water Resources Act [104], the Electricity Act [105], the Water Supply Regulations [106], the Irrigation Regulations [107] authorize such action by the supplier. Similarly, the Nepal Electricity Authority Act [108] and the Nepal Water Supply Corporation Act [109] authorize the concerned utility operator to stop the services on failure to pay the dues by the consumer. These legislative provisions also authorize the service provider to realize the dues by initiating the process of auction of the property of such person.

XV. IMPLEMENTATION AND ENFORCEMENT

In this section legal provisions concerning protection of rights or interests in water resources, enforcement of water laws and regulations and penalties will be reviewed.

A. Protection of Water Rights and Interests

Water rights of the people and the community enjoyed by them before the enactment of Water Resources Act have been continued and safeguarded by the Act. The traditional rights have been left undisturbed. [110] The general course of redress under the law of the land or the Civil Code are available to the holders of rights or interests in water seeking redress from undue interference from other users of water. They can exercise the right free of governmental interference. Water rights of the people cover both surface as well as groundwater.

B. Enforcement of Water-Related Legislation and Regulations

The protection of water rights is further effected in connection with the compulsory acquisition of water rights by the government in accordance of the law. The law further requires that the holders of water rights affected be afforded an opportunity to be heard in the process of acquisition and be compensated for the loss of their rights or interests. [111]

C. Penalties

Penalties sanction most regulatory provisions related to the use and protection of water resources. A fine up to five thousand rupees can be imposed to a person who acts in contravention of the provisions of Water Resources Act or rules made under the Act and realize compensation if caused damage. A fine up to five thousand rupees can be imposed or close such activity if any person utilize the water resources without obtaining a license or without observing the terms and conditions set forth in the license. A person faces imprisonment up to ten years if the offence is serious that is, if a person is found to demolish, destroy or cause harm with malafide intention to water resources structure related to its utilization, faces imprisonment up to ten years. Water authorities are also empowered to disconnect services if consumers fail to pay their utility bills. [112]

NOTES

1. Water Resources Act 1992 (WRA), Section 9(1).
2. Ibid, Sec.3.
3. Ibid, Sec. 2(a).
4. National Code of 1853, Chapter on Land Cultivation, Sec. 1.
5. WRA, Sec. 4(2)
6. Aquatic Lives Protection Act, 1961, Sec. 2(d).
7. Local Self-Governance Act, 1999, Sec. 68 and Sec. 134.
8. Ibid, Sec. 55.
9. National Code, Chapter on Land Cultivation, Sec. 1.
10. WRA Sec. 4.
11. Ibid, Sec. 8(4).
12. Ibid, Sec. 4(3).
13. Ibid, Sec. 7(1).
14. Ibid, Sec. 2(b).
15. Ibid, Sec. 4 (3).
16. Ibid, Sec. 7 (2).
17. Water Resources Regulations, 1993, Rule 28.
18. Ibid.
19. Nepal Water Supply Corporation Act, 1990, Sec. 3.1.
20. Local Self-Governance Act, 1999, Sec.
21. WRA, Sections 5 and 6.
22. Drinking Water Regulations, 1998, Rules 3 to 9.
23. Ibid, Rule 18.
24. Ibid, Rules 31, 36 and 37.
25. LSGA, Sections 28 (1)(b), 96 (1)(b) and 189 (1)(b).
26. Ibid, Sections 28(2), 96(3) and 208.
27. Water Resources Regulations, 1993, Rule 4 to 6.
28. Irrigation Regulations, 2000, Rule 3.
29. Ibid, Rules 18 to 23.
30. Local Self-Governance Act, 1999, Sections 28 (2), 96 (3), 208 and 209.
31. Local Body (Financial Administration) Regulation, 2056 (1999), Rules 70 and 71.
32. Aquatic Lives Protection Act, 1960, Section 3.
33. Ibid, Section 4.
34. Ibid, Section 5B.
35. Ibid, Section 3A.
36. Ibid, Section 7.
37. Local Self-Governance Act, 1999, Section 217.
38. Ibid, Section 218.
39. National Parks & Wildlife Conservation Act, 1972, Sections 2(h) and 11.
40. Electricity Act, 1992, Section 3.
41. Ibid, Section 5.
42. Ibid, Section 8.
43. Ibid, Section 19.
44. Ibid, Section 23.
45. Ibid, Section 24.
46. Local Self-Governance Act, 1999, Section 189 (1) (d).

47. Ibid, Section 217.
48. Local Self-Governance Regulations, 1999, Rule 209.
49. Tourism Act, 1978, Sections 45A and 45B.
50. Trekking and Rafting Regulations, 1984, Rules 6-9.
51. Local Self-Governance Act, 1999, Section 217.
52. Local Self-Governance Regulations, 1999, Rule 209.
53. Water Resources Act, Section 4 (3).
54. Ibid, Section 20.
55. The Constitution of the Kingdom of Nepal, 1990, Article 17.
56. Land Acquisition Act, 1977, Section 3.
57. Ibid, Section 14.
58. Water Resources Act, 1992, Section 20.
59. Soil and Watershed Protection Act, 1982, Section 3.
60. Ibid, Section 4.
61. Ibid, Section 13.
62. Ibid, Section 10.
63. Ibid, Section 24.
64. Local Self-Governance Act, 1999, Sections 28 (1), 96 (1), and 189 (1).
65. Ibid, Section 28 (1).
66. Environment Protection Regulations, 1997, Rule 15.
67. Ibid, Rules 16-20.
68. Irrigation Regulations, 2000, Rule 14.
69. Ibid, Rule 16.
70. Water Resources Act, Section 4(3).
71. Ibid, Section 2(b).
72. Ibid, Section 7(2).
73. Water Resources Regulations, Rule 28.
74. Water Resources Act, Section 24(e).
75. Environment Protection Act, Section 24(2)(e).
76. Ibid, Section 7.
77. Water Resources Act, Section 18.
78. Ibid, Section 19.
79. Ibid, section 2(a).
80. Irrigation Regulations, Rule 39.
81. Water Resources Act, Section 17.
82. Electricity Act, section 31.
83. Environment Protection Act, Section 10.
84. Environment Protection Regulations, Rule 30.
85. Soil and Water Conservation Act, Section 3.
86. Ibid, Section 4.
87. Ibid, Section
88. Water Resources Regulations, Rule 8.
89. Ibid, Rule 28.
90. Water Supply Regulations, Rule 23.
91. Electricity Act, Section 17.
92. Electricity Tariff Fixation Regulations, Rule 3.
93. Nepal Electricity Authority Act, Section 19.
94. Nepal Water Supply Corporation Act, section 8.
95. Water Resources Act, Section 8.
96. Ibid, Section 13(1).

97. Ibid, Section 13(2).
98. Water Resources Regulations, Rule 30.
99. Water Supply Regulations, Rule 38.
100. Irrigation Regulations, Rule 26.
101. Electricity Act, Section 5.
102. Ibid, Section 17.
103. Nepal Water Supply Corporation Act, Section 6.
104. Water Resources Act, Section 14.
105. Electricity Act, Section 19.
106. Water Supply Regulations, Rule 34.
107. Irrigation Regulations, Rule 23.
108. Nepal Electricity Authority Act, Section 22.
109. Nepal Water Supply Corporation Act, Section 6(4).
110. Water Resources Act, Section 4(2).
111. Ibid, Section 10.
112. Ibid, Section 22.

WATER LAW IN NEPAL

Transition from Riparian Rights to Community Ownership in Water
or
**/An Evolving Legal and Regulatory Framework for a Sustainable
Development of Water Resources/**

INTRODUCTION

Since the beginning of the twentieth century water law doctrine and practice have been developing principles and rules that would enable the countries to cope with the fast-growing demand for water. This trend continued to develop and legislation began to be enacted in the west. This development has endeavoured to strengthen the water administration for maximizing the development of water resources, protecting individual water rights as well as the public interest, which might conflict with such development. In about the same period, and especially in the latter half of the twentieth century efforts were underway in Nepal to bring new legislation for the development and use of water resources. Irrigation Act, 1961, Nepal Electricity Act, 1963, Water Tax Act, 1966 and the Canal, Electricity and Related Water Resources Act, 1967 were the examples of legislation in this regard. These legal frameworks have been patterned along sub-sectoral uses of the resource. With the enactment of the Water Resources Act in 1992, however, a framework for the development of water as a resource is now in place. Although the Act is meant to be an umbrella legislation on water resource development, a separate legislation in regard to hydropower development, the Electricity Act, 1992, has also been enacted.

Water resources development in Nepal over the years has been largely "supply-led". Development of this resource was approached generally with a sub-sectoral view. Water as a finite resource has received less attention in the planning of this resource. Since water sustains all forms of life, the protection of natural ecosystems demands due attention for its conservation while satisfying the inter-sectoral needs. Development initiatives need to consider issues across the whole of a river basin and consider the interrelationships with another resource, the land. Where the basin watersheds cross administrative boundaries, two or more districts are involved in its management.

The community ownership approach of the 1992 Act, therefore, is understandable because of certain characteristics regarding availability of water in Nepal. Due to the uneven spatial distribution of water coupled with steep river gradient, a wide range of variation of river flows exist in the country. Most of the small rivers are almost dry during the winter season while in monsoon the flows increase by more than hundred times the mean annual flow, which results in huge damages due to floods, bank erosion and landslides. Ecologically the country has three distinct regions – Himalayas, Mountains and Hills and the *Tera*. The Himalayas serve as a barrier to the incoming monsoon clouds, which bring rain to the country.

Although approximately six thousand rivers and streams criss cross the country only 33 have drainage area exceeding 1000 sq. km. that hold promises for optimum development of the resource and produce benefits in terms of drinking water, food and energy for the growing population. The rivers of Nepal can be classified into three categories on the basis of their source and discharge – snow-fed, discharge fed mainly by precipitation and springs, and seasonal with little flow during the dry season. These rivers generate about 225 billion cubic meters of water annually. The *Kosi*, *Gandaki*, *Karnali* and *Mahakali* river systems, from east to west of the country, originate in the Himalayas and carry snow-fed flows with significant flows even in the dry season. *Kankai*, *Kamala*, *Bagmati*, *West Rapti* and *Babai* rivers originate in the *Mahabharat* range of mountains and are fed by precipitation, springs and groundwater regeneration. These rivers are also perennial in character and have wide seasonal fluctuations in discharge. The third category of rivers consists of a large number of small rivers in the *Terai*, which originate from the *Siwalik* range of hills. These rivers carry little flow during dry season and are characterized by flash floods in the monsoon. The spatial distribution of water volume generated in various months is uneven. This phenomenon places limitations on the utilization of water resources necessitating some kind of administrative control and regulation.