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EVOLUTION AND IMPACT OF IRRIGATION LAWS AND POLICIES IN NEPAL

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ABSTRACT

Nepal is mainly a mountainous country and has limited arable land. On the contrary, the annual water availability is much enough to provide year-round irrigation. Historically, Kathmandu valley was attributed for the network of irrigation systems supporting advanced and intensive agriculture activities in the past. At present, the federal structure allocates the responsibility of managing water resources to all three tiers of government on the basis of the size of projects. The National Irrigation Policy is to guide irrigation development in the country. It outlines governments plan for the irrigation sector and the strategies for attaining irrigation development objectives. Government of Nepal has made the Irrigation Rules, 2056 (2000) Irrigation (First Amendment) Rules, 2060 (2004).Irrigation policy, 2070 has envisaged providing sustainable and year-round irrigation service to all the agricultural land of the country to help increase agricultural productivity. The Government of Nepal has shared numerous treaties, negotiations and bilateral meeting minutes in the public domain. A number of bilateral, trilateral, and regional efforts are ongoing to foster cooperation and streamline concerted efforts. The bilateral cooperation mechanisms are through joint committees at various levels.

Keywords: *Irrigation, irrigation policy 2070, Trans-boundary water sharing, international watercourse, Irrigation Rules, Treaties.*

Introduction

Irrigation is the supply of water to crops by artificial means. Irrigation is the process of applying water to soil, primarily to meet the water needs of growing plant. Irrigation in law involves the establishment of legal frameworks and regulations governing the management, use, and distribution of water resources for irrigation purposes. "Irrigation" means the act of supplying water through the Structure on the field for agricultural use.[1]"Historically, civilizations have been dependent on the development of irrigated agriculture to provide agrarian basis of the society and to

[1] Irrigation Rules, 2056 (2000)2(b)

enhance the security of the people. Archaeological investigations have identified evidences of irrigation in Mesopotamia and Egypt as far back to six millennium BC. The irrigation in those days was introduced for growing barley and sesame oil seeds. In the "Zana Valley" of Andes Mountains in Peru, archaeologists found the remains of three irrigation canals radio-carbonic as far as 4 millennium BC. There are evidences in ancient Egyptian Pharaoh Amenemhet –III in the 12th dynasty (circa 1800 BC), the use of natural lake on the Fayum as a reservoir to store surpluses of water for the dry season irrigation, as the lake swelled due to annual flooding of the Nile. The Qanats developed in ancient Persia in about 800 BC, are among the oldest known irrigation systems, still prevailing".[2]

Nepal is mainly a mountainous country and therefore has limited arable land. On the contrary, the annual water availability is much enough to provide year-round irrigation. Though Nepal has 1.76 million hectares of irrigable agricultural land, less than one-third of it has year-round irrigation facilities (WECS, 2005).In context of Nepal, Junga Bahadur Rana, the first Rana Prime minister promulgated first Muluki Ain National code 1854. National Code[3] was limited to the various aspects of irrigation in terms of priority rights to acquire, allocation and distribution of water for irrigation. Under the Chapter "Jagga Aawad Garneko (Land Cultivation)", one can construct irrigation canal upstream of the existing one subject to the condition that the water will not be lessened to the existing canal. Similarly, irrigation canal could be constructed through anyone's private land, whether fallow or cultivated. Next more comprehensive National code Muluki Ain was promulgated in 1963, which also limited to irrigation rights priorities[4].Legal frameworks often address the construction, maintenance, and management of irrigation infrastructure such as dams, canals, and pipelines. This can include public funding mechanisms, private sector involvement, and public-private partnerships. Legal mechanisms are established to resolve conflicts over water use and distribution. This can involve courts, regulatory bodies, or other dispute resolution processes. Laws often encourage or mandate the participation of local communities and stakeholders in the planning and management of irrigation systems to ensure that the needs and rights of all users are considered. Legal frameworks ensure the equitable, efficient, and sustainable use of water resources for irrigation, balancing the needs of agricultural production with environmental conservation and other water uses. Overall following projects and the programs for the development of irrigation schemes are undertaken in Irrigation Projects of Nepal : Sikta Irrigation Project ,Babai Irrigation Project , Bagmati Irrigation Project , Sunsari Morang Irrigation

[2] www.Water-Nepal-A-historical-Perspective.pdf (Accessed on May 20, 2024).

[3] The first single codified law, valid for the whole of Nepal was promulgated in 1854, and is known as the Muluki Ain (National Code).

[4] ibid

Project (Phase III) ,Mahakali Irrigation Project (Phase III) , Praganna and Badkapath Irrigation Project , Rani Jamara Kularia Irrigation Project (Including modernization of the system) ,Irrigation and Water Resources Management Project (IWRMP-AF) , Community Managed Irrigated Agriculture Sector Project (CMIASP-AF) , Medium Irrigation Project (MIP) , Irrigation Systems Rehabilitation Project (KFAED) ,Bheri Babai Diversion Multipurpose Project ,Enhanced Terai Madhesh Irrigation Special Program , Sunkoshi Marin Diversion Multipurpose Project II. Projects under Operation as Program: Groundwater Shallow and Deep Tube well Irrigation Project, Operation and Maintenance Project, Irrigation Management Transfer of Big Agency Managed Irrigation Projects, Irrigation Systems under Non-Conventional Technology, Daraundi Palungtar Irrigation (River Training) Project, Karnali Zone Irrigation Development Program, Seti Mahakali Irrigation Development Program III.

Modules and State Methodologies

Irrigation development in Nepal originally was initiated either through the religious trust, individual initiative or community efforts. Though very little information regarding the development of irrigation in the past is available, study has indicated the existence of water management practices and water rights of the people in ancient days as well. Irrigation water served as both the spiritual and material foundations of Nepal's community civilization.[5] The rich cultural tradition, arts, artifacts and architecture of Kathmandu valley are attributed for the network of irrigation systems supporting advanced and intensive agriculture activities. Spiritual mission, royalty and religious trust (known as Guthi) coupled with community initiative for irrigated agriculture was the main driving force in promoting local cooperative enterprises.[6] The state encouraged the development of such trusts. These trusts allocated a portion of their income out of religious performance to assist irrigated agricultural activities on which livelihood of the trust's members was dependent. (Pradhan, 1988)

The Royal canals (Raj Kulo) built by rulers in Malla Period (around 17th Century) in Kathmandu Valley are still in existence. In addition, multiuse of water from the one source had been a main theme in those days too. In developing Raj Kulos in Bhaktapur during the period of King Jitamitra Malla, irrigation canal (Raj Kulo) was constructed while diverting water from Mahadev Khola. This river was originated from Mahadev Danda, some 6 km far from Bhaktapur city. Further the same canal was the source for ponds and stone spouts (Dunge Dhara) in Bhaktapur.[7] Kulo from Tika Bhairav in Lalitpur is another burning example for multi-use or followed the

[5] ibid
[6] Supra note 2
[7] ibid

principle of Integrated Water Management. The tail end of the canal used to be at Lagankhel, Lalitpur. This canal had played great role in fulfilling the purposes of agriculture, domestic and holy cause. (Paudel 2010)

Before 1922, farmers developed, operated and maintained the irrigation systems called Farmers Managed Irrigation System. The modern irrigation system was started during the Rana regime in 1922. The Chandra Nahar was constructed in 1928 and the modern irrigation system started at that time. In 1943 Jagadishpur reservoir (Banganga) in Kapilbastu and Pardi dam in Pokhara were initiated.[8] At that time foreign technicians helped to construct these irrigation systems. During Rana regime, there was no authorized central institution for the development of irrigation canals. The Chandra Nahar Division was entrusted for the irrigation development activities. The Canal Department was established in April 1952, under the Ministry of Construction and Communication (DOI, 2015).Direct involvement of Government in construction and management of irrigation systems can be seen from the beginning of 20th century. It can be said that modern technology in irrigation system development started after the construction of Chandra Canal in Saptari District with the assistance of British India Government in 1922.[9]

Constitution of Nepal 2015, states that every citizen has the right to a clean and healthy environment. It further prescribes that the State shall carry out multi-purpose development of water resources, ensure availability of energy, develop sustainable and reliable irrigation and reduce water-induced disasters adopting good river management.[10] The federal structure allocates the responsibility of managing water resources to all three tiers of government on the basis of the size of projects. The National Irrigation Policy is to guide irrigation development in the country. It outlines governments plan for the irrigation sector and the strategies for attaining irrigation development objectives. The policy highlights strategies in irrigation development, coordination within the sector and with other disciplines[11]. The irrigation development is for food security, poverty alleviation and economic development of the nation.

Policies in Irrigation.

Governmental approaches and policies for irrigation development introduced major changes beginning with the Seventh Five Year Development Plan (1985-1990), which emphasized people's participation in irrigation development and

[8] Supra note

[9] Ministry of Construction and Communication (DOI, 2009).

[10] River Management is defined as the management of water resources of a basin as part of the natural ecosystem and in relation to their socio-economic setting.

[11] www.irrigation seminar.pdf (Accessed on May 20, 2024).

management. In 1988, the government introduced the Working Policy on Irrigation Development for the Fulfillment of Basic Needs (Poudel, 2000).

Irrigation policy, 2070 has envisaged providing sustainable and the year-round irrigation service to all the agricultural land of the country to help increase agricultural productivity. Department of Irrigation has been constantly working in irrigation development and management since its establishment in 2009 B.S. It is imperative to provide year round irrigation service from the irrigation infrastructures developed in the past without major changes in line with the development and management of irrigation systems in sustainable manner[12]. Inter-basin water transfer and reservoir based irrigation projects shall be started to develop on the basis of their feasibility, conjunctive use of locally available surface water and groundwater shall be judicially used, small sources in the hills and mountains shall be utilized optimally and the ad hoc system of irrigation management shall be transformed to maximize their capability. In addition, to make water users' associations responsible and accountable in the development and management of irrigation systems for the effective implementation of participatory system, need of effective programs cannot be shadowed.[13] The concern of adverse effect caused by population increase, immigration, climate change, and water induced disaster to the water sources and their use in irrigation and implementation of suitable resilience programmed has to be well planned and incorporated in the programs.[14] Additionally increasing capability and involvement of local bodies in the development of small irrigation systems as per the concept of decentralization is important. (National Irrigation Seminar, 2014)

(i) Irrigation Policy 2070.[15]

The Government of Nepal's strategy for irrigation development and management is built upon the Water Resources Strategy (2002), National Water Plan (2005), Irrigation Development Vision and Action Plan (2006), and recently, the Irrigation Policy (2013). The main vision described in these documents is to integrate agriculture and irrigation development in order to realize the full benefits from investment in irrigation and provide sustainable services to the agriculture sector through well operating irrigation facilities, based on local resources mobilization through a partnership of the users and the government. The objective of the Irrigation Policy is for the fulfillment of the following:

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[12] Ibid
[13] Ibid
[14] Supra note 10.
[15] Irrigation Master Plan 2019,Department of Water Resources and Irrigation Ministry of Energy, Water Resources, and Irrigation Government of Nepal November 2019.

- To provide round the year irrigation facility to the irrigation suitable land by effective utilization of the current water resources of the country.
- To develop the institutional capability of Water Users for sustainable management of the existing system.
- To enhance the knowledge, skill, and institutional working capability of technical human resources, water users, and non-governmental associations/organizations relating to the development of the irrigation sector there is an emphasis on:
- Provision of year-round irrigation services to increase the productivity of irrigated agriculture and extending the cropping seasons;
- The need for a service-oriented management approach as a means for providing more reliable and flexible water services to farmers; and
- The progressive shifting of operation and maintenance costs to water users to enhance efficiency, equity, and sustainability.

It also promotes integrated water resources management which can be an effective tool to address climate change at the basin scale. The policy also helps reduce risks in the reliability of rain and discharge in canals by the development of irrigation systems to provide round the year irrigation, effective management of existing water resources; institutional capacity building of water users for sustainable management of existing systems; and enhanced knowledge, skills and institutional working capability of technical human resources, water users, nongovernmental organizations and other stakeholders. (MOFE, 2020)

The Department of Water Resources and Irrigation has developed an Irrigation Master plan following on from Master Plan of 1990 to develop a long-term strategy of developing the irrigation sector based on the available resources and policies and implement an investment program that is consistent with the strategy.[16] This new Master Plan, though not yet approved by the government, has prioritized research and development areas also include the following:

- Mainstreaming climate change adaptation in irrigation planning and management.
- Sustainable storage development in the Greater Himalayan Region.

It is important to note that the Master Plan identifies the possibility of utilizing water storage capacity in the Greater Himalayan region for adaptation to climate change.[17] It may be possible to harness the natural systems in the biosphere through initiatives such as wetlands conservation and improved watershed management in the hills and mountains, as well as groundwater aquifer recharge in

[16] www.NA-ADPC-Water_Sector_Policies_and_Guidelines_of_Nepal%20(1).pdf
[17] ibid

the foothills. Small ponds and tanks for rainwater harvesting could also be built on hill farms and around hill communities.[18] The construction of large dammed reservoirs on the downstream plains is a further option and has been carefully considered in this Irrigation Master Plan. It also states that the knowledge gap concerning such sustainable water storage will have to be addressed through fresh research studies.[19]

Nepal has a significant history of trans-boundary water sharing agreements with India including the 1954 Koshi Project Agreement and the 1959 Gandak Agreement as well as The Mahakali Treaty of 1996. There is no specifically spelled out policy instrument regarding the trans-boundary waters.[20] Nepal also has not entered into treaties or understandings on any of the rivers flowing into Nepal from China. Nepal's recent stance has been, with India, and spelled out in a number of bilateral forums, that the cost of and benefits of any development must be shared between both the parties equitably.[21] Development of reservoirs would render large tracts of a fertile farm, forests and villages/ infrastructure underwater, incurring huge economic, social, and environmental costs to Nepal while there would be augmented flow in the rivers flowing downstream benefitting India in enhancing its crop yield through the higher intensity of irrigation, as well as benefits from floods due to regulated waters. Trans-boundary water treaty practice has developed considerably in the international arena over the past four decades and of particular note is The Convention on the Law of Non-Navigational Uses of International Watercourses, commonly referred to as the United Nations Watercourses Convention.[22] This has entered into force globally in 2014 has taken since 1997 to attract the requisite number of ratifications from the member countries. The United Nations Watercourses Convention has codified a number of principles of international law concerning the obligations of nations that share watercourses and these include:

- Article 5: Equitable and reasonable utilization and participation
- Article 7: Obligation not to cause significant harm
- Article 8: General obligation to cooperate

[18] Supra note 15.

[19] Supra note 15.

[20] Trans-boundary waters are the aquifers and lake and river basins shared by two or more countries.

[21] Something that is equitable is fair and reasonable in a way that gives equal treatment to everyone.

[22] In 1997, more than 100 nations gathered to adopt the UN Watercourses Convention – a flexible and overarching global legal framework that establishes basic standards and rules for cooperation between watercourse states on the use, management, and protection of international watercourses.

• Article 9: Regular exchange of data It should be noted that the historic notion of absolute territorial integrity (also called the Harmon Doctrine).[23] What has come to the fore in modern trans-boundary water law is the principle of achieving equitable and reasonable utilization by all the riparian countries of an international watercourse which in essence requires those countries to agree to a shared working apportionment of the available water.[24] This has therefore superseded notions that a downstream state can require an upstream state to fix flows in perpetuity based upon some earlier historic flow rate. Cleary to do so would be to restrict the potential for development in the upstream state. Examples of such strong tactics to stop upstream development have definitely occurred around the world as well as in the region. But, despite the principles stated above, stronger nations have always manipulated or strong-armed weaker nations and history is a testament to that.[25] This could be from preventing other third parties to cooperate, such as in securing financing for the project or even threatening military actions. In the context of trans-boundary water sharing between Nepal and India, there is an enormous scope of beneficial cooperation. Nepal has the water resources but has neither the market for the product nor the economy that can sustain investing them on a large scale. India has a well-developed economy that can make large investments as well as the market to consume the product, i.e. electricity, but it does not have the water resource. The economy is strong and it needs sustainable energy sources-hydropower as well as sustained flows important for irrigation of the dry farmlands, drinking water supplies, and protection from floods. [26]Nepal could also benefit from navigational access to India's major waterways and feels that avenues to fund the development could be agreed to if the avoided costs of flooding and benefits of sustained flows are quantified and attributable to Nepal so that adequate compensations for the areas submerged or acquired for water projects can be duly made. There may therefore be merit in considering developing a combined water and benefit-sharing framework agreement first to get the cooperation rolling. A number of bilateral, trilateral, and regional efforts are ongoing to foster cooperation and streamline concerted efforts. [27]The bilateral cooperation mechanisms are through joint committees at various levels. The efforts for a trilateral committee have not been fruitful with India, not in favor of trilateral committees. These have

[23]– in which a country can choose to utilize the water flowing through its territory in its entirety and without any concern of its co-riparian countries has completely failed to gain traction as a principle of trans-boundary water law.

[24]www.NA-ADPC-Water_Sector_Policies_and_Guidelines_of_Nepal%20(1).pdf(Accessed on, May 25 2024).

[25]ibid

[26]Supra note 23.

[27]ibid

often become merely functional, such as the SAARC[28] initiatives or the efforts in getting a trilateral (Bangladesh, India, and Nepal) committee set up for water resources cooperation[29] (World Bank, 2014) on the other hand, states that the significance and role of storage projects in downstream flood protection and flow augmentation are not clear, so the cooperation for hydropower development should go ahead on a fast track as it promises better benefits.

4. Prevailing laws and regulations in irrigation.

In exercise of the power conferred by *Section24, of Water Resources Act, 2049 (1992),* Government of Nepal has made the Irrigation Rules, 2056 (2000) Irrigation (First Amendment) Rules, 2060 (2004). Power to Make Rules: (1) Government of Nepal may frame Rules in order to carry out the objectives of this Act. (2) Without prejudice to the generality of the powers conferred by Subsection (1), Government of Nepal may frame Rules, in particular, on the following subjects: (a) Matters relating to drinking water, irrigation, navigation, industrial and recreational uses and matters related to similar uses of water resources.[30]

1. Irrigation Rules, 2056 (2000).

Irrigation Rules, 2056 (2000), concern the powers and participation of Users' Associations in relation to the management of irrigation systems.

Chapter 2 refers to provisions on User's Associations. Chapter 2 Provisions relating to users associations and transfer of the project.[31]Registration of Users' Association: The Users of the following irrigation system shall submit an application to the concerned Irrigation office for the registration of the Users' Association, upon constituting an Executive Committee not exceeding eleven members comprising Thirty Three percent women, including Two from dalit, downtrodden and backward ethnic community, in a format as prescribed in schedule –1,[32](a) Developed and operated by Government of Nepal,[33] (b) Maintained and reformed by Government of Nepal, [34](c) Constructed and operated by the farmer groups.[35] (2) While constituting the Users' Association under Sub rule (1), there should be a representation of at least Sixty Seven percent Users of the irrigated area of such

[28]South Asian Association for Regional Cooperation (SAARC) was established with the signing of the SAARC Charter in Dhaka on 8 December 1985.
[29]This report has been objected to by Nepali experts and the government.
[30] Water Recourse Act, 2049 (1992). section24.
[31]Irrigation Rules, 2056 (2000).Chapter 2.
[32]Irrigation Rules, 2056 (2000).Rule 3.
[33]Irrigation Rules, 2056 (2000).Rule 3(a).
[34]Irrigation Rules, 2056 (2000).Rule3(b).
[35]Irrigation Rules, 2056 (2000).Rule 3(c).

Canal, Branch or Secondary Canal, Minor or Tertiary Canal, Water course, Field Channel distributed water from which Canal, Branch or Secondary Canal, Minor or Tertiary Canal, Water course, Field channel is to be used.[36]

Section 5[37] includes the functions, duties and power of Users' Association including the obligation to repair, maintain and manage the irrigation system operated by that association Functions, Duties and Powers of Users' Association: (1) The Functions, Duties and Powers of the Users' Association shall be as follows:[38] (a) To repair, maintain, operate and manage the Irrigation System operated by it, Provided that, if it requires any change or replacement of the equipment or the physical structure affecting the irrigation system prior approval of the concerned Irrigation Office shall be required.[39] (a) To avail water to the User farmers at appropriate time in proper quantity as required by the type of crop and the condition of the land,[40] (b) To keep the record of the land in which service could not be availed and to recommend to exempt the service fee to be paid by such Users, [41](c) To distribute water to new User farmers without causing any harm to the previous Users who are receiving the service, [42](d) To mobilize public participation for maintenance of the Irrigation System,[43] (e) To construct additional Structures to increase irrigable area considering the supply of water,[44] (g) To collect service fee from users and deposit it as prescribed by concerned Irrigation office,[45] (h) To exclude those users who fail to pay the service fee, to collect late charge and to inform the same to the concerned Irrigation office,[46] (I) To provide notice to the concerned Irrigation Office of any information pertaining to any demolition or destruction, alteration, obstruction or any knowledge about the possibility of the similar activities towards the irrigation system or structure.[47] (2) In case it requires technical consultation while exercising the functions, duties and powers pursuant to Sub rule (1), the Users' Association may request to the concerned Irrigation Office and if such request is made the concerned Irrigation Office shall provide necessary technical consultation.[48] (3) Out of the powers, functions, duties

[36]Irrigation Rules, 2056 (2000).Rule 3(2)
[37]Irrigation Rules, 2056 (2000).Rule 5.
[38]Irrigation Rules, 2056 (2000).Rule 5(1).
[39]Irrigation Rules, 2056 (2000).Rule 5(1) (a).
[40]Irrigation Rules, 2056 (2000).Rule 5(a).
[41]Irrigation Rules, 2056 (2000).Rule 5(b).
[42]Irrigation Rules, 2056 (2000).Rule 5(c).
[43]Irrigation Rules, 2056 (2000).Rule 5(d).
[44]Irrigation Rules, 2056 (2000).Rule 5(e).
[45]Irrigation Rules, 2056 (2000).Rule 5(g).
[46]Irrigation Rules, 2056 (2000).Rule 5(h)
[47]Irrigation Rules, 2056 (2000).Rule 5(I).
[48]Irrigation Rules, 2056 (2000).Rule 5(2).

obtained by the Users' Association pursuant to Sub rule (1), some functions, duties and powers may be delegated by constituting various sub-committees from among the Users who are using the Service.[49]Further provisions relate to the need to maintain records, the fund for the maintenance of the irrigation fund and the protection of plants and trees adjacent to any irrigation source.

Rule 19[50]Complaint may be field: (1) If a person is not satisfied with the notice served pursuant to Sub rule (2) of Rule 18 of the decision to the effect that the Service could not be made available, such person may submit a complaint against such decision to the concerned Irrigation Office within Thirty Five days.[51] (2) The concerned Irrigation Office shall conduct necessary inquiries on complain received pursuant to Sub rule (1) and issue an order and such order shall be final.[52]

Chapter 5[53]Provisions regarding user's duty and responsibility and service fee.Rule25[54]Users' Duty and Responsibility, the duty and responsibility of the User shall be as follows:

(a) To inform the Project Office immediately if it is known that someone has misused the Service or caused leakage of water or committed that kind of act or has attempted to commit such an act.[55]

(b) To provide necessary assistance to the Project Office on works of construction, repair and maintenance and protection of the structure.[56]

Rule 31[57] relates to the Project Committee which will implement irrigation projects on behalf of the government. Rule 33[58] Functions, Duties and Powers of the Project Committee. The Functions, Duties and Powers of the Project Committee shall be as follows:

(a) To get the Project completed within the stipulated time in accordance with the directives and guidelines issued by Government of Nepal from time to time.[59]

(b) To arrange for technical works like design, drawing etc. relating to the Project.[60]

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[49]Irrigation Rules, 2056 (2000).Rule 5(3).
[50]Irrigation Rules, 2056 (2000).Rule 19.
[51]Irrigation Rules, 2056 (2000).Rule 19(1).
[52]Irrigation Rules, 2056 (2000).Rule 19(2).
[53]Irrigation Rules, 2056 (2000).Rule Chapter (5).
[54]Irrigation Rules, 2056 (2000).Rule 25.
[55]Irrigation Rules, 2056 (2000).Rule25(a).
[56]Irrigation Rules, 2056 (2000).Rule 25(b).
[57]Irrigation Rules, 2056 (2000).Rule 31.
[58]Irrigation Rules, 2056 (2000).Rule 33.
[59]Irrigation Rules, 2056 (2000).Rule 33(a).
[60]Irrigation Rules, 2056 (2000).Rule 33(b).

(c) To approve the number of staff necessary for the Project. (d) To do such other works as are necessary for the completion of Project.[61]

(ii) Constitutional provisions.

The constitutional framework of Nepal delineates clear responsibilities across federal, provincial, and local governments. The federal level manages large-scale and strategic projects, ensuring comprehensive planning and resource utilization.

The delineation of irrigation responsibilities across various government levels as outlined in the constitutional schedules emphasizes the significant role of the federal level. Specifically, Schedule 5 assigns "Central level large electricity, irrigation, and other projects" to the federal government, highlighting the federal jurisdiction over substantial and impactful initiatives. Meanwhile, Schedule 6 entrusts state governments with "State level electricity, irrigation, and water supply services, navigation," indicating a more localized but still critical scope of authority. Finally, Schedule 8 delegates "Water supply, small hydropower projects, alternative energy" to local governments, focusing on community-level and smaller-scale projects. This structured allocation underscores the importance of federal oversight and coordination for large-scale and strategic irrigation projects, reflecting a serious concern for their impact on national development and resource management. By centralizing major projects at the federal level, the framework ensures uniformity, comprehensive planning, and the efficient utilization of resources.

The constitutional schedules highlight the federal government's key role in major irrigation projects (Schedule 5), emphasizing centralized oversight. State governments handle regional projects (Schedule 6), while local governments manage community-level initiatives (Schedule 8). This structure ensures effective planning and resource management across all levels.

5. Treaties and bi-lateral Minutes.[62]

The Government of Nepal has shared numerous treaties, negotiations and bilateral meeting minutes in the public domain. Nepal and India have signed three major agreements (Kosi, Gandak and Mahakali) regarding the harnessing of water resources. In addition, different bilateral mechanisms are established. The issues related to execution of the bilateral treaty, allocation of water resources, disaster

[61]Irrigation Rules, 2056 (2000).Rule 33(c).

[62]Climate Adaptation and Resilience (CARE) for South Asia Project REVIEW REPORT Water Sector Policies and Guidelines of Nepal Water Sector Policies and Guidelines of Nepal: A Review © 2021. www.adpc.net Document No: ADPC/CARE/WAT/NP-03 Date of Publication: May 2021.

management and other bilateral water resources related issues are discussed in these bilateral committees.[63]

- Agreement between Government of Nepal and the Government of India on the Gandak Irrigation and Power Project, 1959.
- Treaty Between Government of Nepal and The Government of India concerning the Integrated Development of the Mahakali Barrage Including Sarada Barrage, Tanakpur Barrage, and Pancheshwar Project, 1996.
- Revised Agreement between Government of Nepal and The Government of India on The Koshi Project, 1975 Orders.

In relation to the water management across the border, dissatisfaction persists in Nepal about the sharing of water-related benefits between Nepal and India. The long history of mistrust between Nepal and India associated with the trans-boundary Rivers highlights the challenges associated with managing such shared water resources. If we go through the various bi-lateral Treaties and agreements with India in koshi Treaty[64]. The Treaty was signed between Nepal and India on 25th of April 1954. The Treaty allowed India to construct a pair of embankments to confine the Koshi River in its course, and a barrage across the river in Nepal close to the Indo-Nepal border. The 1.1km long Koshi 2 Barrage was constructed within Nepalese territory mainly to control flood in Bihar, India. However, it was also designed to draw water for irrigation purpose through eastern and western main canals. The eastern main canal covers an area of about 612,500ha of land while the western main canal covers about 356,610ha (Malla, 1995). And also, in Gandak Agreement, "With the Gandak Agreement of 1959[65], the 739m barrage was designed and build to irrigate 920,520ha in Bihar State of India and 37,200ha in Bara, Parsa and Rautahat districts of Nepal from the Main Eastern Canal, and 930,000ha in Uttar Pradesh State of India and 4,700ha in Nawalparasi district of Nepal from the Main Western Canal. Similarly, Western Nepal Canal was designed to irrigate 16,000ha of land in Nawalparasi district of Nepal. While the Gandak Water irrigates a huge 1,850,520ha of land in Uttar Pradesh and Bihar, Nepal could irrigate only 46,900ha of her land, which is a humble 2.5% of what India irrigates" (Pun, 2007). In context of Treaty related with Mahakali "Article 2, Paragraph 2(a) of the Mahakali

[63]https://jvs-nwp.org.np/wp-content/uploads/2023/02/Joint-Committee-Meetings_final-draft-.pdf (Accessed on May 30, 2024).

[64]The 1954 Koshi Agreement between India and Nepal provides for the construction of "barrage, head works and other appurtenant work" on the land lying within the territories of Nepal for the purpose of flood control, irrigation, and generation of hydroelectricity and prevention of erosion.

[65]The Governments of Nepal and India signed the Gandak agreement in 1959. It formed the basis for the construction of barrage, canal systems serving in India and Nepal, a hydropower plant to supply power to Nepal as well as a flux bunds, spurs and embankments.

Treaty[66] has provisioned for water supply to Nepal from the Tanakpur Barrage. Under this provision, India also agreed to construct the head regulator(s) near the left under-sluice of the Barrage and water ways up to Nepal-India Border. However, even after more than two decades, no water has been received by Nepal from Tanakpur barrage[67]. The sill level of Tanakpur barrage is an important issue for Nepal in order to receive the agreed amount of water from the barrage. The inlet for Nepal (sill level) on Tanakpur barrage is at EL 245m which means that Nepal is forced to withdraw the Mahakali waters 3.5m above that of India's intake "(Pun, 2009).

Right from the very beginning of three water agreements between Nepal and India, disregard to the provisions of the agreements from Indian side has been persistently apparent in its behavior.[68] The international treaties are made on the basis of good faith. This lack of good faith on the side of India in the implementation of the different provisions of the treaties is the 22 major bottle necks which have impaired any faith to further accelerate the process of cooperation in the region.

India has a well-developed economy that can make large investments as well as the market to consume the product, i.e. electricity, but it does not have the water resource. The economy is strong and it needs sustainable energy sources-hydropower as well as sustained flows important for irrigation of the dry farmlands, drinking water supplies, and protection from floods. Nepal could also benefit from navigational access to India's major waterways and feels that avenues to fund the development could be agreed to if the avoided costs of flooding and benefits of sustained flows are quantified and attributable to Nepal so that adequate compensations for the areas submerged or acquired for water projects can be duly made. There may therefore be merit in considering developing a combined water and benefit-sharing framework agreement first to get the cooperation rolling.[69] A number of bilateral, trilateral, and regional efforts are ongoing to foster cooperation and streamline concerted efforts. The bilateral cooperation mechanisms are through joint committees at various levels.

[66]The treaty was signed in 1996. The treaty has 12 articles agreements for an integrated development of barrage, dams and hydropower for mutual cooperation of the two countries by managing the water resources.

[67]Tanakpur Barrage and Hydroelectric Project is a run of the river scheme on the Sharda River (Mahakali River in Nepal) located near the town of Tanakpur in the district of Champawat.

[68]https://jvs-nwp.org.np/wp-content/uploads/2023/02/Joint-Committee-Meetings_final-draft-.pdf (Accessed on June 1, 2024).

[69] ibid

6. Conclusion

Nepal is mainly a mountainous country and therefore has limited arable land. Irrigation development in Nepal originally was initiated either through the religious trust, individual initiative or community efforts. The Constitution with federalism and the three-tier governance system is supposed to reduce the central hegemony and improve access to governance enhancing service delivery of the system. Procedures have not been written or established yet and it all originates from the lack of clarity on who owns water, the river stretch, and the resource and problems associated. The provincial and local governing bodies also mimic older days of ruling with impunity and being unanswerable. Though very little information regarding the development of irrigation in the past is available, study has indicated the existence of water management practices and water rights of the people in ancient days as well. Irrigation in law involves the establishment of legal frameworks and regulations governing the management, use, and distribution of water resources for irrigation purposes. Laws governing water resources outline the allocation among agricultural, industrial, and domestic users. These regulations often include water rights systems that detail who can use water, the quantity allowed, and the intended purposes. This can include incentives for adopting modern irrigation methods like drip or sprinkler systems. Regulations ensure that irrigation practices do not harm the environment. This includes maintaining water quality, protecting ecosystems, and managing the impact on groundwater and surface water supplies. Department of Irrigation has been constantly working in irrigation development and management since its establishment in 2009 B.S. It is imperative to provide year-round irrigation service from the irrigation infrastructures developed in the past without major changes in line with the development and management of irrigation systems in sustainable manner. The Government of Nepal's strategy for irrigation development and management is built upon the Water Resources Strategy (2002), National Water Plan (2005), Irrigation Development Vision and Action Plan (2006), and recently, the Irrigation Policy (2013).

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Appendices

Data Transcribe

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We all are aware that language is the primary function for interaction and communication. It is a basic human activity, and basic of all human communication is language. Language has some functions in people's lives, in everyday activities. Among the four skills in learning, I am working on speaking skills. Due to different nature or reasons, people are unable to speak in front of a mass audience. Similarly, my participants are two teachers, and I will ask them some questions regarding these issues. My first participants are Manisha Dangal (a government school English teacher) and Pratikchya Thapa Chhetri (a private school English teacher). I have used pseudonyms here.

Conversation begins:

MD: Hello, good morning, Muna. How are you?

MA: Hi, I am good. What about you?

MD: All is going well. Actually, today I have a packed schedule. So, I planned for you this morning. Sorry I could not make it at the time you had given.

MA: Oh, it's ok. I am grateful that you give your time to me. I want to get through as quickly as possible because I know you have somewhere to be, so…

MD: Thank you. It's my pleasure.

MA: Um… so, how long have you been teaching?

MD: It's been 3 years of teaching as an English teacher in government schools.

MA: Am… ok. So, I want to know from you regarding the English-speaking fluency of students in your schools.

MD: Ok

MA: How do you feel about teaching so far?

MD: It's really going great. I am very happy that I got the chance to serve; to share my knowledge with my hometown. For me, teaching is a noble profession. Along with teaching, I am learning as well. Um… I am doing my job with a passion.

MA: Ok, that's perfect. So, what do you think about speaking English fluently?

MD: Ok, I think umm… it's very important for our everyday life because if we are able to speak English fluently, it means we can express our thoughts, feelings, and ideas, and can share our knowledge in another worldwide speaking language. It will help us to interact with people from almost every country.

MA: Can you share your lived experiences? I mean, what is the reason behind being an English teacher?

MD: Oh… ok… you have raised very good questions. Actually, not everyone has the same childhood. Talking about my lived experiences, I am the product of government schools. In my time, there were no boarding schools in Sindupalchowk. Even studying in a government school, I used to speak English from an early age. During that time, those who could speak English, though few, were valued. So, um… I started loving the teaching field, especially in English, from a young age though I was bad in pronunciation and was not a good speaker. I have one brother in my family. He was sent to Kathmandu for study and I stayed in the village. My childhood education was not so good; I had a hard time learning English speaking and later I insisted on my brother and family for further education. Everything I did, like finding stories, novels, dramas, and listening to BBC news and many more, needed to be delivered in my village, and I think I deserved the result I got. I spent hard times to get in this position and I am still in the learning phase.

MA: Do you find difficulties in learning speaking skills?

MD: Yes, of course, yes because except for the English subject we had to learn in the Nepali language in all other subjects. We are used to Nepali language from our birth; definitely, we find it difficult to learn a second language. In class, some try to speak and some hardly speak.

MA: Why do you think some students have a hard time speaking?

MD: My experience says that they are afraid of being laughed at. When I was small, I felt the same. A teacher should not put them in a position where they could risk making fools of themselves in front of their classmates. Hum… I remember a girl in my class who refused to speak in front of the class. When I confronted her about it, she explained that she felt embarrassed about her braces. It was so important to her to make sure that nobody teased her and therefore she also avoided smiling. Even if a reason like that can seem unimportant for a teacher, one must not forget that it can be very sensitive for the student.

MA: What are the problems you faced, like can read and write but cannot speak properly? Why?

MD: Ah… I think this is the main cause behind their failure. Different people have different natures, like introvert and extrovert people. All are born with the same

qualities but some expose and some hide because of shyness or fear of being wrong. In the case of reading and writing ability, in our country, the checking capacity system of the students only depends on writing. So, I think the lack of practice is the main cause because I already experienced it.

MA: Are teachers able to provide the students with opportunities to practice the target language?

MD: I can't say about all, but in my case, positive learning environments don't just happen on their own, they must be created. In my case, I had the best teacher from grade 8 as he always tried to provide us with opportunities to improve our speaking skills by warning all students to speak English in the school compound, encouraging us by sharing motivational speeches, lived stories, making classes interactive and involving us in active participation in the classroom, letting us do conversation making eye contact, and um… he allowed us to express ourselves.

MA: How do you feel about what kind of environment is needed to make students more comfortable and confident in speaking English in class?

MD: Um… I think it is all about creating situations in the classroom and it is not so important what students talk about but that they talk about something. It can be easier to talk about something silly and unimportant because the student then doesn't have to think about what to say as well. So, discussions in smaller groups tend to be more effective for speaking activities because students then feel less intimidated. I am saying this because it worked for me and this was my teacher's strategy.

MA: How did you avoid your English-speaking anxiety or fear?

MD: Uh… the nature of an individual mostly affects this, as per my understanding. Actually, speaking anxiety has to do with fear, which in most cases has developed from bad experiences. Individuals who have not been encouraged to speak from an early age also create a weaker communicative behavior pattern. Becoming silent at an early stage also contributes to limited opportunities to practice oral skills. So, understanding the causes and weaknesses of one's own need to figure out and try for the improvements is a must.

MA: What sort of teaching strategies are effective to develop the oral skills of students?

MD: Um… as per my understanding and experience, when students are having fluency practice, for instance, free conversation, which is totally different from pronunciation or grammar practice, never correct them, unless something really serious happens. Let them talk, let them feel that they can communicate despite their mistakes in pronunciation, grammar, etc. Praise them for speaking, show

satisfaction, not only encourage them to watch movies but also give them tips on what and how to select what really matters, based on what they are interested in. For instance, taking notes on useful sentences/phrases and thinking about which environment or opportunity they could put those selected sentences into action among friends, with a teacher, at work, etc., just for practice. I think implementing these strategies will definitely improve speaking skills.

MA: Did you face the same kind of problem in your school days?

MD: Yes, I think most people face this kind of problem, especially the students of government schools who suffered more than private school students because in public schools all subjects are taught in English except for Nepali subjects. Likewise, the private schools do just the opposite, like they taught all subjects in English except for Nepali. So, I also had the same problems before and still feel nervous when I am invited to conferences or giving speeches.

MA: As a student, what actions did you implement to improve students' speaking proficiency?

MD: Um… while learning, I always focused on active interaction. I mostly participated in the class or any program in school, like grouping into different study groups and appointing a leader for them because such leaders should present their respective group work. Um… and I provide them with a certain topic, make them concentrate on it, ask them to make some preparation, and then have a discussion on it. If there is no topic and no preparation, students don't know what to talk about and how to talk. Um… besides, I asked students to talk to his/her partner in English when they are having dinner or playing together. This way may add more chances for them to speak as class time is limited. Even though the way they talk is not very standard, it may at least make them speak day to day. So, this is the best way as per my experiences.

MA: Ok! That's it ma'am, thank you for sharing your practices and experiences with me.

MD: Am… my pleasure. Hope my sharing helps you in your research.

MA: It will ma'am. I will call you if I need more help.

MD: Oh… yes, please.

MA: Ok ma'am, thank you.

MD: Ok.

Stopped recording…