

Nepal: Water and Energy Commission Secretariat

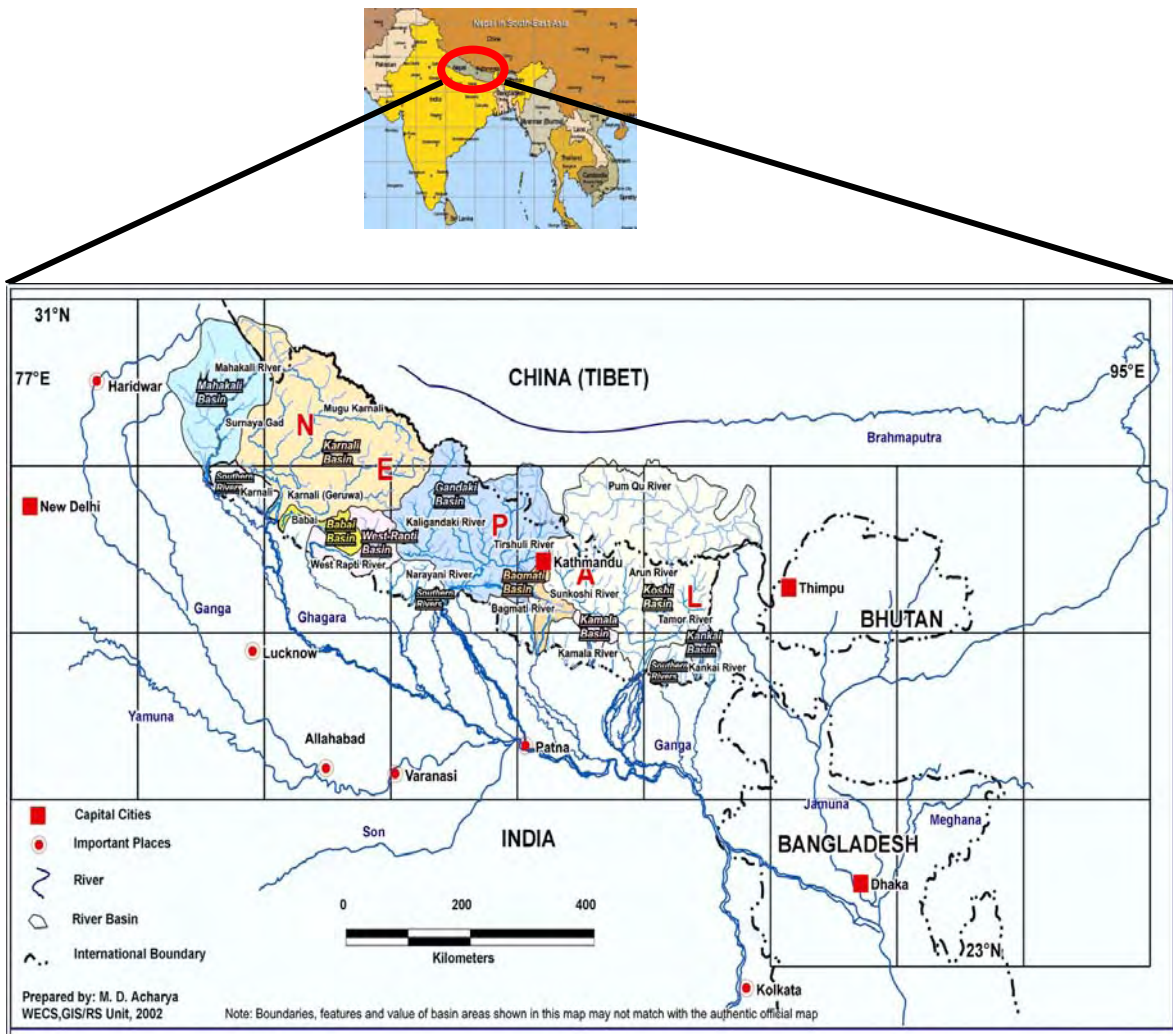
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1 Background

Nepal is a landlocked country in South Asia, located between latitudes 26°22'N to 30°27'N and longitudes 80°04'E to 88°12'E, and bordered by China to the north and India to the south, east and west. With a total land area of 147,181 km², the country is characterized by diverse topography, geology and climate, as well as patterns of land use. Nepal is predominantly mountainous, with elevations ranging from 64 m above sea level to 8,848 m at the peak of the world's highest mountain, Sagarmatha, within a span of 200 km. Approximately 6,000 rivers and rivulets, with a total drainage area of about 194,471 km², flow through Nepal, of which 76% of this drainage area is contained within Nepal. Fig. 1 below shows the location of Nepal in the south east Asia (in the inset) and also with major river basins.

Figure: 1 Location Map of Nepal in South East Asia



Water is a precious gift of nature, essential for human survival. Without water, life on earth cannot be sustained. Water is required for basic human needs such as drinking, cooking and bathing, for irrigation to grow crops, for hydropower to produce energy, for industry and for the environment. Water is also an inherent component of the ecological chain on which all life and life-supporting systems depend. In Nepali and other Himalayan societies, water from the mountains also has important cultural and spiritual significance.

The present situation regarding Nepal's water resources can be summarized as follows:

- 72% of the population has access to safe drinking water;
- Out of total 1427000 hectares of irrigated area, 41% of irrigated land has "year-round irrigation";
- Less than 550 megawatts (MW) of installed hydropower capacity is available; and
- Adverse environmental effect was considered insignificant until 90's.

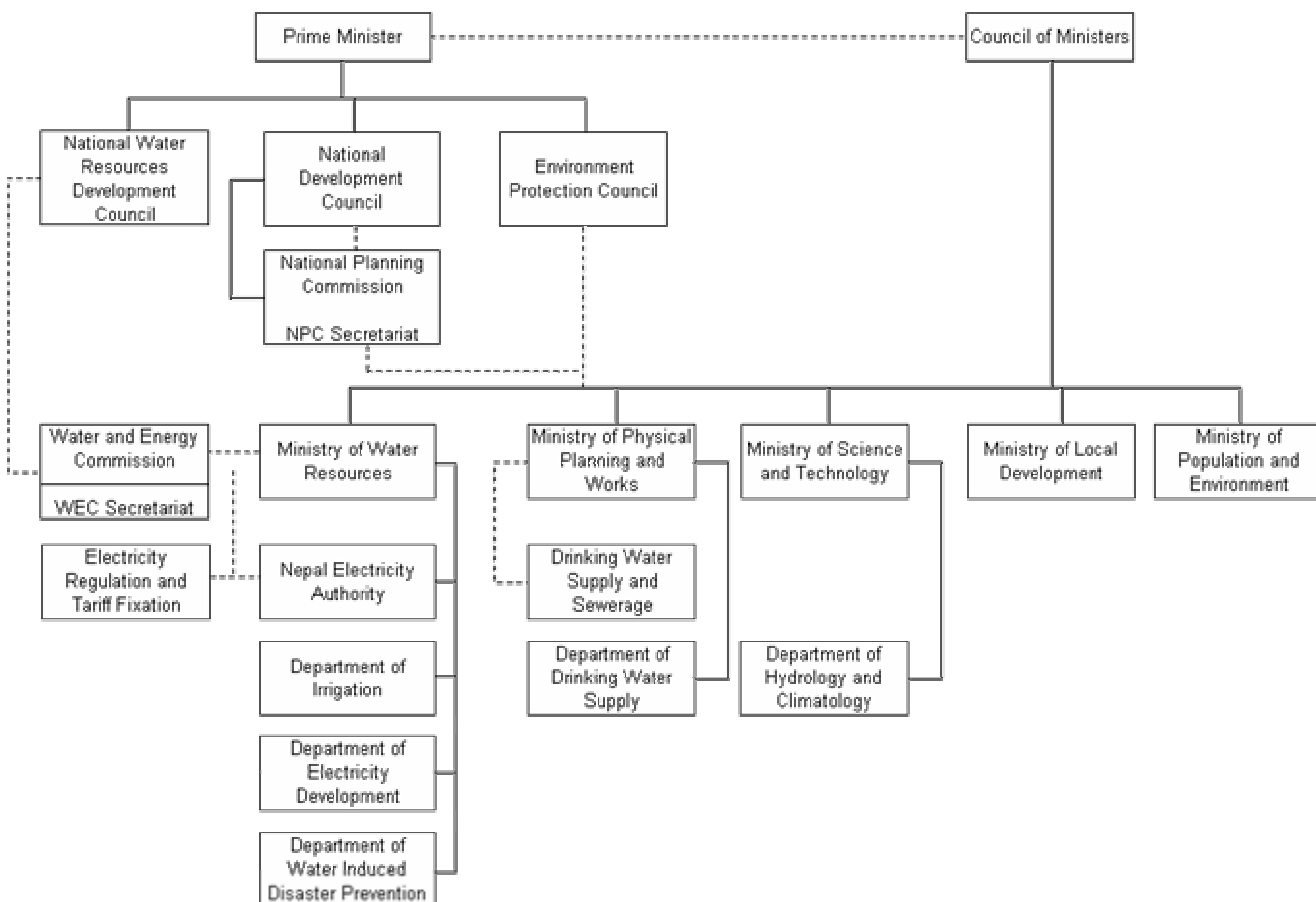
To ensure that every Nepali citizen, now and in the future, have the access to safe water for drinking and appropriate sanitation, as well as enough water to produce food and energy at reasonable cost, there exist several organizations. The functions of these organizations range from policy formulation, providing guidance, planning, facilitation to implementation and operation of the activities. Obviously, as water has multiple uses and it represents one of the major natural resources that can potentially contribute to high level development of the country there are several institutions which are directly related to its conservation, maintenance, social and economic uses as well as securing safety from the confronting hazards caused by it.

2 Organizations Involved in Water Resources Sector

The prevalent organizational structures at planning, policy making and coordination-level currently in operation in the water resources sector are presented hereunder. Fig.2 gives the details of the organization involved.

- The National Development Council (NDC)
- The National Planning Commission (NPC)
- The National Water Resources Development Council (NWRDC)
- The Water and Energy Commission (WEC)
 - Water and Energy Commission Secretariat (WECS)
- Ministry of Water Resources (MOWR)
- Ministry of Physical Planning and Works (MOPPW)
- Ministry of Science and Technology (MOST)
- Ministry of Local Development (MOLD)
- Ministry of Population and Environment (MOPE)
- Ministry of Forest and Soil Conservation (MOFSC)

**Fig: 2 Organization Chart
Existing Water Resources Development Agencies at Central Level**



3 Water and Energy Commission (WEC) and its Secretariat (WECS)

The Water and Energy Commission (WEC) was established by HMGN in 1975 with the objective of developing the water and energy resources in an integrated and accelerated manner. Consequently, a permanent secretariat of WEC was established in 1981 and was given the name, Water and Energy Commission Secretariat (WECS). The primary responsibility of WECS is to assist HMGN, the Ministry of Water Resources and other related agencies in the formulation of policies and planning of projects in the water and energy resources sector. The objectives and mandates of WEC and WECS have been revised and modified a number of times since their establishment.

3.1 Composition of Water and Energy Commission

The composition of the commission is as follows:

- Chairman : Minister of Water Resources
- Members : Secretaries of Various Eleven Ministries of HMGN
Two Experts in the Field of Water Resources and Energy from Non-Governmental Organizations
Dean, Institute of Engineering, Tribhuvan University
President, Nepal Engineering Association
Representative, Federation of Nepalese Chamber of Commerce and Industry
- Member Secretary: Executive Secretary, WECS

HMGN may necessarily add or deduct and reshuffle the number of members of the Commission as and when deemed necessary. The tenure of the nominated members is two years. The Commission may also invite in its meeting experts or officials as and when deemed necessary.

3.2 Objectives of the Commission

The Commission has the following objectives:

- (a) To provide assistance to the concerned ministries in formulating policies and objectives to be included in the perspective/periodic plan relating to the water resources and energy sector.
- (b) To provide suggestions, recommendations and guidance with regard to the multipurpose (mega and medium scale only) projects' development as well as to irrigation, hydropower, drinking water, industrial use of water, flood management and water navigation; and also regarding the promotion and development of such mega and medium scale projects, and protection of environmental aspects relating to the above sectors.
- (c) To formulate policies and strategies for the water resources and energy sector.
- (d) To render opinion, advice and recommendations on bilateral and multilateral issues relating to water resources and energy.

3.3 Functions, Duties and Rights of the Commission

The functions, duties and rights as follows:

- (a) To review and cause to review the multipurpose, mega and medium-scale water resources projects before they are sanctioned by the HMG, and recommend for their implementation as well.
- (b) To formulate and cause to formulate on necessary policies and strategies conducting study, research, survey and analysis with regard to various aspects of water resources and energy development in keeping with the priorities and targets of the HMG.
- (c) To analyze and cause to analyze the bilateral or multilateral projects relating to the development of water resources and energy, to formulate policies in this respect, and to review the detailed study and analysis of such projects.
- (d) To enact and cause to enact the necessary laws pertaining to the development of water resources and energy.
- (e) To establish and cause to establish the coordination among national and sectoral policies relating to water resources and energy sector.

3.4 Meeting and Decisions of the Commission

- (a) The Commission shall meet at least twice a year, but the chairperson may call its meetings any time as deemed necessary.
- (b) The Chairperson shall preside over the meeting of the Commission.
- (c) The attendance of fifty percent out of total number of the members of Commission shall be accepted as the quorum for conducting the meeting.
- (d) The decision of the majority shall be regarded as the decision of the meeting. In case the majority is not maintained, the Chairperson shall cast the deciding vote.

3.5 Functions, Duties and Rights of the Secretariat

The Secretariat carries out the following functions with a view to implementing the objectives, functions and duties of the Commission:

- (a) To work as the secretariat to the National Water Resources Development Council;
- (b) To work as the National Water Planning Unit with a view to bringing about uniformity and coordination in the formulation of policies pertaining to the integrated water resources development. The major functions of the Unit is to formulate a national water resources strategy and its timely improvement as well as its implementation, coordination and monitoring as well;

- (c) To conduct and cause to conduct studies relating to the need (immediate as well as in the future) of water resources and energy;
- (d) To conduct and cause to conduct the survey and exploration of the sources of water and energy resources in a coordinated manner;
- (e) To conduct and cause to conduct the policy studies of the multipurpose water resources projects as well as the studies of the river basin master plan;
- (f) To work as a coordinator in the formulation of all multi-purpose, mega and medium scale projects in the water resources sector;
- (g) To assess the state of compliance with regard to the accepted and existing policies, strategies, Acts, Rules, manuals and plans and suggest for their timely review as and when deemed necessary, keeping in view a comprehensive development of the water resources sector;
- (h) To submit opinion, suggestion, advice, and recommendation on technical issues permitted by the policies and programs determined and sanctioned by the Commission;
- (i) To provide suggestions and recommendation to the concerned agencies including the ministries of HMG on matters pertaining to the proper utilization, control, protection, management and development of water resources and energy;
- (j) To render suggestions and recommendation on national, international, bilateral and multilateral laws and legal matters relating to water resources and energy;
- (k) To conduct and cause to conduct the study, research and analysis of the international efforts and treaties and agreements being concluded at bilateral or multilateral level in the field of water resources and energy development.
- (l) To effect and cause to effect the facilitation and coordination in activities of policy matters and study works relating to multipurpose projects;
- (m) To make available cooperation and consultancies in the preparation of economic, social, technical, and environmental manuals relating to water resources and energy development;
- (n) To study and offer opinions and suggestions upon study reports prepared by other agencies on water resources and energy projects;
- (o) To conduct and cause to conduct the study, evaluation and analysis of various environmental, social, economic and gender issues relating to the development of water resources and energy and suggest ways to improve projects accordingly;
- (p) To evaluate and cause to evaluate impact on environmental, social and economic aspects of the water resources and hydropower project;

- (q) To request the concerned agencies to execute the decision of the Commission and monitor whether decisions are implemented or not and report back to the Commission;
- (r) To collect statistics and manage the flow of information for the development of water resources and energy, and make available study reports prepared and data collected by the Secretariat on the justified need for its rational uses;
- (s) To devise and cause to devise various beneficial and useful programs relating to the protection and development of resources of water and energy in the country;

3.6 Organizational Structure of WECS

The WECS is managed by an Executive Secretary, who is also the Member- Secretary of the WEC. The WECS has four Directorates - Energy Planning, Water Resources, Legal and Institutional Arrangement, and Social, Economic and Environment. Each Directorate is managed by an Executive Director, who reports to the Executive Secretary. The WECS organization chart provided in Fig. 3 shows the gazetted positions for the WECS.

The responsibilities of the Directorates are as follows:

Water Resources Directorate

The Water Resources Directorate has eight approved positions within three divisions: Hydropower, Irrigation and Basin Study. The Water Resources Directorate's function is to maintain data and analyze hydropower, irrigation and basin development studies in order to provide planning advice to the Government. It provides policy and strategies for regional and bilateral programs.

Energy Planning Directorate

The Energy Planning Directorate has eight approved positions within three divisions: Traditional Energy, Alternative Energy, and Commercial Energy. The Energy Planning Directorate's function is to maintain data, provide liaison and formulate policy in relation to the supply and demand of indigenous and imported energy.

Social, Economic and Environment Directorate (SEED)

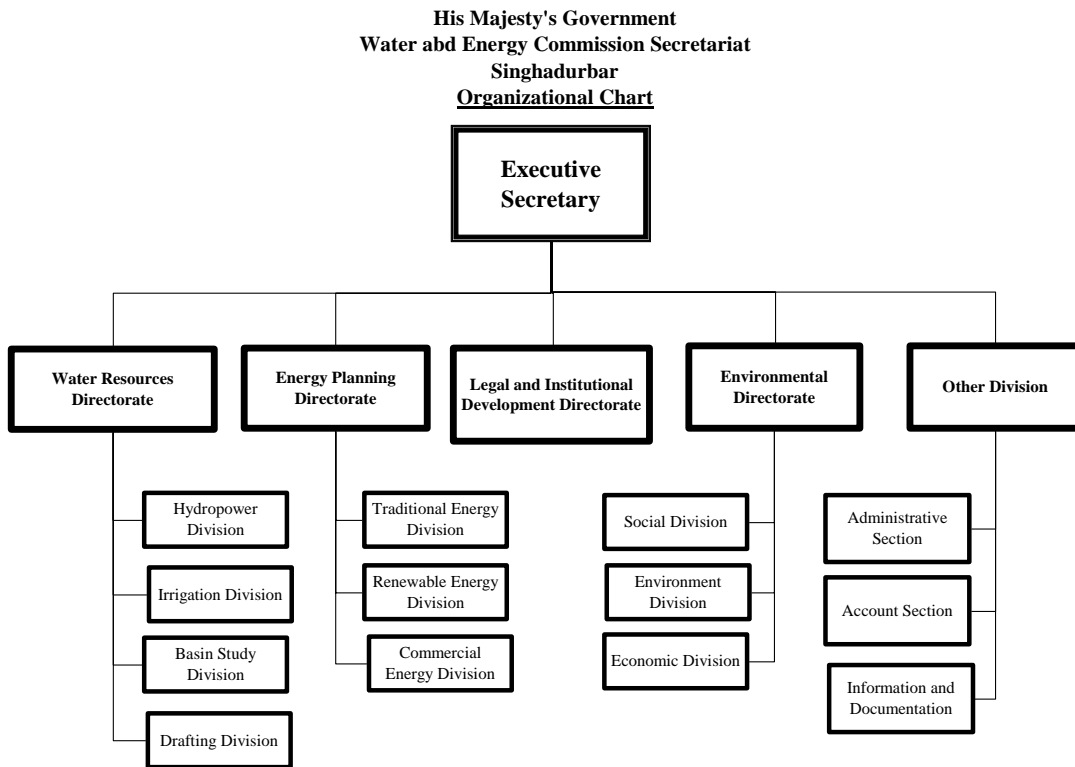
The SEED has evolved from the integration of several Directorates within the WECS. It is composed of three divisions and has five approved positions. The SEED is an important resource to the Water Resources and Energy Planning Directorates ensuring that issues such

as gender, poverty, wealth creation, macro-economic analysis and environmental sustainability are integrated into water and energy policy development.

Legal and Institutional Arrangement Directorate (LID)

The LID is concerned with the legal, institutional and regulatory issues related to water and energy planning within the government of Nepal, with the private sector and in with bilateral relations.

Fig. 3: Current Organizational Structure of WECS



4 Major Outputs of WECS

WECS has gained its recognition from both national and international institutions for the works it has done so far in the water and energy sector. It has conducted many research and study programs related to water and energy sector development. The formulation of the National Water Resources Strategy and National Water Plan currently under preparation with the main objectives to develop a set of specific short, medium and long term action plans for the water sector including programs and projects, investments and human resources for the short term (5 years), medium term (15 years) and long term (25 years)

including the Environmental Management Plan are the main output. Some of the major studies carried out by WECS are listed below:

1. Formulation of Water Resources Strategy of Nepal, 2002;
2. Perspective Energy Plan, Supportive Document (1994);
3. Regional and National Level Energy Resources and Consumption Profile of Nepal (1990-1996);
4. District Wise Water Use Inventory Study (1995-2000);
5. District Wise Micro hydro Inventory Study of all hilly districts(1991-1997)
6. Rapid Appraisal of Irrigation Projects (20 Projects)
7. Inventory on Tube-well Use (18 districts)
8. Prepared and submitted a position paper on Duties, Responsibilities and Authority of Upper and Lower Riparian Countries in Water Resources Use to the Speaker of House of Representatives and Members of the Parliamentary Monitoring Committee.
9. Himalayan Sediments study on GLOF.

Beside this, other achievements of WECS are:

- a. Preparation, Publication and distribution of Technical Reports in Water, Energy, Environmental, Legal and Social Sector.
- b. Provided technical input at various levels in the preparation of
 - ◆ Policy development
 - ◆ Sectoral Master Plans
 - ◆ Guidelines (water resources, environmental, gender, socio-economic)
 - ◆ Ranking and Inventory Studies
 - ◆ Regional Water and Power Development Initiatives
 - ◆ Irrigation Policy
 - ◆ Water Resources Act
 - ◆ Electricity Act
 - ◆ Nepal Electricity Authority Act (Amendment)

5 Challenges Ahead

In addition to the responsibilities, as defined in the WEC/S mandate and acting as a secretariat of National Water Resources Development Council (NWRDC), the Water Resources Strategy, Nepal had further mandated WECS to act as a Central Water Planning Unit of HMGN. This requires WECS for the overall coordination, integration of sub-sectoral programs, policy guidance for River Basin Planning, compliance monitoring of all the Policy, Acts and Regulations for Water Resources Development etc. Moreover, the challenge ahead for WECS are:

- the need to review the National Water Plan periodically along with the monitoring of the planned activities of NWP;

- the need for the formulation of Energy Resources Strategy for the implementation of Energy and Renewable Energy Policies and Plans;
- the need to focus on strategic planning and the issues considered most crucial by HMG/N;
- the requirement to enhance and upgrade management capabilities;
- the need for a greater emphasis on the development of macro-planning and policy capabilities and for institutional linkages related to the broad range of water and energy responsibilities of the WECS;
- Strengthening of the WECS' capabilities to work in conjunction with other ministries and line agencies in project preparation, research and similar activities.

6 Reform Required

6.1 Organizational and Institutional Reform

The River Basin Planning Mechanism had been endorsed by the National Water Resources Strategy, 2002 for the development of the water resources sector in Nepal. River basins are considered important units for integrated water resources management. River basins are also the natural boundaries that delineate the occurrence of the drainage system. Although, water management in the river basin technically is not entirely a new topic, yet the modern form of river basin management has added dimensions to the development of institutional mechanism. It promotes the concepts of river basins or sub-basins as the planning units for the development of water resources. River basin planning is seen as an ecologically sound and economically cost effective means of reconciling the conflicting objectives of development and conservation. As such, Institutional reform is required for the equitable and sustainable development of the water resources sector. Fig: 4 below present the new institutional reform required for the water resources development.

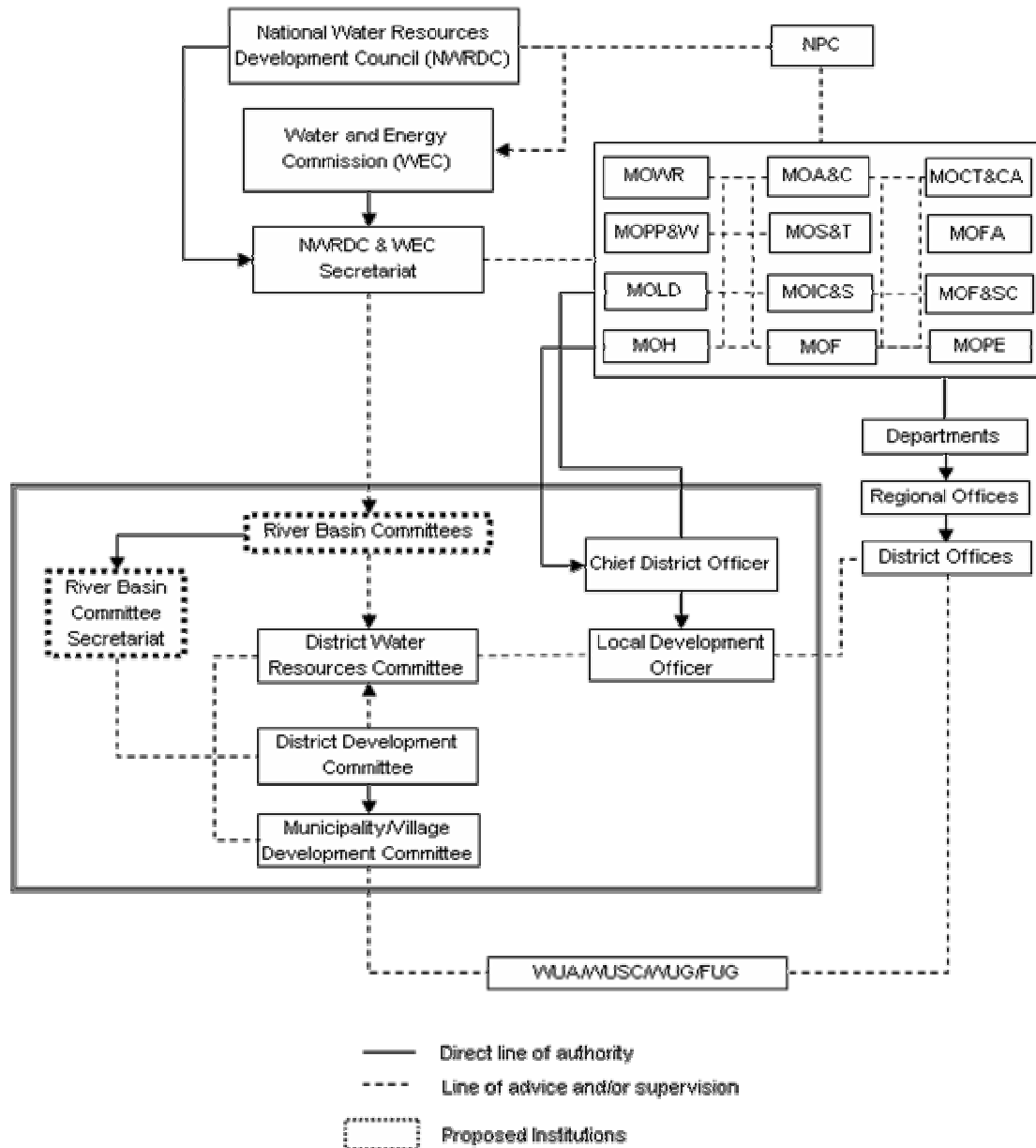
Also the analysis of the existing institutional mechanism has identified the need to strengthen a central level planning and coordinating organization. This has been a felt need in view of the prevalent fragmented approach in water sector development, as there are at least 13 ministries and commission involved in its development and regulation. Further, several more number of departments and agencies are involved in planning and development programs more often with lack of interagency consultations and coordination. These may lead to various adverse impacts on ecological system and depletion of the water resources in the future. Thus, there is a need for a strong central organization that can effectively integrate and coordinate the water resource development plans and programs as well as capable of monitoring and regulating such activities. At present, though WECS has been designated by HMG/N as the "Central Planning Unit" in order that

all the water development plans are integrated and coordinated; yet the plans and programs are undertaken mostly on the concerned line agency's unimodel Division/Sub-Divisions approach. Though WECS is the designated Central Planning Unit, it lacks the binding authority in terms of mandatory administrative sanctions or statutory provisions. In order that the planning and coordinating of water related programs undertaken by different agencies invariably are integrated and addressed to the maximum benefits to the country and the people, there is a need for a strong central agency with required authority. Such central water planning unit/organization though at present WEC/WECS is assigned for, need to be positioned in the HMG/N organizational structure through appropriate legal/statutory mandate. Therefore there is an urgent need for the organizational and institutional reform within WECS also which is presented in the fig. 5 for the overall coordination, integration of sub-sectoral programs and policy guidance to basin wise planning of the water resources.

6.2 Strengthening of the WECS Strategic Planning Capacity

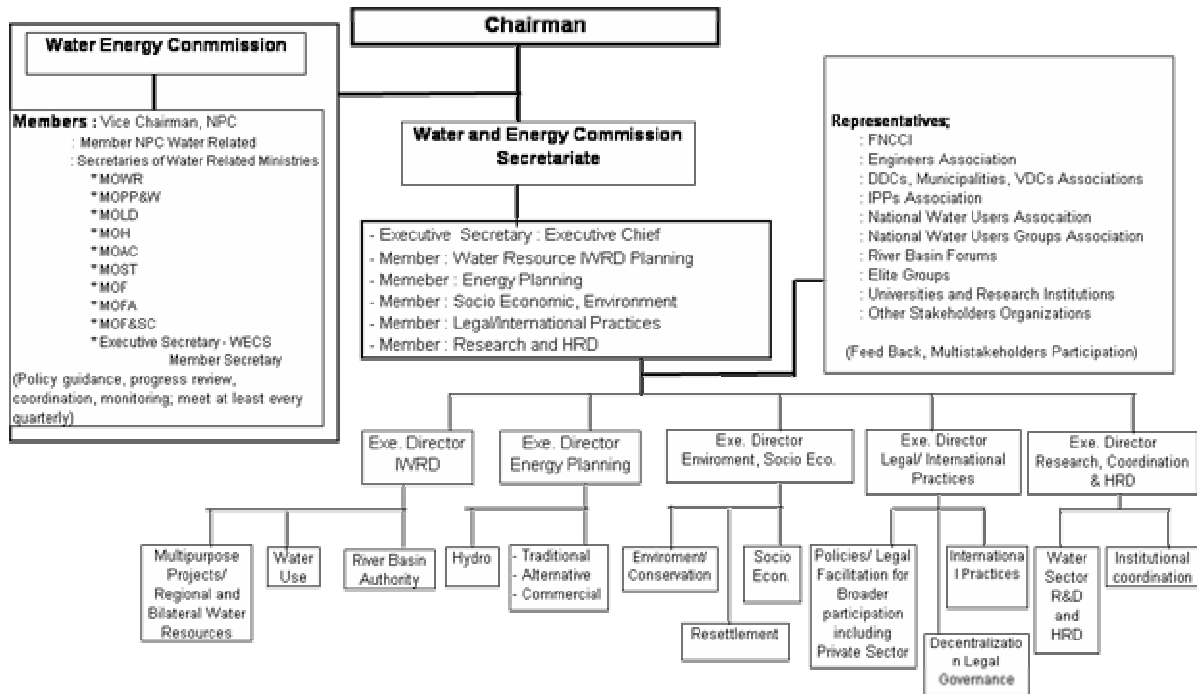
As WECS is entrusted with the strategic planning and policy formulation unit for water and energy resource development within HMG/N, it should play a key role in ensuring the environmentally sound development of these resources. With the Water Resources Strategy already in place and completion of the NWP in the near future, the critical task of WECS is to undertake the strategic planning exercise to review the NWP periodically and coordinate and monitor the implementation of NWP activities. Thus it requires the strengthening of WECS Strategic Planning Capacity.

Figure: 4 Recommended Institutional Reform at the Central level



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|---------|---|--------|---|
| FUG | Forest Users' Group | MOLD | Ministry of Local Development |
| MOA&C | Ministry of Agriculture and Cooperatives | MOPE | Ministry of Population and Environment |
| MOCT&CA | Ministry of Culture, Tourism & Civil Aviation | MOPP&W | Ministry of Physical Planning and Works |
| MOF | Ministry of Finance | MOS&T | Ministry of Science and Technology |
| MOFA | Ministry of Foreign Affairs | MOWR | Ministry of Water Resources |
| MOF&SC | Ministry of Forests and Soil Conservation | NPC | National Planning Commission |
| MOH | Ministry of Home | WUA | Water Users' Association |
| MOIC&S | Ministry of Industry, Commerce and Supply | WUG | Water Users' Group |
| MOL&J | Ministry of Law and Justice | WUSC | Water Users' and Sanitation Committee |

Fig: 5 Organizational and Institutional Reform for WECS



6.3 Human Resources Development

The process within the WECS to identify and develop an adequate technical and non-technical skill base for becoming a self-reliant secretariat needs to be strengthened and institutionalized. Also, a need to institutionalize a systematic approach to human resource development and management has to be identified. This requires a more systematic and transparent approach for human resources development and management. The areas where WECS requires its technical capabilities to be strengthened but not limited to are Water Resource Planning, Basin Wise Resources Planning, Energy Planning, Energy Supply and Demand Analysis; Environmental and Watershed Management; Hydropower and Water Resources Engineering, Economic and Socio-economic Analysis; Resource/Environmental Economics; Financial Analysis; Environmental Standards and Guidelines and Environmental Assessment. Thus WECS requires continued institutionalization of these skills to foster the development of planning, managerial, administrative and technical skills and knowledge. In the past, WECS has developed technical strengths in the preparation of policies, relevant plans, studies and surveys. However, its influence both in Nepal and in the Region with respect to environmentally sound resource development depends, in large measure, on its capability to effectively network with government; non-government and international organizations. This capability should also be enhanced.

6.4 Development of Policies and Legal Framework in Water and Energy Sector

The Water Resources Strategy has targeted to achieve within the next five years, development and approval of Integrated National Water Resources Policy; harmonization and amendment, as necessary, of conflicting laws related to water resources development; amendment of the Electricity Act and its regulation in harmony with newly approved Hydropower Development Policy; Clarification and Establishment of equitable water use right; and communication with the general public regarding their water rights and obligation. In this context, WECS needs to develop and strengthen its institutional and HRD capacity for accomplishing following activities:

- Incorporate specific legal provisions with respect to river management and disaster prevention;
- Incorporate water resources planning and development on river basins;
- Amend (harmonize) conflicting laws and regulations;
- Develop legislative provisions for ground water use and management;
- Enforce existing legal instruments effectively;
- Analyze traditional water rights practices among different stakeholders; and
- Formulate policy and develop legal instruments on rehabilitation and resettlement.