

# WATER SUPPLY AND SANITATION PROGRAM

## IN NEPAL

### Background:

Nepal, the only Hindu Kingdom in the World, is a land of legends. It is a kaliedoscope filled up with natural beauties and a curio of traditional craftsmanships. Here are the world's highest peak Sagarmatha (Mt. Everest) and a medallion of lush green mountains. As a matter of fact, this Himalayan Kingdom offers a variety of subjects for tourists, trekkers, naturalists, artists and scholars. It is the mother-land of Gautama the Buddha and has, therefore been attracting sages and saints from ancient times. Its snowfed mountains, lakes, rare wildlifes, rocky gorges, turbulent rivers and graceful waterfalls are a constant source of attractions and inspirations.

Through out the history, the Nepalese people have shown an unique regard for national independence and sovereignty. With the usering in of democracy in 1951, they threw off a stagnant feudal system to embark upon the road to modernisation. Under the active and dynamic leadership of the Crown, they have adopted the Partyless Democratic Panchayat System and have been striding ahead on the road to national construction. In this endeavour, they have arrimilated new ideas and techniques without impairing their social continuity.

Since Nepal is a peace loving nation it has been championing the cause of peace, freedom and progress of all humanity within the framework of international understanding and cooperation. It is sincerely pursuing a foreign policy of peace, friendship and non-alignment as an active member of the comity of Nations.

Nepal is geographically located for 500 miles along the Himalayas between longitudes 80° East and latitudes 26° North. The Kingdom is the largest Himalayan state. It is roughly rectangular in shape and has an area of 1,47,181 sq. kms. It is bordered by India on the west, south and east and by Tibet Autonomous Region of the People's Republic of China in the north.

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The geographical setting of the country is so extreme that its character varies from tropical Terai Plains to the highest peak of Sagarmatha, Mt. Everest (8,848 metres).

The climatical condition of Nepal is governed by its topographic extrimities. Tropical, temperate and tundra types of climate are respectively encountered in its Terai best, Midland hills and the alpine region. Similarly Nepal can be divided into three natural division. The Himalayan Region, The Mountain Region and The Terai Region. Nepal is a mountainous country. This topographical feature of the country corresponds with its river systems that has a north-south direction. There are three main rivers in Nepal - the Koshi, the Gandaki and the Karnali.

Nepal is divided into five development regions; East, Central, West, Mid-west and Far-west. National government is according to the Party-less Panchayat System, under the leadership of the King. Local government is by the elected 75 districts, 29 Town and 4 022 Village Panchayats and assemblies.

The 1986 population of Nepal of nearly 17 million is projected to grow at 2.66% annually to over 25 million by the year 2001. The 1986 urban population is 1.1 million and this is projected to grow at annual rate of 7.9% to yeild a 2001 population of 3.5 million. Over half the rural population lives in many thousands of small scattered villages throughout the Mountains and Hills, which are accessible only on foot.

Nepal's annual rainfall is usually in the range 1000 mm to 3000 mm, and averages about 1500 mm of which about 80% falls in the June to September monsoon season. This is out of phase with seasonal variations in the demand for water supply, which tends to be at a maximum during the hot, dry months of April and May, some eight months after the end of the previous monsoon season. The tarring and climate and the availability of electric power dictate the

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general character of water systems: gravity spring or stream-sourced systems on the Terai (purposed deep tubewells to piped systems in urban and in some semi-urban communities, shallow tubewells and hand pumps in rural villages)

Despite development effort beginning with the termination of the autocratic Rana regime in 1951 and the inception of the first five year plan in 1956, Nepal remains one of the world's poorest countries with a GDP per capita of US\$ 160. The average life expectancy has improved but is still only 50 years. Limited health statistics indicate a high incidence of waterborne disease, which is the leading cause of death in children under five. Parasitic diseases are almost universal.

The potential health benefit of safe water supply and sanitation is a fundamental justification for the investments. Apart from humanitarian considerations improved health can be expected to increase the productivity of the workforce, reduce medical care costs, reduce the desire for large number of children enhance the environment for investment and tourism and reduce food requirements. Such benefits are difficult to quantify in economic terms, but are nonetheless real. The risk of major epidemics, especially in the towns, continues. A much greater emphasis on health and hygiene education is a key element of strategy to realize the full benefit potential of sector endeavour.

Another benefit of water supply and sanitation is that of convenience; i.e. saving the time and effort spent to collect water. Water collection tends to be a particular burden on woman and children. This is the benefit which is most widely perceived by the general public and water supply projects, in particular, are in popular demand. While important in human and social terms, this benefit is of doubtful importance in economic terms in a country where rural under-employment is at the high level of 63%. By contrast, the economic benefits from good public health, while difficult to measure, are widely agreed to be considerable.

Central to Nepal's development goals is the Provision of basic needs to Asian Standards to all the people by the year 2000. Basic needs are defined as including drinking water. Implicit in this objective is "safe" drinking water. The term Asian Standards implies "appropriate" technology and "appropriate" design standards and "appropriate" operation and maintenance practices.

Although "Asian Standards" quite frequently tolerate the provision of intermittent service from water systems, this does not make it "appropriate" for Nepal or anywhere else. There is the widespread belief in Nepal that continuous service is a de-luxe service, not consistent with Nepal's economy and level of development. This is quite incorrect. Continuous service is essential for the health benefit, at least in urban areas. Moreover, continuous service is fundamentally economical operation and is assumed in planning and design. Systems will not work properly if they are not operationed according to the basis of their design. In many, if not most, water systems of Nepal, excessive leakage and wastage precludes continuous operation at this time. The answer is leak detection and repair and/or management measure: in public education to control wastage. Such work must be accorded the highest priority. Although costs will be high and the work will be difficult, they will be much lower than the costs of new systems. Present leak detection and repair efforts should continue, but a lower effort, including specialized personnel and equipment not now available in Nepal as well as substantial budgets, is required.

#### Historical Perspective:

Thirty five years ago, only a small fraction of Nepal's population had access to a public water system of any kind. Even among those who did, private water connections were available only to a very small and privileged elite, and the remainder obtained

free water from public taps. Elsewhere, people obtained water from springs, streams, ponds, wells, irrigation canals and mainly on the Terai from dugwells and tubewells.

Even by DTO (the advent of the fourth plan), only 690 thousands (60% in urban areas) had a publicly-provided water supply (it was about 6% of total population of 11 million). Subsequent sector development expenditure has been increasing:

<u>Plan:</u>	<u>Fourth</u>	<u>Fifth</u>	<u>Sixth</u>	<u>Seventh</u>
	<u>1970-75</u>	<u>1975 - 80</u>	<u>1980-85</u>	<u>1985-- 90</u>
Sector Development Budget N.Rs m	93 m	385 m	1011 m	1310 m
As % all Development Budget	1.1%	3.3%	4.6%	

The 1985 Water Supply coverage is:

	<u>Urban</u>	<u>Rural</u>	<u>Total</u>
Total population (1000)	1035	115566	16541
Population served	871	2982	3854
Population served %	84%	19%	23%

Thus most of Nepal's accomplishments in water supply have been achieved in the last fifteen years.

In addition to the physical coverage achievements, Nepal has developed a local manufacturing capacity in high density polyethylene pipe and recently in the Bangladesh No. 6 shallow tubewell handpump with the assistance of UNICEF.

Water Supply Sector Institutions:

The objectives are (i) Safe (ii) Reliable (iii) Economical water supply and sanitation.

There are three main sector agencies: the Department of Water Supply and Sewerage (DWSS) and Water Supply and Sewerage Corporation (WSSC) both under the Ministry of Water Resources, and the Ministry of Panchayat and Local Development (MPLD), which, in addition to its own water supply programs through six separate section, also co-ordinates the activity of nine Integrated Rural Development Projects (IRDPs) all of which include a water supply component..

To co-ordinate planning and activity under the impetus of the UN-declared International Drinking Water Supply and Sanitation Decade 1981-90, a 'National Group' was formed with representation from each of these agencies and from National Planning Commission (NPC), the Ministry of Finance (MOF) and the Ministry of Health (MOH).

There has been further contribution to sector endeavour by various external and national non-governmental organisation (NGOs), whose activities in Nepal are co-ordinated by the Social Service National Co-ordination Council (SSNCC). Lastly, there has been various activities by the Local Panchayats.

The Ministry of Health has a Health Education Section (HES) and an Environmental Sanitation Section (ESS). A Water and Energy Commission (WEC) undertakes broad policy and strategic planning research but concentrated its endeavours in hydro-electric power planning, in energy generally and in irrigation.

DWSS is nominally responsible for water supply systems serving more than 1500 people and not turned over to WSSC. The organizational concept of DWSS has, in the past, been that of an engineering "plan-design-process-build" organization. Official policy is that completed systems be turned over to the local Panchayats for operation and maintenance, but, out of 225 completed piped water systems, thirteen have been turned over to WSSC and twenty to the local panchayats. Thus, DWSS operates and maintains the remaining 192 systems. Since 1982, DWSS has been the implementing agency for the UNICEF-supported rural shallow tubewell program on the Terai in the Far-west, Mid-west and Central Regions. DWSS's projects in water supply serve 46% of the population so served in Nepal and account for 30% of the accumulated investments. Additionally, since 1983, DWSS has a modest on-site sanitation program in seven urban and one rural community. But this serve only 2% of the urban population. By Royal Directives (spring 1986) DWSS has been formally designated as the leading sector agency and given a responsibility for sector co-ordination and planning and a responsibility for the provision of technical support in the sector at the District level (Decentralization).

WSSC was formed in July 1984 as the successor to the Water Supply and Sewerage Board (WSSB), founded in 1973. WSSC has been the implementing agency for the First, Second and ongoing Third IDA-assisted projects in a successively increasing number of the larger urban communities. It now manages the water systems in thirteen urban communities having about 80% of the urban population of Nepal and manages the sewerage systems of Kathmandu-Lalitpur and Bhaktapur. The organizational concept of WSSC is that of a financially - viable utility organization. Unlike DWSS where revenues flow to the HMG consolidated revenue fund managed by the MOF, WSSC revenues flow to its own accounts, which are maintained in commercial format.

MPLD is essentially a Ministry of Local Government and the senior administrative official of the Local Panchayats is an MPLD Officer. MPLD is not a technical Ministry but also there is a Technical Division in the Ministry and it has a big technical force through out the country. MPLD has difficulty in attracting and retaining technical staff, especially engineers. However, MPLD has six separate sections concerned with water supply in Ministry and maintains a District Technical Office (DIO) at the district head quarters, intended to support project efforts by the Panchayats including water supply. Five Regional Directorates (RD) were directly involved for the implementation of UNICEF assisted Community Water Supply and Sanitation (CWSS) projects upto Sixth Plan period and now this responsibility is trasfered from RD to District from Seventh Plan period (Decentralization). RD has the responsibility to support, monitor and supervision the Districts for planning - design - procure and construction. MPLD's nominal mandate in water supply is systems serving less than 1500 people and requiring less than 10 km pipe, in communities that are not a district HQ. Additionally, MPLD is implementing shallow tubewells on the Terai in the West and East Regions. Since 1982, MPLD has introduced a rural on-site Sanitation Programme; it is estimated this serves only 26000 people or 0.2% of the rural population of Nepal. Moreover, MPLD-UNICEF Water Supply

Program includes a "Sanitation Promotion" component, which has include demonstration latrine units and technical assistance and provision of latrines at Health Posts, Schools and other Panchayat building.

As regards our own efforts toward reaching the target population, we are already half-way through the Ten Year Plan with the completion of the Sixth Plan (1980-85). The implementation of the remainder of programmes are being continued under the current Seventh Plan (1985-1990). The mid-decade review of the Ten Year Plan in 1985 taking into account the 1981 census and the cost escalation shows considerable shortfall in achievement of population coverage. Significant number of target population in rural areas will be left uncovered by the water supply and sanitation facilities program by the year 1990 compared to the original Plan target.

The updated cost estimate of the Ten Year Plan will require Rs 4 598 million which is a cost hike of about 37 percent. The Sixth Plan expenditures and the outlay under the Seventh Plan will meet Rs 2 343 million, thus, leaving a gap of Rs 2 255 million to be covered. This is currently equivalent to US\$ 107 million.

Friendly countries such as Canada, Federal Republic of Germany, Japan, United Kingdom and the United States of America have provided financial and technical assistance. The World Bank is providing assistance in the urban and the Asian Development Bank in the rural water supply. Similarly UN Agencies such as UNDP, UNICEF, UNCDF, WHO, UNCHS and EEC are other multilateral sources whose presence in the sector is also significant. Non-governmental organization have also contributed to the sector's development. The involvement of multiple sources is indeed indicative of the case for the better quality of life for the masses.

For the International Drinking Water Supply and Sanitation Decade (IDWSSD), the National Group through the Sector Agencies, jointly prepared a Decade Plan for Water Supply and Sanitation for rural and urban areas. The document included an analysis of the status, elaboration of issues, and dealt with aspects such as technology, regional



distribution of projects, institutional arrangements, manpower and training, financing, operation and maintenance and constraints encountered by the agencies. The Decade Plan also identified projects and population coverage, for each Agency, for each of the two National Plans, the Sixth Plan and the Seventh Plan, which covered the Decade period.

At mid-Decade, in July-August 1985, the Sector Agencies jointly reviewed the achievements during the Sixth Plan, and the projected achievements with known resources during the Seventh Plan. The review reveals that there will be shortfalls in population coverage in relation to the original percentage targets. In particular, the rural water supply coverage is expected to be about 52% (by 1990) as against the original target of 67%, the urban water supply coverage is expected to be about 69% as against the original target of 95%. Admittedly the progress in rural sanitation has been still far behind the expectations.

The background provides considerable details on the coverage of population during the Sixth Plan, the population coverages projected for the Seventh Plan and the shortfall in the total target for the Decade. This also provides detailed information in budget allocations for the Sixth Plan and projected allocations for the Seventh Plan, including the budget shortfalls in relation to the original Decade Plan estimates. It may be relevant to note that, in relative terms, the investment support to the rural sub-sector is considerably less than that for the urban sub-sector.

In terms of policy, we are attempting to gradually increase the local self-reliance at the rural project levels, both in construction and in operation and maintenance. However, in the past, DWSS has retained major responsibility for construction, operation and maintenance, particularly because of the relatively bigger piped schemes undertaken by DWSS and the importance of ensuring basic minimum technical standards. This strategy has to be considered as an interim phase, pending the development of the necessary resources and skills at the District and Village levels. The District level projects, commencing from the next fiscal year, would surely facilitate such developments.

The DWSS Sanitation programme has been limited and confined to seven towns, more as a pilot project than a national programme. The strategy has been to provide some selected basic items as a subsidy to interested households. For a wider national programme, there is a need to revise the present strategy, in order to reduce the quantum of subsidies and to expand the coverage, with the extremely limited funding which is available exclusively from HMG budget.

As the background document would indicate, there is still a gap in achieving self-reliance or self-financed operation and maintenance of the town water supplies. Currently this aspect, for the water systems managed by the WSSC, is under active consideration with the objective of reducing or gradually eliminating this gap.

The current activities of WSSC on human waste disposal are confined to the provision of sewer systems, specially for the city core areas having high-density of population. For a programme of wider population coverage, studies have been already completed for more emphasis on on-site sanitation, based on a self-financed strategy.

As all know Nepal has over the years evolved its own package of what it considers its basic needs package (a) Drinking water (b) Primary education and literacy (c) Physical access (d) Primary health care (e) Sufficient food and fuel through better agriculture and forestry programmes. On account of the mountaneous and hilly terrain, its land locked location and its historical seclusion from the world, we have had been encountering difficulties in operationalising an adequate delivery system of this package of basic services. The decade of water has come but we have not been yet able to launch massive attack to provide potable water for all the citizen.

His Majesty's Government has given high priority and has committed itself to the objectives of the International Drinking Water Supply and Sanitation Decade (1981-1990).

MPLD is responsible for overall local development activities throughout the country. The local development, with the present condition of the country, is taken as synonym for rural development. Rural

development in Nepal is possible only through active participation of the rural people themselves. And almost all development programmes of this Ministry include the water supply projects as a part and parcel of the rural development package. In planning and implementing these projects, this Ministry has always adhered to and encouraging the people's participation. It is our belief that people's involvement in development activities is very important element for sustained and self-propelling development of the country. In water supply projects, also, this Ministry, from the very outset has involved the local people in planning, implementation and the operation and maintenance of the completed projects. Under this Ministry, we are basically implementing two types of programme related to water supply and sanitation. The first type is the programme which deals exclusively in only one sector like Community Water Supply and Sanitation (CWSS) project assisted by UNICEF for water supply and sanitation programme. The second type is the integrated package of activities like Integrated Rural Development Projects, Grants-in-Aid programme, Remote Area Development programme etc. In all these package programme also, water supply projects are one of the important components of these packages..

This year is earmarked as a year of implementing Decentralization Act and Regulation. The main of the Decentralization Act is to give authority and responsibility of development planning and implementation to the District, Village and Town Panchayats in their respective jurisdiction. Along with this Act, institutional strengthening and improvements are being planned and carried out. A new post of a planning officer in all District Panchayats has already been created and young trained planning officers also have been posted in most of the District Panchayat to specifically assist in formulating the district development plans in the Districts. As per the Decentralization Act, various planning committees composed of technocrats, beaurocrats and people's representatives have already started functioning in all the District Panchayats. The District Panchayats with the final approval from district assembly have already submitted their 5 year plans and annual plans. Those plans, however, are far from perfect. I would like to stress that the process of bottom-up

planning has now started however imperfect it may be in the beginning. So in water supply approved projects with technical feasibility are implemented on the basis of priority given by the district assembly. Those district level projects which have been implemented so far by the regional directorates and project coordinator's office are being transferred to the responsibility of the District Panchayat for their implementation. A start has already been made from this year. As this year being transitional year, we do expect a couple of problems and delays in carrying out the projects. But once, the system is established and once every agency becomes clear about their role, we can expect the present problem of delay and confusion would gradually vanish in coming years.

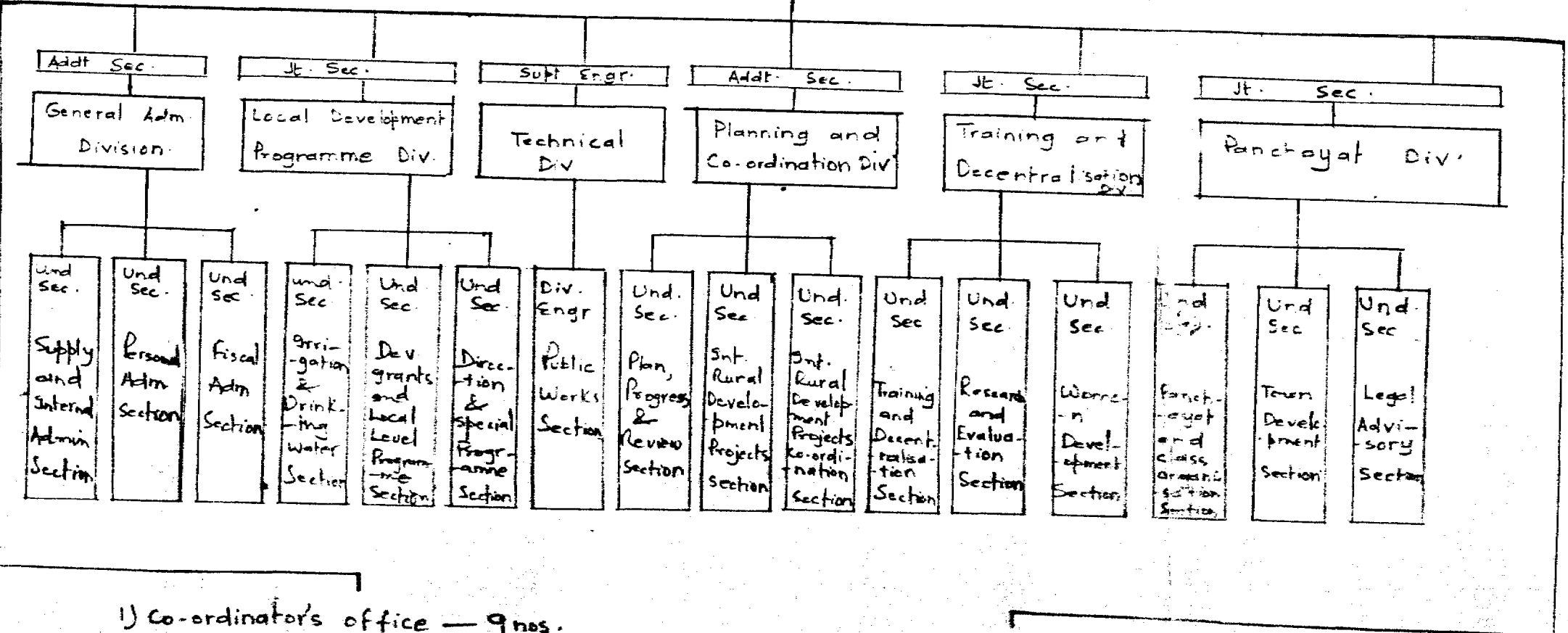
One of the major objective of this Decentralization programme is to encourage the mobilization of local resources for development, sustained operation and maintenance of the completed projects. Generation of local resources will be forthcoming as the local people will be involved from initial stage of planning of the project. However, there are certain limitation in mobilizing the local resources. I have been told by my staff that the local contribution did not come on time and so the progress of the project has been hampered. It does not mean that the local people are indifferent to the project and not willing to the contribution. But, to be honest enough, we have not been able to tap the local resources when and where they are available. As we all know, our rural people depend heavily on agriculture activities, if we ask the local people to contribute their voluntary labour during the peak season of agriculture, it is but natural that they will keep themselves refrain from voluntary labour. However, I can not ignore the constraint that we have in starting the project on time due to dealt of support or release of funds. It is my belief that if we mobilize the local people at the time when they are available, rather than at the time when we are available, there would be a enthusiastic participation of the people in implementation which our experiences have already exhibited.

Moreover the concept of User's Committee in the project implementation will also assist in mobilizing the local resources. The User's Committee will function after the completion of the project as a operation and maintenance committee of the project. The operation and maintenance of the projects is also a major concern of this Ministry. Devices are to be worked out to support the User's Committee for operation and maintenance work. Moreover, the levy of a certain fees from the beneficiaries by the User's Committee needs to be encouraged and systematized.

# Organisation Chart of MPLD

Ministry of Panchayat and Local Development

Secretary



- 1) Co-ordinator's office — 9 nos.
- 2) Remote Area Development Committee — 1 no.
- 3) Local Development Construction — 1 no.
- 4) Panchayat Training Development — 1 no.

- 1) Regional office (5) Regions.
- 2) District office (75) Districts.
- 3) Town Office (24) and Village level Office (4022)

Panchayat Dev. Tr. Centres — 7 nos.      Women's Dev. Tr. centres — 5 nos.

FAR WESTERN




MID WESTERN




**NEPAL**

WESTERN

CENTRAL

EASTERN

**BOUNDARY:**  
 Regional   
 Zonal   
 District 

**ROAD:**  
 Highway   
 Unmetalled   
 Under Construction 

① Puthan  
 ② Kathmandu  
 ③ Bhaktapur  
 ④ Lalpur

