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## Water supply and sanitation: planning for the nineties

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### INTRODUCTION

1. The country of Nepal is surrounded by the People's Republic of China to the north and India to the east, south and west. Thus, geographically, the country is at a disadvantage in that it is a land-locked country with the nearest sea-port of Calcutta in India, some 500 km to the south-east (on the Bay of Bengal). Nepal is roughly rectangular in shape covering an area of 147,181 sq km. The terrain rises steeply from the Indo-Gangetic Plain in the south to the high Himalayan mountain range in the north (over a very short distance). Administratively, the country is divided into five Development Regions, fourteen Zones and seventy-five Districts. The average rainfall is 1,400 mm per year, which is mainly from the south-east monsoons. Because of the concentrated rainfall during the monsoon season (mid-June to mid-September), about 70% of the total runoff goes as instantaneous flow and the rest is conserved as snow and ground-water, ultimately appearing in the rivers in the dry season.

2. Demographically, Nepal has been witnessing some dramatic changes in the recent past. The present population is about 19 million, whereas the last census of 1981 reported the population as 15 million only. Modest projections indicate that the populations in 1995 and 2000 would reach 21 million and 23 million respectively. The urban population in 1952/54 was only 3% of the total population whereas in 1981 it rose to 6% and is presently about 10%. The pressures that this has brought about in infrastructure development, therefore, becomes quite evident.

3. The aim of this paper is to highlight the various activities that have been undertaken so far, in what may be termed, the preparation of the second decade plan for the sector - covering the period of the nineties - upto the year 2000 A.D. In response to the follow-up action recommended by the Regional Consultation on the International Drinking Water Supply and Sanitation Decade (IDWSSD) in New Delhi, India, from 18 to 22 July 1988 (ref. 1), an inter-sectoral Task Force has been set up by His Majesty's Government of Nepal (HMG-N), Ministry of Housing and

Physical Planning (MHPP), to specifically review and analyse the present status of the sector and to formulate the sector programmes upto the end of this century (ref. 2). This exercise has been termed the Sector Review and Formulation of Sector Programmes upto the Year 2000 A.D. (SRFSP).

### HISTORY OF PLANNED DEVELOPMENT IN NEPAL

4. Planned economic development in the country may be termed to be of very recent origin and was ushered in only after democracy in the early fifties. Prior to this, development activities followed no systematic approach and was more the result of the whim and inclination of the then autocratic Rana rulers. The First Five-Year Plan was launched in 1956 and covered the period 1956 - 1961. The development of the sector may also be considered to have truly commenced then. The next plan was spread over only three years. The following plans were all of five-year durations and the current Seventh Plan comes to an end in mid-July 1990. The next decade will be comprised of the Eighth and Ninth Plans. The following table shows the population served with drinking water supply during the past plan periods.

TABLE I: Population served with Drinking Water

End of Plan	Total Population	Population benefitted			Total Coverage (%)
		Urban	Rural	Total	
1956 (Before Plan)	8,813.0	206.9	74.5	281.4	3.2
First (1961)	9,413.0	306.9	108.8	415.7	4.4
Second (1965)	10,217.0	372.6	146.0	518.6	5.1
Third (1970)	11,319.0	461.1	185.8	647.0	5.7
Fourth (1975)	12,567.0	515.1	283.7	798.0	6.4
Fifth (1980)	14,620.0	714.4	862.0	1,576.4	10.8
Sixth (1985)	15,465.0	913.0	3,080.0	3,993.0	25.8
Seventh (1990)	18,921.0	1,260.0	5,930.0	7,190.0	38.0

(N.B.: Population figures are in thousands.)

5. It will be seen that the launching of IDWSSD nearly a decade ago did provide the much needed impetus to the development of the sector in the country. In retrospect, though the targets set then (ref. 3) may appear to have been rather ambitious, the Ten-Year Plan prepared then was the first long-term sector development plan of its kind. In spite of the fact that the achievement is only slightly more than half the target set for water

supply, the necessity of an inter-sectoral approach and the need for a renewed commitment from all quarters was fully appreciated. The shortfall has been shown in Table II below.

TABLE II: Seventh Plan Shortfall

Sub-Sector	Targets	Achievements
Rural	11830	5930
Urban	1270	1260
Total:	13100	7190
Percent	69%	38%

(N.B.: The above population figures are in thousands.)

#### INFRASTRUCTURE NEEDS

6. The needs of the low-income groups become paramount when considering the various issues related to infrastructure planning. While emphasis tends to be focused on the rural population where much of the people below the poverty line is concentrated, it has to be realised that it is the peri-urban population around the urban centres, where problems are more acute and must be addressed with greater urgency.

7. To a greater extent, the infrastructure needs of Nepal is tied up with the minimum basic needs programme covering food, clothing, shelter, education, health and security. In the national perspective, the prioritization of the sectors is for electricity, transportation, irrigation, health, communications, etc., before the water supply and sanitation sector. A much higher priority, therefore, needs to be accorded to this sector if the national objective of "water supply and sanitation for all by the year 2000 A.D." is to be realised. In the peri-urban environment, three other elements requiring immediate action are storm water drainage, sanitary sewerage and solid waste collection (besides roads, electricity and communications) (ref. 4).

#### SRFSP ACTIVITIES (ref.2)

8. The objectives of SRFSP have already been mentioned in the introductory section. This exercise has been initiated with financial and technical assistance of the World Health Organization (WHO) (under Project NEP CWS 001) with the active participation of the following concerned sector agencies:

- Ministry of Housing and Physical Planning (MHPP)
  - : Department of Water Supply and Sewerage (DWSS)
  - : Nepal Water Supply Corporation (NWSC)
- Ministry of Health (MOH)

- Ministry of Local Development (MLD)
- Ministry of Education and Culture (MOEC)
- National Planning Commission (NPC)
- Ministry of Finance (MOF)
- Social Services National Co-ordination Council (SSNCC).

9. The members of both the Steering Committee and the Task Force are top officials of HMG-N with the two WHO sanitary engineers and the Team Leader of the Management Information and Technical Support Project (MITS) as advisers. The Steering Committee is chaired by the Secretary, MHPP, and is responsible for monitoring and directing the Task Force. The Steering Committee has been so constituted that it would become the National Water Supply and Sanitation Committee (NWSSC), which is to be the apex body dealing with all matters related to the sector.

10. The assignment given to the Task Force requires that the following activities be undertaken:

- collection and processing of all available data and information on the sector with respect to completed, on-going and confirmed projects,
- preparation and holding of regional workshops for updating the above, estimation of expected coverage and determining water resources potential, appropriate technology, project proposals, operation and maintenance status plus problems and constraints,
- detailed analysis of the present situation of the sector covering all the above issues,
- formulation of the sector programmes upto the year 2000 A.D. including
  - : realistic population projections, proposed population coverage, project proposal packaging,
  - : policies, strategies, programmes, funding requirements, community participation, women involvement, sanitation and health education,
  - : human resources development, structural readjustments in institutional/organizational set-up,
  - : individual district plans,
- documentation for external support (donors) agencies (ESA) meeting proposed sometime in the latter part of the year.

11. SRFSP overall exercise is envisaged to be completed within seven months. The first two activities have already been executed successfully. The organization of the Regional Workshops took longer than anticipated because all the five Development Regions had to be covered. The findings and recommendations of the Regional Workshops are dealt with in detail in the subsequent sections. According to the revised schedule,

Activity III is to be completed by the end of May 1990 and the entire work by mid- August 1990.

#### MEETING THE BASIC NEEDS OF THE PEOPLE: SECTORAL ISSUES (ref.5)

12. His Majesty, King Birendra, gave directives in January 1986 to provide all the Nepalese people with the basic needs already referred to. For meaningfully achieving the targets shown in Table III, the following issues will need to be given due consideration:

- Improvement in drinking water quality by establishing appropriate monitoring and surveillance networks. Treatment processes would have to be limited to simple chlorination units using bleaching powder - more emphasis being given to conservation and protection of water sources (ref.6).

- Major rehabilitation of treatment works and distribution systems in urban centres to be implemented not only to reduce unaccounted for water but to ensure 24-hour supply thereby avoiding pollution dangers that exist in the present intermittent supplies.

- Software components like active co-operation and participation of the beneficiaries, research and development of appropriate technical options, strengthening of the existing institutions and organizational restructuring.

- The Decentralization Act, 1982, entrusts the entire range of responsibilities from planning, resource mobilization, implementation and management of the completed projects to the local district and village level units. For the smooth enforcement of this Act, other acts as well as statutory rules and regulations exist. One such recent directive is the "Water Supply Project Construction and Management Manual, 1989". But there seem to be some inherent difficulties in this Manual as was repeatedly highlighted in the Regional Workshops and are discussed further in the next section.

- Other support programmes like human resources development, establishment of a proper management information system and a radically new approach to sanitation and health education activities.

TABLE III: Population Coverage Targets(1991-2000)(ref.7)

Plan Period	Population Coverage(x 1000)			Funding (in US\$) (millions)
	Additional	Cumulative		
		Actual	%	
Eighth	7,190.0	14,770.0	70	269
Ninth	8,883.0	23,200.0	100	294
Total:	16,083.0	-	-	563

#### SRFSP FINDINGS (ref. 8)

13. During the course of the group work in the regional workshop, each district team consisting of the then District Panchayat President (DPP), the Local Development Officer (LDO) and the District Engineer (DE) listed issues and problems specific to the district with respect to the topics referred to above. Based on the proceedings of these four workshops, this section attempts at consolidation of the more pertinent and important ones which are summarised below:

- Population served as of mid-July 1990 needs to be further verified because the coverage figures of certain agencies are still estimates - specially in the case of grant-in-aid projects. The national coverage of 38% may, therefore, be too optimistic considering the fact that some of these schemes, in all probability, would be non-functional.

- The reorganization of the main sector agency - DWSS - has provided for permanent regional and district offices in all the seventy-five districts. However, all the sanctioned posts have not been filled up - specially in the case of both professional and sub-professional technical posts - resulting in inadequate supervision of construction works and inability to meet the supervision requests of other sector agencies.

- The annual budget ceilings made available to the districts are grossly inadequate and far below their requirements - resulting in an ever increasing number of projects with nominal budget amounts only.

- A huge credibility gap exists between the district water supply branch offices (DWSBO) and the beneficiaries because project completion periods have unnecessarily been spread over a number of years - whereas, with adequate budget, these could normally be completed in two years.

- It has been appreciated that the enforcement of the new MHPP directives (ref. 9) has brought about uniformity in the activities of the sector agencies. However, certain difficulties have been encountered in their implementation, viz.,

- : not sufficient interest being generated in the communities for forming effective water users committees (WUC),

- : WUCs have been found to be more effective in smaller schemes but a similar approach in very large schemes with a main system and a number of sub-systems, has not been found satisfactory,

- : WUCs taking on the responsibility for the actual construction work (either contractual or otherwise) and advancing sums of money to them for such work has some inherent shortcomings ( as far as ensuring

accountability is concerned),

: the personnel of the three district units (LDO, DWSBO and WUC) as well as the village maintenance workers do not have the required background and acumen (nor inclination) to work under the changed conditions requiring massive local-level resource mobilization, - the unsatisfactory condition of completed schemes illustrate the failure in making them sustainable due to the absence of a suitable cost recovery mechanism.

#### STRATEGIES FOR THE NINETIES

14. This section is specially devoted to the numerous suggestions that came out of the discussions during the workshops referred to above. Since the two main activities of the SRFSP exercise still remain to be executed, it would perhaps be a bit premature to lay down some firm recommendations. However, it could be irrevocably stated that three issues stand out clearly. Our strategies for the nineties must, therefore, take them into consideration. These issues are project implementation procedures, human resources development and resource mobilization (both external and internal). The first two aspects will be further highlighted in this section. The third topic forms the subject matter of the next section.

15. Implementation Procedures - There is the urgent need to make a realistic assessment of the achievements with respect to population coverage. Based on this, pragmatic projections would have to be made and targets for the future set accordingly.

- A national sanitation policy and related strategies will have to be developed before the beginning of the Eighth Plan dealing with the development of various low-cost options, full cost subsidy for the construction of institutional and demonstration latrines only and the full mobilization of Mothers' Groups at the grass-roots (in every ward of the village) for the promotion of individual house-hold latrines along with health education and women involvement.

- Creation of a congenial atmosphere whereby the annual sector programmes can be implemented in a sense of mutual trust amongst engineers, administrators and the beneficiaries. Maximum community participation and resource mobilization can only be achieved through regular interaction and intervention of the beneficiaries. It may be advisable to have representation from DWSBO in the WUCs and limit the latter's role to more of a management body (supervisory and monitoring). This body should ultimately function as a financially viable entity with a sound in-built cost recovery mechanism. This will have to be a prerequisite for

ensuring the sustainability of any project.

16. Human Resources Development (HRD) - If the implementation procedures as conceived in the new MHPP directives are to be effectively and meaningfully implemented, the need to develop the necessary institutional capability at the village level must be given top priority. The district level institutions must also play a more dynamic role as it will continue to be the indispensable link between the villages and the centre. The major thrust must now be to take HRD to the district and village levels. The whole gamut of HRD - right from the planning, recruitment, proper placement including career development - are of equal importance. The first action that needs to be taken is the establishment of training units at each district and diversify the activities at the centre to provide training to trainers and the necessary logistic support. An accelerated programme to train WUC members and village maintenance workers must receive immediate attention.

#### RESOURCE MOBILIZATION

17. Though this appears last in the listing done above, this issue is in no way of least importance. Resource mobilization, in fact, is the crux of the problem and the success of all activities is dependent on it. With the targets which have to be achieved in 1995 and 2000 A.D., we are left with no other alternative but to devise a more pragmatic approach towards not only external but internal resource mobilization as well - including, of course, the community level. The adoption of appropriate technical options and implementation procedures have a direct bearing on both the money and material resources, as well.

18. The draft Eighth Plan document referred to above (ref. 7) has indicated the overall programmes for the sector and made tentative estimates of the costs involved. These have been summarised in the table below.

19. As compared to Table IV, the financial outlay during the Seventh Plan was only NRs. 2,197 millions (US\$ 1.00 = NRs. 28.50). It will, therefore, be clear that the total investments for the sector during the next two plans would have to be as much 3.5 and 4 times respectively. This would require that HMG-N not only gives higher priority to the sector but also the level of funding would have to be appreciably increased.

TABLE IV: Targets and Investments (1995 and 2000 A.D.)

Implementation Programme	Popul. Coverage		Investment	
	Eighth Plan	Ninth Plan	Eighth Plan	Ninth Plan
1. Traditional Source Improvement	482.0	722.0	192.8	289.3
2. Shallow Tubewell (Handpumps)	3,623.0	3,051.0	200.6	130.0
3. Well Construction	200.0	300.0	100.0	150.0
4. Rural Piped Water Supply	2,245.0	3,720.0	1,683.7	2,790.0
5. Urban Piped Water Supply (Major) (Minor)	500.0 140.0	600.0 500.0	2,250.0 210.0	2,700.0 750.0
6. Urban Rehab.:Water Supply (MWS)	-	-	2,006.0	-
7. Rural Rehab.:Water Supply	-	-	100.0	200.0
8. Sanitation	-	-	27.3	35.9
9. Sewerage	-	-	175.0	200.0
10. Support Programmes	-	-	390.0	364.9
1. Administration/Management	-	-	354.6	500.0
Total:	7,190.0	8,893.0	7,690.0	8,110.1
Grand Total:	16,083.0		NRs. 16,100.0 (US\$ 563.0)	

(N.B. Population figures are in thousands and Investment figures in millions NRs.)

20. Table V gives the agencywise breakup of the targets and the investments that will be needed both for the Eighth and the Ninth Plans.

Table V Agency-wise Targets and Investments

S. No.	Agency	Eighth Plan		Ninth Plan	
		Target	Investment	Target	Investment
1.	MHPP:				
	Rural	1,624.0	879.3	5,143.0	1,437.5
	Urban	64.0	4,466.0	1,100.0	3,450.0
2.	HID:				
	Rural	2,145.0	1,170.0	2,270.0	1,913.8
3.	NCO:				
	Rural	357.0	127.8	380.0	208.9
4.	Total:	7,190.0	6,643.1	8,293.0	7,010.2
5.	MHPP:				
	Sanitation/ Sewerage	-	202.3	-	535.9
	Other Support Programmes	-	8,844.6	-	564.0
	Grand Total:		7,690.0		8,110.1

(N.B. Targets are additional population served in thousands and Investments are in millions NRs.)

## CONCLUSION

21. As was mentioned in an earlier section, only two SRFSP activities have so far been carried out. These have, however, confirmed without doubt the important issues and areas that will need more thorough consideration during the course of the next two steps. The detailed analysis of the data and other information gathered is currently underway. This will form the basis for the sound formulation of the sector programmes leading up to the district development plans for all the seventy-five districts of the country. In the actual implementation of the proposed programmes, many more challenging opportunities will come our way. For those of us who are fully committed to the development of the sector, our involvement in this noble task will not only be most satisfying but also a continued source of inspiration.

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Best of All Things is Water for, indeed,  
Water is Life!

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## N.B.

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2. Disclaimer: The views expressed above are not necessarily those of HMG-N or WHO and neither have these necessarily been endorsed by them.

