India:
Water Supply, Sanitation and Hygiene

Moving towards the 21st Century

The Environment of the Child
in
Kerala

Water Supply and Sanitation Programmes
and
UNICEF's role and contributions

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KERALA

Demographic details, Socio-Economic & Health indicators

S.No	Indicators	Status	Source
Demographic			
1.	Population	29 million	Census1991,
	% of Indian population	3.4	" "
2.	Nos.of districts	14	" "
3.	Nos.of development blocks	152	RD Department
4.	Nos.of habhitations Nos.of villages	9776 1384	RGDWM Survey, Census 1991
5.	Nos of panchayaths	990	DES
6.	Nos. Town Panchayaths (Munici & Corp)	63	DES
Socio-Economic			
1.	Rural population as % of total population	73.61	SPA for children in Kerala '95, GOK
2.	% of Scheduled caste population	9.9	Census 1991
3.	% of Scheduled tribe population	1.1	Census 1991
4.	Nos. Of primary schools	18177	SPA for children in Kerala '95,GOK
5.	Nos. Of middle schools	2964	DPI
6.	Nos.of high schools	2573	DPI
7.	Nos. Of primary health centres	961	DHS
8.	Nos. Of health sub-centres	3007	DHS
9.	Sex Ratio	1036	Census '91
10.	Annual per capita income	Rs 4400 (Rural)	NCAER 1994
Human Development Indicators			
1.	Overall literacy as percentage	89.81	Census '91
2.	Female literacy as percentage	86.17	Census '91
3.	IMR (per 1000 live births)	13 (1996)	SRS, 1996
4.	Under 5 Mortality rate (per 1000)	4.6(1990)	NCAER 1994
5.	Malnutrition among children under 4 years of age (weight-for-age)	28.5 %	NFH Survey 92-93
6.	Children fully immunized by 2 years	78.6%	NCAER 1994

Kerala is one of the smaller Indian states occupying only 1.2 per cent of India's land area but accommodating 3.4 per cent of India's population. It has a long unbroken coastline of 590 kilometers, with nine out of its fourteen districts having a sea border. According to the 1991 population census, the population of the state stood at 29 million at that point. Though still predominantly rural, the pace of urbanisation in the State in recent years is fastest among the Indian states. The rural and urban population constitute 74 per cent and 26 per cent of the total respectively. There are 14 districts with 152 blocks, 990 Panchayats and 63 Town Panchayats (municipalities / corporation). Most of the Panchayats in some of the blocks are water logged. As a result, providing safe water supply and sanitary facilities in these areas still remains an unaccomplished challenge.

Kerala has the pride of place among the Indian States because of its superior Human Development Indicators. The IMR in the Satte is the lowest among the Indian States (13 per 1000 live births, and uniform across rural and urban areas) which far lower than the national average of 72, although it was estimated at 200 in the beginning of the century. Similarly life expectancy has improved in the State from 45 years during 1951-61 to 70 during 1981-91 period. The literacy rate in the State is the highest (89.81%) with female literacy rate of 86.17 %. The percentage of female population in the age group 6-14 years attending schools was estimated at 94.8 % in the year 1992-93 (NFHS). The mean age at marriage for women, which is also a good indicator of the social development of a region was significantly higher (22.1) against a national average of 18.3.

Status of WES programmes

Access to, and use of safe drinking water

As per the 1991 census, only 43 per cent of the rural population had accress to safe drinking water supply. A more detailed survey conducted by Rajiv Gandhi Drinking Water Mission (Year ?) reveals the following status of rural water supply coverage in the State:

Total No. of rural habitations	9776
Fully covered	52
Partially covered	7422
Not covered	2289
Total No. SC/ST habitations	145
Fully covered	6
Partially covered	71
Not covered	68

The Data Book of the Mission (June 1998) indicates an improvement in coverage upto 48.3 % of the population with a relatively higher coverage of the socially disadvantaged Scheduled Caste population (50.52%).

Safe drinking water is provided through piped water supply schemes with surface or ground water as source. The average supply level is 40 lpcd and one spot source / borewell is provided for every 250 to 300 population in partially covered areas.

The Government of Kerala had made a commitment to provide safe water to all by 2002 and are expecting Rs. 300 crores from the Government of India to achieve this coverage. During the 8th 5-year plan (1991-92 to 1996-97) the expenditure on Rural water Supply Programme was Rs 989 Million from the Central component (ARWSP) and Rs 2488 Mln from the State component (MNP).

Access to, and use of sanitation facilities

The high population density (749 per sq. km.) and low size of land holding per family, create a lot of environmental problems in the State. In spite of low IMR and high life expectancy, the morbidity of children continues to be on the higher scale. One of the main reasons for such a peculiar situation has been attributed to the lack of proper environmental sanitation.

According to 1991 census the sanitation coverage iwas 50.4 per cent, of which urban household coverage was 72.66 per cent, and rural household coverage 42.4 per cent. The sanitation programme is implemented by the Rural Development Department, Local Administration, local bodies and voluntary organisations. In rural areas, two-pit pour flush latrines are constructed through government programmes with 80 per cent subsidy at a unit cost of Rs.2,500/- and taking into consideration the typical water table conditions, the unit cost has been accepted as Rs.3000/-. Subsidy for the construction of toilets for families below poverty line will continue.

On site low-cost excreta disposal systems are being adopted in both urban and rural areas of the State except in Trivandrum and Cochin cities which are partially covered with water carriage sewer system leading to conventional treatment.

The State has already delegated the power to the elected members and the panchayat raj is well established. Strengthening the capacity of the elected members in administration is being undertaken.

School water/sanitation facilities

School water supply and sanitation, and IEC activities have been given greater thrust in the State, to improve the environmental sanitation under total sanitation programme. Data available from the Sixth All-India Educational Survey (1993) indicates that 76 % of Primary Schools were covered with drinking water and 40 % had sanitation facilities including 12 % primary schools with separate facilities for girls. At the upper Primary level the availability of facilities was even better; 87 % of UP schools had a drinking water facility and 59 % had toilets (23 %had separate toilets for girls).

Institutional structure

Drinking water: organisational structure of Kerala Water Authority

The Kerala Water Authority is the nodal agency responsible for implementation of water supply in the State. The day to day management and overall control of the employees of the Authority is the responsibility of the Managing Director. The State has been divided into two regions as detailed below and each region is put under the charge of a Chief Engineer, responsible for all activities and functions of the Authority in that region.

1. Northern Regiona : Comprising of Kasaragode, Cannanore, Wynad, Calicut, Mallappuram, Palghat and Trichur Districts.

2. Southern Region : Comprising of Trivandrum, Quilon, Kottayam, Pathanamthitta, Aleppey, Ernakulam and Idukki Districts.

Under each territorial Chief Engineer, there are Superintending Engineers. The Head Offices of the Circles are at Cannanore, Calicut and Trichur in Northern Region and Ernakulam, Kottayam, Quilon and Trivandrum in the Southern Region. They are assisted by Executive Engineer, Assistant Executive Engineer, etc.

Besides the two Regional Chief Engineers there is an independent Chief Engineer in charge of investigation and Planning with Head Quarters at Cochin. The Chief Engineer, I.P.D is in charge of preparation of Master Plan for the whole State, and investigation and design of various schemes to be taken up by the Kerala Water Authority. The IPD Wing has 2 circles with Head Quarters at Alwaye and Palghat and 6 Division Offices.

Financial matters are managed by the Finance Manager and Chief Accounts Officer positioned at the Head Quarters. He is supported by the Accounts Manager, Accounts Officers and Internal Auditors. The Secretary of the Kerala Water Authority organises the Authority meetings, etc.

Government allocation for water supply and sewerage, loans from financial institutions like the L.I.C of India and World Bank, Bilateral assistance from Dutch and Danish Governments and water charges from the public are sources of finance for the working of Kerala Water Authority.

The Authority had a staff strength of about 7000 in 1995.

Infrastructure for monitoring water quality

The drinking water supplied in all the districts is periodically analysed by water conducting water quality analysis of water samples from the source and distribution points. Three regional laboratories have been established in the State under the National Drinking Water Mission at Kozhikode, Allapuzha and Trivandrum.

Organisational structure for implementation of sanitation programme:

The first organised government efforts in the sector date back to 1957 when the erstwhile Public Health Engineering Department (PHED) launched the WHO sponsored Environmental sanitation Programme. The programme promoted single leach pit design. Following a scavengers's strike, the PHED replaced all service latrines in the capital city of Trivandrum with this single-pit design.

During the International WSS Decade, a number of agencies worked in the sector. They included Rural devlopment Department, Urban/Rural Local Bodies, Scheduled Castes Devlopment Corporation, and the Socio-Economic Unit (SEU) Foundation, a voluntary organisation, which was set up to provide software inputs to the Dutch/Danish assisted water-sanitation programmes. During the period 1986-90 the World Bank provided assistance to the sanitation programme as did CAPART. He WB programme was managed by the Panchayats while CAPART assisted NGOs.

In 1988 the Kerala government set up a sanitation Cell at the State headquarters level of the Rural Development Department and District Sanitation Cells to coordinate sectoral activities. Apart from the funds available under CRSP and MNP, the State mobilised funds from the other poverty alleviation programmes like Rural Landless Employment Generation Programme (RLEGP). Indira Awas Yojna

(IAY)- the national rural housing programme and National Rural Employmet Programme (NREP). The setting up of the Sanitation cell/s and the dovetailing of resources has resulted in the construction of more than 379 thousand sanitary latrines. The government programme has, however been largely subsidy propelled although lately, in the decade of 90's health education and IEC activity activities are also being undertaken.

The SEU under the Dutch/Danish project adopted a more participatory approach in which community motivation and communication were important components. Training of women masons was also an innovative activity in the SEU's programme.

The concept of total Sanitation was introduced in selected Panchayats in the State in 1994 and later extended to 4 districts. Referred to as **Clean Kerala**, the project requires Rs 2800 millions for construction of household latrines of which only 25% will be the government participation (equally shared between GOI and State) while Panchayats will contribute 25% and beneficiaries the remaining 25%.

Problems in the sector

- Kerala has 14 districts and most of the Panchayats in a few districts are water logged. As a result, providing safe drinking water and sanitary facilities in these areas are still an unaccomplished challenge.

- Diarrhoeal diseases still constitute one of the major cause of morbidity in Kerala, especially among children below 5 years of age.

- The salinity problem in coastal areas and scarcity of water sources in hilly areas have left those areas uncovered and unreached.

- In water logged areas, garbage and human excreta are being disposed in the canal, polluting the water which is being used for drinking purpose

- The traditional open well is still considered as a safe water source for drinking. Improper site selection, well construction, and proximity to sources of pollution however have made most of the sources unfit for drinking.

- School water supply and sanitation needs priority attention. Although safe water for drinking and proper latrines are available in several schools, conscious attempt is to be made to achieve full coverage.

- In urban areas sewerage or drainage system is inadequate. There is no garbage disposal system existing, leading to hazardous health situation in all the urban slums.

UNICEF supported WES programmes

CDD WATSAN :

This strategy is being demonstrated by linking water supply, sanitation with hygiene awareness, and proper case management of diarrhoea (CDD-WATSAN) in Alleppey district. In order to improve access to safe source of water supply in coastal areas of Alleppey district, nearly 400 TARA hand pumps have been installed, mostly at very shallow depths, as deeper aquifers are saline. An evaluation done during 1997 revealed serious shortcomings in water quality. In water logged areas about 10 household roof water harvesting structures have been constructed after undertaking intensive IEC activities, and will be provided to few more families in Kuttanad area. In Kerala, well water is still considered as a safe source of drinking water. Conversion of open wells into sanitary wells and improvement of drainage around sources of water supply is one of the important activities.

Community based water quality monitoring and survaillence :

Based on the statistical information available related to diarrhoea, 4 blocks from where more number of diarrhoea cases have been reported have been selected and village mapping has been done to identify the contaminated sources. The H_2S strip-based kits supplied by UNICEF have been used to test the water quality by the community. The contaminated sources are identified and periodical chlorination has been undertaken by the WATSAN committees. The families without toilet , safe water and not practicing hygiene methods at the household level , have been identified through PRA and grouped as high risk families and targeted for improving environmental sanitation, and promote personal hygiene practices.

Block Information Centres have been set up where information related to block , CDD WATSAN, health and nutrition are displayed.

District Diarrhoea Training Unit (DDTU) has been set up at the district Government Hospital at Alleppey. ORT corners have been set up in 56 Public Health Centres. Systematic training for the health staff, mothers, ORS depot holders have been organised.

School Sanitation has not been given much importance by Government. As a result, the facilities are not available in most of the schools. With UNICEF and Parent Teachers' Association (PTA) contribution, only limited schools have been covered.

Alternative Delivery System:

In order to improve coverage in toilet construction through private initiatives, alternative delivery system namely Rural Sanitary Mart (RSM) and production centre have been established through the established women's groups, which are closely associated with the block office. So far about 12 RSMs and 3 production centers have been established. Women masons have been trained and are attached to RSMs and production centers. Government has accepted this concept and in order to strengthen the RSMs Rs. 50,000/- is being released to each RSM to be used as revolving fund for procurement of materials. This concept is being included in the State Government total sanitation progrmme to replicate throughout the State.

Sanitation in other districts:

In other total sanitation districts namely Malappuram, Kottayam, Trissur and Kollam, support has been extended to set up 3 RSMs and 2 production centers. In Malappuram, through the established community based structures, sanitation activities have been undertaken. The trained lady masons have undertaken construction of school toilets with UNICEF and Parent Teacher's Association contribution. The promotion of construction of household toilets is being planned through the introduction of revolving fund system involving the women's groups.

IEC

A separate State level IEC Cell has been set up under the total sanitation project, to take up IEC activities in all the selected districts. This is directly under the purview of the Department of Rural Development headed by Assistant Director.

Influence on Government Sector Policy

The following table lists the programme components or strategies, which UNICEF has been advocating for in the State, and a frank assessment of the impact of this advocacy so far had on the State in the WES programme is as follows.

UNICEF-GOI WES PROGRAMME OBJECTIVES (1991-98)	ASSESSMENT OF IMPACT ON STATE POLICY
SANITATION	
Progressive reduction of subsidies to promote toilets	Continues to support subsidy. No change
Promotion of range of toilet design options	Not yet introduced, design developed and adopted for water logged areas
Use of alternative delivery system to promote sanitation	Accepted by govt. included in the total sanitation programme.
	DRDA has released Rs.50000/- per RSM to be used as revolving fund for procurement of pans etc.
RSM or production centres in 20 per cent blocks	So far 13 RSM and 6 production centres have been established in 4 districts (including Alleppey)
Use of seven components of sanitation	Initiated . limited to Alleppey only
Safe water handling practices, as part of IEC	Activities limited to only Alleppey disteict.
Functioning of IEC cell at state level	Established at the state level under total sanitation programme, yet to start functioning
School sanitation introduced	Initiated in Alleppey district
WATER SUPPLY	
One spot source of drinking water for 150 people	The coverage norm is still 1:250
Reduced dependence on UNICEF for support for state water well drilling operation	Reduced support for water well drilling operations, GOK is supporting.
Increased success rate in well drilling, resulting from the use of scientific source finding techniques	Figures not available
Proper well construction techniques	Not available
Maintenance and repair of hand pumps with community participation, especially women	Introduced in Alleppey district for maintenance of 400 TARA pumps
Cost recovery for hand pump maintenance and repair	Not yet initiated
Use of VLOM type hand pumps (IM III and TARA)	TARA hand pump is being used in coastal areas, support expected from UNICEF for expansion to other coastal areas.
Village WATSAN committee at Panchayat level	WATSAN committees and ward sanitation committees have been setup in each panchayat under panchayat system. Very encouraging .
Use of low cost and appropriate water supply technologies	Introduced roof water harvesting system in Kuttanad area in Alleppey district and being put into use.
Use of appropriate water treatment at home/community level	Community based water quality monitoring and surveillence has been established in selected blocks & pot and well chlorination has been undertaken by the community.
INTRA-AND INTER-SECTORAL CONVERGENCE	
Effective operational linkages between water environmental sanitation and health interventions	Linkage with GWD, RD and health department is being established.
WES interventions as an effective entry point for CDD,nutrition and women's development	Establishment of ORT corners in all the PHCs and involvement of women's groups in WES
Appropriate water shed management	None
Effective usage of well rejuvenation technologies	Being used

MIS	
Use of relevant management Information systems	Not efficient

Strengths/Weakness/Opportunity/Threats

Strengths	Weakness	Opportunity	Threats/constraints
Partner ship with Govt successful.	Most of the areas are water logged	Acceptance of alter native delivery system is very high	Other donor agency support subsidy, poses problem for UNICEF to introduce non-subsidy approach
Established comm. structures helps In community Involvement	Potable water not available.	Possibility of planning along with total sanitation programme is high	
Govt. initiatives to Total sanitation in all Districts	Govt. still continue to support for subsidy constn. of toilets	Opportunity for developing community based programmes	
Well established Sanitation cell			

Key Partners and contacts

Government:
Ground Water Authority. Rural Development. Health and Education Departments

NGOs
Socio Economic Unit, established community structures

List of reference materials

State Plan of Action for Children (SPAC)- Kerala

Information furnished by Rural Development Department

Data Book RGNDWM. 1998

Status paper of MRAE (circulated in the National Seminar on Rural Sanitation. 1998)