

ce

India:
Water Supply, Sanitation and Hygiene
Moving towards the 21st Century

The Environment of the Child
in
Madhya Pradesh

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

UNICEF Bhopal
August 1998



822IN-17625

MADHYA PRADESH

1. Demographic details, socio-economic and health indicators

S/n	Indicators	Status	Source
Demographic			
1.	Population	66.2 mln	Census '91
2.	% of India total population	7.8 %	Do
3.	No. of districts	45	Do
4.	No. of development blocks	459	Do
5.	No. of villages	71,526	Do
6.	No. of Gram Panchayats	30,922	Inst of Social Sciences
7.	No. of towns	465	Census '91
Socio-economic			
1.	Rural Population on % of total population	74.57	Census '91
2.	% scheduled caste population	37.8%	
3.	% scheduled Tribe Population		
4.	No. of Primary Schools	64089	
5.	No. of Upper Primary Schools	12692	
6.	No. of Pry. Health Centres		
7.	No. of Health Sub-Centres		
8.	Sex Ratio	931	
9.	Annual per capita income (95-96)	Rs. 4,672	
Human Development Indicators			
1.	Overall Literacy	44%	
2.	Female Illiteracy	72.9%	
3.	IMR (per 1000 live birth) - 1996	97	SRS 1996
4.	Under 5 Mortality Rate (per 1000)	130	"
5.	Malnutrition among children under 4 years of age (Weight-for-age)	57.4%	
6.	Children fully immunized by 2 yrs	53%	NFHS 1992-93

Despite all its natural resources, Madhya Pradesh remains a state of developmental paradoxes. Industry and mining projects often bring little or no benefits to the largely illiterate and unskilled rural population.

The State has a high annual average rainfall of 1,150mm, but even so, 340 of the 459 blocks are categorised as drought-prone or deficient in rainfall.

Large areas of the State have a predominantly tribal population. The State used to have good forest cover, which has unfortunately dwindled over the last two decades.

The economy is largely agro-based. However, as much as 80% of the total crop area is rain-fed, always leading to the possibility of a wide and unpredictable variations in agricultural production from year to year. Average per capita monthly earnings are estimated to be Rs 389 or \$9.73 (US) at current rates.

More than 54 and 66 percent of children age 10 and 14 respectively, never complete primary school. It is therefore not surprising that the State has high levels of child labour, both boys and girls, as well as juvenile crime.

Access to health facilities is generally poor. Only 17% of all villages have some form of health facility, while 26% of villagers have to walk more than 5 km to the nearest facility

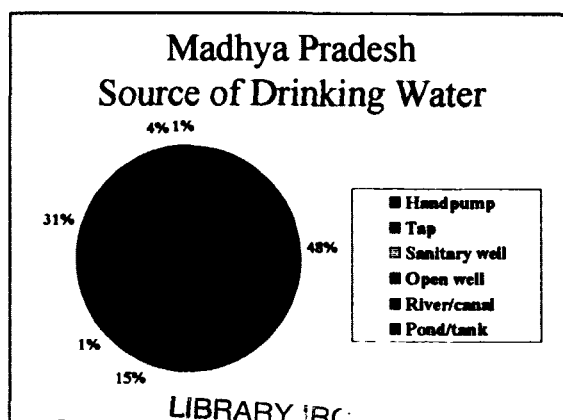
According to SRS 1996 provisional estimates, MP has the highest infant mortality rate among the Indian States, at 97 per 1000 live births (102 in rural and 60 urban areas).

2. Status of WES programmes

Access to, and use of, safe drinking water

In rural water supply, Government is using the national norm of one safe source of drinking water for every 250 population within 1.6 km, capable of supplying 40 lpcd.

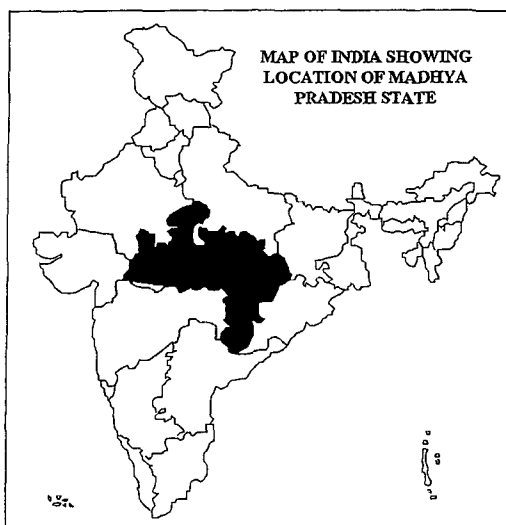
As of end-1996, nearly all villages had been provided with a safe source of water per 250 people,



supplying 10 to 40 lpcd.

Services are provided through 300,000 handpumps on borewells, mostly India Mark II, and Piped water supply schemes. Of the handpumps, about 25% is out of order at any point of time.

The vast majority of water supply schemes is based on the use of groundwater.



Even with very high levels of access, a survey in 1997 showed that only 64% of the rural population was using water from protected sources. Comparing findings of recent surveys shows a gradual increase in the proportion of households taking their drinking water from protected sources. 46% in 1991; 56% in 1992-93 and 66% in 1994.

Excess fluoride in the water from protected sources has been reported from 16 districts, six districts are affected by salinity and seven districts have problems with excess iron in the water. Surveys during the 1997 safe water and health campaign showed 20% of the handpumps to be bacteriologically contaminated. The problem of excess fluoride in drinking water is now widely accepted as being far worse than originally thought. PHED's capacity to monitor water quality generally inadequate. Prospects for any immediate response from government to remedy the situation are bleak. The problem of excess fluoride in drinking water is only now being taken more seriously.

The north-western parts of the State, in particular, have been facing substantial declines in the groundwater table.

Access to, and use of, home toilets

Various surveys have consistently reported that only a very small proportion of households in the State have toilets. The 1991 census reported 3.6% coverage, the 1992-93 NFHS found 4.8%, while the NCAER HDI survey of 1994 came up with 5.5% coverage.

Drainage, sullage and solid waste management are grossly inadequate in urban and peri-urban areas, and virtually non-existent in rural areas.

KAP related to WES

Awareness regarding the transmission of diseases because of poor hygiene is generally low. The national baseline survey conducted (1996-97) by the India Institute of Mass Communication (IIMC) indicates that only about 34% of the respondents in MP associate diarrhoea with poor hygiene. About 11% consider water safe if it is germ free, while a massive 82% think it only need be 'clean'. The same study shows that while 50% of the respondents are willing to spend as much as Rs 1000 to construct a latrine, 55% still think open defecation is better.

School water supply / sanitation

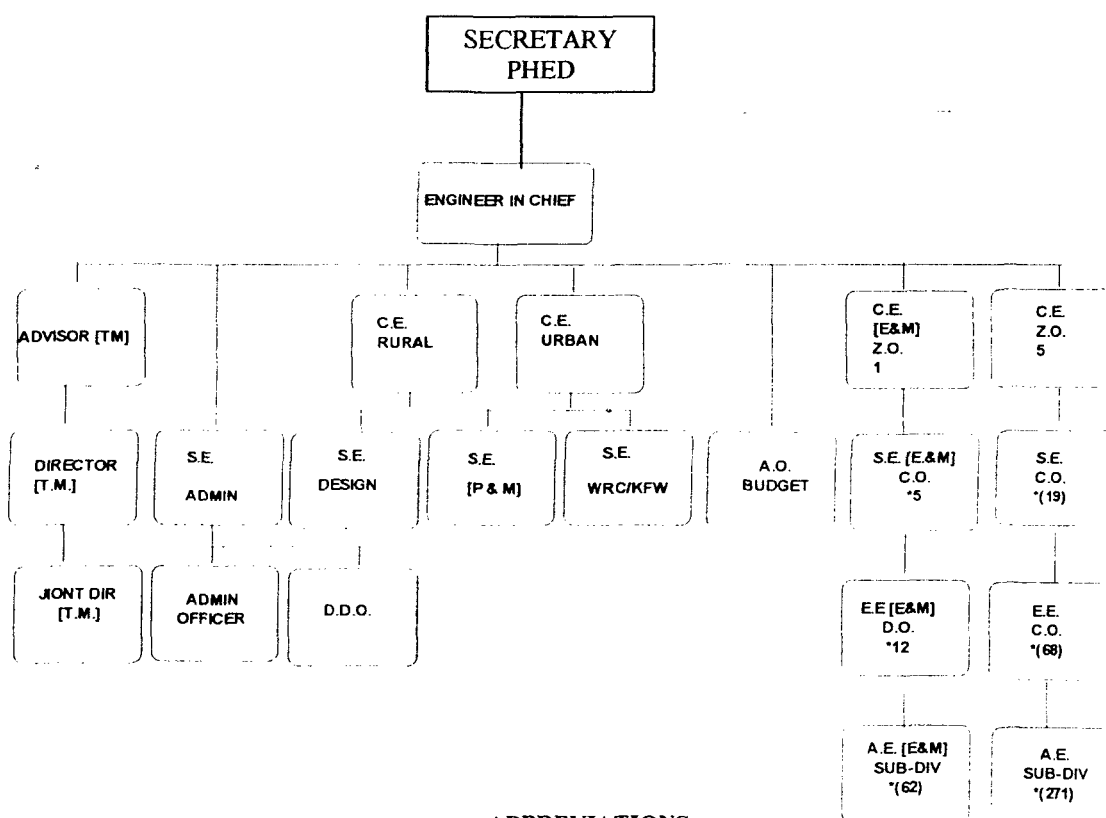
About 94% of all schools have access to safe drinking water, to a norm of one protected public water source within a distance of 100 metres from the school.

Only 6% of schools have sanitary toilets.

Institutional structure

The Public Health Engineering Department (PHED), headed by an Engineer-in Chief, has the overall responsibility for rural and urban water supply and sanitation development in the state. PHED is organized in a structure of zones, circles, divisions and sub-divisions. Five distinct zones cover the entire state for all civil works, whereas a sole unit caters for the whole state in relation to mechanical works.

ORGANOGRAM OF NODAL ORGANISATION : PHED



ABBREVIATIONS

C.E.	-	Chief Engineer	E & M	-	Electrical & Mechanical
S.E.	-	Superintending Engineer	P & M	-	Purchase & Materials
DIR	-	Director	WRC	-	Water Resource Cell
E.E.	-	Executive Engineer	AMIN.	-	Administrative
A.O.	-	Accounts Officer	Z.O.	-	Zonal Office
D.D.O.	-	Drawing & Disbursing Officer	C.O.	-	Circle Office
A.E.	-	Assistant Engineer	D.O.	-	Divisional Office
T.M.	-	Technical Monitoring	SUB-DIV-	-	Sub-Divisional Office

NOTE - * implies/denotes number of Offices

IEC Cell. The IEC Cell in Madhya Pradesh was created in 1996. In early 1998, the State Govt. reassigned responsibility for the Rural Sanitation Programme to Public Health Engineering Department after a two-year dormant period in the hands of the Environment Planning & Coordination Organization (EPCO). Action to staff the IEC Cell with a communication expert-consultant has since been initiated. The Cell will also have two Asst. Engineers and a secretary.

HRD Cell. The HRD Cell was set up in PHED in 1995 (?). The Cell is headed by a Chief Engineer. Over the years, the Cell has conducted training mostly for management of community water supply facilities. In the process, handpump mechanics and village handpump caretakers have been trained. However, these

training activities ceased during 1996-98, when the responsibility for O&M of handpumps was transferred to the Panchayats. During this period, UNICEF supported training programmes for village handpump mechanics with a special focus on women. The HRD cell has also trained masons, who are mostly been engaged in construction of household toilets.

State WatSan sector policy, plans and ongoing programmes

Although there is no formal policy guideline relating to the sector from the state government, this by no means suggests any lack of clarity or sense of direction in this regard. Indeed, various activities around water resources exploration, development, management and use are guided by a central concern, which indicates the presence of a shared sense of purpose and direction.

The same is not true for environmental sanitation. Within the last two years for instance, the nodal responsibility for sanitation has changed hands twice. It is clear at this stage that thoughts about how to promote environmental sanitation are still in a formative stage. The present status of sanitation in the state clearly indicates that universal access will remain a distant dream if efforts were to continue at current pace. Sanitation as a problem has not been tackled seriously. The rural areas, where the problem is most acute, have received very little attention. What is needed is a comprehensive community-based approach backed by a renewed political will with matching resources.

Decentralisation

The state government of Madhya Pradesh has generally been quite positive towards decentralisation, in line with national policy. MP became the first state to hold elections to the three-tier (Zilla, Janpad and Gram Panchayats) system of local self-governance in 1994. This was quickly followed by the devolution of responsibilities to the elected bodies for many activities previously carried out by government departments. The government departments retained the crucial task of relevant capacity building at various levels to ensure socio-economic development efforts remained on track.

Water resources management

Due to over-exploitation, there is a general decline in the ground water table. The situation is most critical during summer months, when a significant number of districts are affected. The State government has allocated large financial resources for the construction of water conservation facilities including check dams and dykes. These projects have been implemented in collaboration with the Water Resources Department, Agriculture, Forest and Rural Engineering Services Department.

In 1994, the State Government launched the Rajiv Gandhi Mission on Watershed Management. The Mission objective is to achieve augmentation, conservation and optimum utilisation of soil and water resources in rain-fed areas as a means of providing sustainable livelihood to the rural population. The key strategy has been to achieve this ensuring maximum participation of people in the conceptualization, planning, implementation and maintenance of land and water conservation activities in their watershed area. In implementation, the Mission largely follows the common guidelines for watershed management issued by the Ministry of Rural Areas and Employment in 1994-95. Till 1996-97, the Mission had taken up watershed development activities in about 10% of the gross sown areas of the State.

Rural Water Supply Programme

It is the aim of the state government to achieve universal access by the year 2000, to the current norm of 40 lpcd. Another major focus for development of new facilities has been in water quality problem areas. Work is still ongoing to complete new tubewells in previously guinea worm affected villages of Jhabua, and Rajgarh districts. Pipe water supply systems are being constructed in fluoride affected villages of Mandla and Shivpuri districts.

The Rural Water Supply Programme is funded from the State Minimum Needs Programme (MNP) and the Tribal Area Sub-Plan (TASP), supplemented with Accelerated Rural Water Supply Programme (ARWSP) funds from the Central Government, including funds received from donor agencies.

Water Quality Monitoring. As reported cases increase across the state, water quality is rapidly becoming an issue of serious concern. The number of fluoride affected districts has only recently increased to 16. Poor sanitary sealing of borewells and poor platform construction are key causes for the increasing number of borewells with bacteriological contamination.

Recently, the State Government has approved a PHED proposal amounting to Rs 1,480 million to set up a comprehensive water quality monitoring system and to take measures to mitigate the fluoride problem in the State.

Operation, maintenance and repair of water supply facilities were among the responsibilities handed over to the Gram Panchayats in 1996. However, in early 1998, the state government concluded that the Gram Panchayats had failed to maintain the handpumps properly, and O&M reverted to PHED. The lack of technical capacity and managerial skills of the Panchayats was said to be the major factor for their failure to maintain the water supply assets properly. However, it is also true that PHED did little to create capacity for O&M at village level in the first place.

Rural Sanitation Programme

Home toilets. Madhya Pradesh initiated the rural sanitation programme only in 1986-87. The poor coverage in home toilets is a manifestation of the continuing low priority attached to sanitation by planners as well as communities.

The Rural Sanitation Programme funded under the Centrally Sponsored Rural Sanitation Programme and the state MNP. While significant resources continue to be spent on developing new water supply facilities, the funds available for the rural sanitation programme continue to be very limited.

In 1994, the State Government set up the Rajiv Gandhi Mission for Control of Diarrhoeal Diseases, with the objective of reducing diarrhoea related mortality and morbidity. The Mission reports that the Case Fatality Rate due to diarrhoea has dropped from 2% in 1994 to 0.5% in 1997. To encourage preventive measures, the Mission carried out a safe water and health campaign in 1997, which focused on 11,000 villages with a high incidence of diarrhoea.

IEC. Four districts, Betul, Rajgar, Khargone and Bastar have been selected for piloting IEC activities. GoI released Rs.16.3 million in March 1996. The State's share of Rs.4.1 million was released early in 1998. In the absence of adequate staffing of the IEC Cell, activities are yet to commence. In many villages, the Anganwadi Workers and Jan Swasth Rakshaks contribute to the promotion of hygiene.

Emerging issues

Though a good deal of progress has been achieved in rural water supply, health benefits have not been commensurate, primarily for the following reasons:

- Community water supply projects have not been integrated with hygiene and sanitation. Toilet use remains extremely low. Clearly, the concept of environmental sanitation is absent.
- In the bid to achieve physical targets, water quality and sustainability issues have both been neglected. Bacteriological and chemical contamination of water supply sources are issues of increasing concern.

- Water supply and sanitation technologies are still too engineering-centered. Far less attention is given to the communities for whom these facilities are intended. Operation and maintenance continues to be centrally managed, with the state meeting full costs. People's participation, particularly women, has therefore been lacking, with the result that the sustainability of these systems is in doubt.
- As a result of a relentless exploitation of the natural resource base, there is a rapid and alarming depletion of ground water, soil and vegetative cover. Augmentation and conservation of soil and water resources, surface as well as ground water, in rain-fed areas as a means of providing sustainable livelihood to the rural population is gaining prominence on the state sector development agenda.
- There is an urgent need for better management through enhanced planning and effective resources allocation using a comprehensive WatSan MIS system.

UNICEF-GoMP programme

UNICEF has been a partner to the government virtually from the inception of the rural water supply and the rural sanitation programmes in the state. From the early 1970s till the mid-1980s, UNICEF support largely focused on the development of water well drilling, handpump installation and O&M systems. From the late 1980s, UNICEF started support for a wider range of programme components. In, UNICEF established a Field Office in Bhopal. Closer interaction resulted in a number of new initiatives in the sector.

As of mid-1998, the Field Office has a staff strength of 16. Of the seven professional staff, one is a water supply and sanitation specialist.

In 1998, the Field Office programme expenditure is expected to reach about US\$ 2.6 million, of which about US\$ 0.75 million (29%) will be on the Child's Environment programme, in support of the State water supply and sanitation sector. About 40% of the WES budget is allocated for water supply, 28% for sanitation (incl. social mobilisation, communication), and 32% for MIS and staff support.

The following covers the range of aspects covered by UNICEF programme of cooperation in water supply and sanitation in Orissa.

Programme of collaboration

Water Well Drilling

As elsewhere in India, UNICEF has considerably contributed to the development of well drilling for domestic water supply in M.P. During the 1980s, UNICEF supplied 27 hydraulic drilling rigs, most of which are still in operation. PHED operates a total of 154 drilling rigs across the state. In 1997, the UNICEF-supplied rigs drilled about 800 of the new borewells, which are added annually by PHED. From 1991 till 1998, UNICEF has substantially reduced support for water well drilling in the State. Presently, support is limited to the supply of rig spares not available in India for the few UNICEF-supplied rigs, which are less than ten years old.

UNICEF has also contributed substantially to the strengthening of scientific source finding techniques. Geophysical survey equipment has been supplied and staff trained on use and maintenance. With UNICEF support, PHED has built up a successful drilling operation, which over the years has put in place the infrastructure for supplying water from protected sources to the rural population across the state, through more than 300,000 borewells.

Guinea Worm Eradication Programme

From 1989-90 till 1997, UNICEF supported a major programme to eradicate guinea worm in affected villages in 22 districts. This has been a major success story, with no cases reported since 1994.

Well rejuvenation

With PHED capacity for well drilling ensured, UNICEF cooperation has moved towards sustaining existing tubewells. Two hydro-fracturing units (HFUs) and four tractor-mounted compressors (TMCs) have been provided for water well rejuvenation. While the HFUs have been well used, the TMCs have proven to be less effective on borewells larger than 4-1/2" diameter. UNICEF continues to provide support for service training, spares not available in India, and monitoring.

Environmental Protection & Water Resources Management

UNICEF has supported PHED to start a small demonstration project, which aims to protect and sustain village domestic water supply sources through the construction of groundwater recharge structures. After extensive hydro-geological investigations, recharge structures for some villages have now been completed, and plans for monitoring have recently been finalized.

Water Quality Improvement

In response to a government request, fluorosis control activities originally designed for Mandla district were expanded to cover affected villages in Shivpuri and Jhabua districts. Good progress had been made in popularising fluoride removal methods through the use of defluoridation filters attached to handpumps and domestic filters. While communities and households readily use the water from these devices, recurring maintenance is still managed by PHED. Plans to set up local regeneration facilities and a water quality monitoring system, involving communities are yet to be realised.

In 1997, UNICEF supported the Rajiv Gandhi Mission on Control of Diarrhoeal Diseases to conduct a State-wide campaign on safe water and health.

Decentralised Handpump Maintenance

In 1996, UNICEF supported the training of women in selected areas to strengthen the Gram Panchayats for the maintenance of handpumps.

Under the Convergent Community Action (CCA) strategy, women's groups are being trained in handpump preventive maintenance. These teams are not only reporting timely breakdowns, but also providing invaluable support to PHED mechanics undertaking major handpump repairs in their respective communities.

Management Information System for WatSan

From 1995, UNICEF has been supporting PHED to set up a comprehensive MIS, comprising of 13 inter-linked modules, designed to enhance sector planning, and rationalise the use of already stretched resources. When fully operational, the system will provide ready and reliable data on village WatSan facilities, schemes, O&M, rig operations, water quality monitoring, personnel & payroll, material & stores, finance & works accounting, budgets, security & authorisation, contracts & suppliers, estimates & schedule of rates, and tenders.

Sanitation

Efforts to promote sanitation had so far met with little enthusiasm at all levels. However, signs are that things could change for the better in the foreseeable future. In early 1998, the responsibility for coordinating the rural sanitation programme has been transferred back to PHED and efforts are already under way to revamp the IEC Cell. Meanwhile, UNICEF has built capacity in two institutions in Jabalpur (MGSIRD and XIDAS) for training of Panchayat Raj Institution members and Rural Sanitary Mart Managers and masons respectively.

In 1996, UNICEF assisted MGSIRD to establish a sanitation park in Jabalpur, where a range of low-cost toilet designs have been constructed. Trainees and others can see for themselves that home toilets can be built to suit a wide range of family budgets.

Rural Sanitary Marts have been established in Sagar, Dhar, Shajapur and Chhindwara districts.

Innovative Approaches, Involvement of Women/Gender issues/ Involvement of NGOs

Community empowerment is the corner stone of UNICEF support. Technical and managerial skills training has enabled the "service provider" cadre, (government/NGOs/institutions) as well as the "users" (communities, with special emphasis on women), to contribute more meaningfully to the programme. Through NGOs, a wider and more effective reach to communities is now assured. More women mechanics are now maintaining their handpumps in several districts.

Integrated water , sanitation and hygiene promotion project with SIDA assistance

In mid 1998 UNICEF Bhopal has launched an integrated sanitation-hygiene-drinking water project in Sehore district. Its objective is to bring down the incidence of water-sanitation caused diarrhoeal morbidity among children under 5 years by 25 % . The project has been designed using the Logical Framework Approach (LFA) in discussion with the stakeholders at State/District and Block levels. The project will be monitored through the Indicators developed in a participatory manner.

Influence on Government Sector Policy

UNICEF's contribution to overall sector development in terms of financial resources is minimal. Even so, UNICEF continues to play a pivotal role in helping shape state government sector policy. The guinea worm eradication programme and the use of appropriate, cost effective technologies such as the use of hydraulic drilling rigs and the use of the India Mark II handpump are among the initiatives which GoMP has scaled up in the State. More recently, rejuvenation of defunct handpump/tubewells using HFUs/TMCs, water quality monitoring involving communities and the WATSAN-MIS are other programme aspects which are likely to be taken to scale by GoMP.

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 this advocacy has so far had on the State WES programmes.

UNICEF-GOI WES PROGRAMME OBJECTIVES (1991-98)	ASSESSMENT OF IMPACT ON STATE POLICY
SANITATION:	
Progressive reduction of subsidies to promote toilets	Not accepted by State yet; advocacy being done
Promotion of a range of toilet design options	Not yet adopted on a large scale
Use of alternate delivery system to promote sanitation	Operational in pilot projects
RSMs or production centres in 20% of blocks	60 RSMs established under PMRY scheme (State financed); not fully operational
Use of the seven components of sanitation	Included in the training package of Panchayat Leaders
Safe water handling practices, as part of IEC	IEC Cell established
Functioning IEC cells at State Level	
School sanitation introduced	Introduced in 2 districts (Mandla and Jahabua) as pilot
Eradication of guinea worm disease	Eradicated
WATER	
One spot source of drinking water for 150 people	Not adopted
Reduced dependence on UNICEF for support for State water well drilling operations	State government informed of withdrawal of support
Increased success rate in well drilling, resulting from the use of scientific source finding techniques.	70 % success rate achieved in drilling which is an improvement from...
Proper well construction techniques	Being jointly reviewed by GoMP/UNICEF
Maintenance and repair of hand pumps with community participation, especially women	One pilot district –Betul adopted. feedback positive
Cost-recovery for hand pump maintenance and repair	
Use of VLOM type handpumps (IM III and TARA)	Introduced in pilot projects; being observed by nodal agency(PHED)
Village Watsan Committee at Panchayat level	Only in pilot projects
Use of low-cost and appropriate water supply technologies	Not adopted
Use of appropriate water treatment at home/community level	Introduced; results are under observation by PHED
INTRA/INTER-SECTORAL CONVERGENCE	
Effective operational linkages between water, environmental sanitation and health interventions	Effective in 4 CCA districts
WES interventions as an effective entry point for CDD, nutrition and women's development	Not adopted yet; being piloted in SIDA assisted district
Appropriate watershed management	State has adopted as a Mission approach
Effective use of well rejuvenation technologies	Introduced by UNICEF adopted by PHED
MIS	
Use of Management Information Systems relevant and practical to the WES sector	Project preparation complete. hardware supply in pipeline

Challenges/Opportunities

- Ensure adequate political commitment to accelerate/energize the sanitation programme
- Build up/strengthen NGO capacity for awareness creation and social mobilization to popularise the sanitation concept.
- Expand government water quality monitoring process to involve active community participation
- Develop a state WatSan policy, especially in relation to sanitation, which now stands at a critical crossroads.
- Re-packaging and re-selling of the community handpump maintenance initiative to government.

- The Panchayat Raj Institution remains an inadequately tapped organ for community empowerment.

Strengths/Constraints

- The presence of a highly skilled and motivated professional team at state level is a significant comparative advantage
- Flexible programme approach enhances the introduction of new ideas and prompt course correction.
- The WES programme has been too thinly spread, hence less visible.
- Political considerations have some times taken precedence over good programming sense.

Partners

Key sector partners include:

Government

Public Health Engineering Department/Rajiv Gandhi Mission for Watershed Development/Rajiv Gandhi Mission for Sanitation/ Rajiv Gandhi Mission for Control of Diarrhoeal Diseases/Ground Water Board/Dept of Education/ Dept of Health.

Institutions

Mahatma Gandhi Institute for Rural Development, Jabalpur/Xavier Institute of Development Action & Studies, Jabalpur/Regional Research Laboratory (CSIR), Bhopal, Govt Polytechnic, Bhopal/Nutan College, Gwalior/ SGSITS, Dhar

NGOs

Rural Environment & Community Health Awareness Society, Betul/Lok Vikas, Indore/Madya Pradesh Madhyam, Bhopal/Lupin Human Welfare Research Foundation, Bhopal

List of references

1. Report of the Independent Commission on Health of India
2. Background notes on ongoing RWSS Programme (PHED) for Evaluation Team
3. WATSAN-MIS Assignment completion report for PHED, MP
4. RGMWD (Mission Document), GoMP
5. WatSan , A Baseline Survey Report, Jan 1998 (RGNDWM)