Sida Evaluation 01/04

Learning from Experience

Evaluation of UNICEF's Water and Environmental Sanitation Programme in India, 1966–1998

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Learning from Experience

Evaluation of UNICEF's Water and Environmental Sanitation Programme in India, 1966–1998

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Preface

Support to water and sanitation development forms an important part of Swedish development co-operation. For the past 30 years Sida has supported a wide range of efforts in water supply and sanitation as well as in the management, protection and use of water resources.

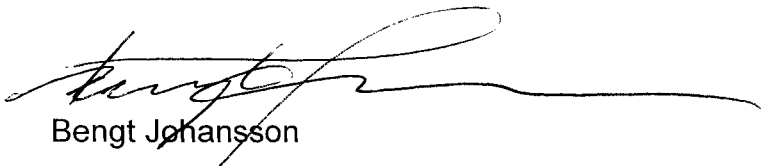
The main objective of this evaluation is to learn lessons from the India water and sanitation programme that would benefit both the India country programme and UNICEF's global work in the sector.

During approximately 15 years, starting in the 1980's, Sida has supported the water and sanitation sector in India through UNICEF. The support is on going and the results and recommendations in this Evaluation form an important platform for a possible continued Sida support to the water and sanitation sector in India through UNICEF.

A major finding of the evaluation is that although the amount of UNICEF financial support in relation to total government expenditures is small, UNICEF has played an important and catalytic role in developing, testing and advocating key technological and institutional changes that influenced government policy and investment priorities. Major recommendations for the future are for UNICEF to focus on areas where it has comparative advantages, such as sanitation and hygiene promotion, and to give lower priority to its work in rural water supply.

This Evaluation has been jointly financed by DFID (UK), Netherlands Ministry of Foreign Affairs, UNICEF and Sida. The views presented are those of the authors and are not necessarily shared by Sida. Sida would finally like to thank UNICEF, who originally published this Evaluation, for the good work carried out in the water and sanitation sector in India.

Stockholm May 2001



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Learning from Experience:
Evaluation of UNICEF's Water and Environmental Sanitation Programme In India, 1966–1998

This evaluation was managed by Sawon Hong, Senior Programme Officer, Evaluation, UNICEF Headquarters, with advice from the Technical Steering Committee which included Sandy Cairncross, Jan Teun Visscher and Brendan Doyle.

The evaluation is based on an independent report from the five evaluation team members: Pete Kolsky (team leader; sanitation and public health); Erich Baumann (handpump technology and community management); Ramesh Bhatia (economics, finance and resource management); John Chilton (hydrogeology, drilling and groundwater resources), and Christine van Wijk (social aspects of water and environmental sanitation).

The team's work was complemented by a Desk Review by A.K. Shiva Kumar and Biswajit Sen and a Beneficiary Assessment by the Socio-Economic Unit Foundation, India.

Paula Whitacre edited this report. The report was published by Lucien Back with support from Rema Venu, Evaluation Office, UNICEF Headquarters.

The Department for International Development (DFID, U.K.), the Netherlands Ministry of Foreign Affairs, the Swedish International Development Co-operation Agency (Sida), UNICEF-India and the Division of Evaluation, Policy and Planning (UNICEF Headquarters) funded this evaluation.

Table of Contents

List of Boxes

List of Figures

List of Tables

Acronyms

ARWSP	Accelerated Rural Water Supply Programme
BIS	Bureau of Indian Standards
CBHM	community-based handpump management
CBO	community-based organisation
CCA	Convergent Community Action
CDD-WATSAN	Control of Diarrhoeal Disease-Water and Sanitation
CGWB	Central Ground Water Board
DANIDA	Danish International Development Assistance
DFID	Department for International Development, U.K.
DTH	down-the-hole
EPP	Division of Evaluation, Policy and Planning (UNICEF Headquarters)
ESA	external support agency
GOI	Government of India
GSDA	Groundwater Survey and Development Agency (Maharashtra)
HRD	human resource development
ICO	India Country Office, UNICEF
IEC	information, education and communication
IERT	Institute of Education and Rural Technology
ISI	Indian Standards Institution
KAP	knowledge, attitudes and practises
lpcd	litres per capita per day
M&E	monitoring and evaluation
MIS	management information systems
MKII	India Mark II (handpump)
MPO	Master Plan of Operations
NDWM	National Drinking Water Mission
NGO	non-governmental organisation
O&M	operations and maintenance
ORS	oral rehydration salts
ORT	oral rehydration therapy
PHED	Public Health Engineering Department
PRED	Panchayati Raj Engineering Department (Andhra Pradesh)

PROMS	programme management information system
R&D	research and development
RCRSP	Restructured Centrally Sponsored Rural Sanitation Programme
RGNDWM	Rajiv Gandhi National Drinking Water Mission
RSM	rural sanitation mart
Rs.	rupees
SC/ST	Scheduled Castes/Scheduled Tribes
Sida	Swedish International Development Agency
SWACH	Sanitation, Water and Community Health
TAG	Technical Advisory Group
TMC	tractor-mounted compressor
TPPF	twin-pit pour flush (latrine)
TWAD	Tamil Nadu Water and Drainage Board
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WATSAN	water and sanitation
WES	water and environmental sanitation
WESS	Water and Environmental Sanitation Section (within UNICEF India Country Office)
WWF	World Wide Fund for Nature
WHO	World Health Organization
WSP	Water and Sanitation Programme (UNDP/World Bank)

Executive Summary

UNICEF considers water and sanitation services crucial to its mandate to promote the survival, protection and development of children. The water and environmental sanitation (WES) programme in India is the longest running and one of the most prominent WES programmes that UNICEF supports in countries around the world. UNICEF support of Government of India (GOI) efforts to improve water supply coverage began in the mid-1960s in response to drought emergencies. Its support of sanitation began in the early 1980s.

Although the amount of UNICEF financial support in relation to total government expenditures is small, UNICEF has played an important and catalytic role in developing, testing and advocating key technological and institutional changes that influenced government policy and investment priorities to expand WES services to the Indian population. These included large-scale government investments in rural water supply and sanitation and the adoption of new drilling techniques, contributions to the implementation of a successful handpump-based rural water supply programme and exponential increases in water supply coverage.

About This Evaluation

To learn lessons from this rich experience and to guide future directions, UNICEF commissioned an external evaluation of its WES programme in India. The evaluation was carried out in late 1998 and 1999 and was funded by the Department for International Development (DFID, UK); Netherlands Ministry of Foreign Affairs; Swedish International Development Agency (Sida); UNICEF-India; and the UNICEF Division of Evaluation, Policy and Planning (EPP). EPP has managed this evaluation as part of a multi-country thematic evaluation to draw lessons for global application.

The five-member team, composed of international and Indian experts, conducted extensive interviews at all levels, visited field sites, developed a mail survey for UNICEF partners and staff, and reviewed an extensive number of documents. Each member looked at issues related to his or her area of expertise and also came together to examine such interdisciplinary issues as the social aspects of well drilling and handpump development. Two local experts supported the evaluation with a desktop review of literature on WES in the Indian context. A participatory beneficiary assessment of the impact of WES services, conducted by an Indian institute in Rajasthan and Tamil Nadu, also contributed to the evaluation.

In consultation with UNICEF-India, EPP formed a national advisory group to support the work of the team. The advisory group was chaired by the director of the Rajiv Gandhi National Drinking Water Mission (RGNDWM) and also consisted of representatives from Panchayati Raj, non-governmental organisations (NGOs), donor organisations, other UN agencies and an Indian research institution. Preliminary findings of the evaluation were presented in an April 1999 workshop in Delhi with a wide range of active and interested participants in the water and sanitation sector.

Three factors should be kept in mind in reviewing this evaluation of the UNICEF WES programme. First, given the size of the programme, the 30-year time scale, and the need to learn about the UNICEF WES programme from the ground up, the team may not have fully appreciated the relative importance of some issues as perceived by those with longer experience in India's WES sector. Second, the long time frame was particularly problematic, given the inevitable loss to "housecleaning" of old files or the fact that information, such as cost data, may never have been collected in the first place. Finally, the GOI and state public health engineering departments (PHEDs) or equivalent organisations

implement most WES activities, rather than UNICEF itself. This must be appreciated in evaluating the real scope for UNICEF to influence activities at the site level.

Key Findings

Water Supply

Given the longer history and the GOI's emphasis on water supply coverage (relative to sanitation and hygiene promotion), the evaluation team found that many of UNICEF's long-term, tangible WES successes particularly lie in rural water supply. However, tasks remain in ensuring continued quality of borehole construction and rehabilitation and handpump manufacture. New challenges lie in management of a mix of supplies through a range of institutional mechanisms at the community level, and in better management of water resources and water quality.

- Water supply coverage has increased greatly over the past 30 years to reach 95 per cent of India's population. However, *the balance between achievements in coverage and quality is delicate.* Considering the magnitude and spread of the water supply programme and its supply-driven implementation, some trade-off is inevitable between quantity and the quality requirements of sound construction practise. Recognising the difficulty of providing adequate supervision of such an extensive programme, UNICEF support for the development and adoption of standardised borehole design and implementation procedures has helped to achieve minimum acceptable standards. In quality assurance of handpump manufacture, change in responsibility has resulted in relaxed enforcement of quality assurance procedures, resulting in lower quality handpumps and spares.
- UNICEF successes include contributions in *drilling and handpump manufacture,* which resulted from a strong commitment to quality over the long haul. *The evaluation team considered the choice of technology and approaches to be appropriate and cost-effective,* although a lack of documentation meant that the team could not rigorously verify the latter point. Management information systems (MIS) could provide useful data on technical and cost feasibility of various water supply options, but UNICEF has not used MIS for this purpose.
- India's *groundwater resources* are endangered, but the most appropriate role for UNICEF in their defence remains to be defined. *UNICEF can certainly use its advocacy role, but needs to be realistic about its technical capacity and instead partner with other groups with greater expertise in this complex area.*
- *Community-based management of water supply* can alleviate the massive government expenditures in operations and maintenance (O&M), but *much sound pilot work and evaluation remains before this goal can be achieved.*

Environmental Sanitation

With a history only going back to the 1980s, environmental sanitation has not shown the same results as water supply coverage. Only about 26 per cent of the entire population (urban and rural) have what the GOI considers adequate coverage.

- *UNICEF has taken a leading role in shifting the focus in sanitation* from a hardware fix to a "package" of services that combines latrine construction with hygiene and health activities, and from full construction subsidies to partial subsidies based on demand.
- Over the past 15 or 20 years, *sanitation has seen a number of promising efforts that have not proven sustainable over the long term,* such as the too costly twin-pit pour flush (TPPF) latrine advocated by UNICEF and others in the late 1980s. UNICEF is to be commended for its courage to experiment, and the wisdom to see the need for experimentation. The *"success" of some of approaches was seized too quickly* both within UNICEF and the GOI, in hopes of devising a strategy that could be scaled up in the same way as rural water supply had been.

Social Aspects of WES Services

UNICEF recognised at an early stage that technological improvements have to be fully combined with user participation if systems are to be fully utilised and sustained. However, the switch to a systems approach that enables communities to manage and sustain their own water services, sanitation, and hygiene programmes with no or a minimum of continued backstopping from the government has not yet been made.

- *Existing efforts, including information, education and communication (IEC) materials and person-to-person contacts, are generally satisfactory.* However, UNICEF could better use its resources to pre-test IEC materials and focus their messages, since local government departments, NGOs and the private sector have the capacity to produce them.
- Although UNICEF recognises gender as an issue in water and sanitation, *designing and implementing truly gender-sensitive strategies rarely occurs.*
- Other approaches – such as public health communications, community management and Convergent Community Action (CCA) – may be more cost-effective ways to bring about change, but *these newer approaches have not been sufficiently tested by UNICEF in WES activities in India.*

Cost-Effectiveness

Although UNICEF clearly bore costs in mind over the years, cost-effectiveness has not been a systematic component of decision-making. In addition, a lack of documentation makes rigorous cost-effectiveness appraisal impossible.

- Using the data currently available on the costs per capita and per cubic metre of handpumps and powerpumps on boreholes, the team estimated that *handpumps should be the more cost-effective on a per capita basis for communities with fewer than 4500 people.*
- In addition, more qualitative assessments generally support the contention that *fundamental decisions about water supply technology selection appear to have been sound.*

Impact on Rural Women, Men and Children

To try to separate out the direct impact of UNICEF WES efforts, as opposed to its substantial indirect impact through its work with the GOI, the evaluation team sought the views of rural users. They found some improvements in UNICEF-supported districts. Because UNICEF-pioneered action has invariably been taken up by the GOI, differences in the two types of districts may have been greater initially than over time.

- *Villages involved in UNICEF activities reported more water use and improved hygiene* than villages that had access only to GOI services.
- *Women in UNICEF-supported districts exhibited greater knowledge and use of oral rehydration therapy (ORT)* to combat diarrhoeal diseases.
- *Some improvements in general health and social conditions* were noted by villages involved in UNICEF activities. The improvements include better education, including more girls attending school; better health care facilities; and a less restricted life for women in less conservative communities.

UNICEF Organisation and Management

How effective UNICEF can be in its WES activities depends, in large part, on its organisation and management.

- *The decentralised structure of UNICEF-India and the commitment of its staff is impressive.* However, the mix of staff expertise (particularly given the need to focus on behavioural and institutional issues) and the workloads that staff carry are issues of concern.
- The practise in several field offices to "share" software professionals between sectors (e.g., WES and health) may have resulted in *insufficient attention to WES social complexities.*
- Although actual expenditures are difficult to track, *the WES budget allocated to software (approximately 10 per cent of the total) seems low* for an organisation that states that it is shifting more towards social aspects in its policy and strategies.
- *Field studies have not been set up to compare approaches or systematically assess impact.* Examples of ways to increase the use of these studies include developing a common set of criteria against which to measure results, focusing on more significant comparisons, and focusing more on data analysis and less on data presentation. Greater use of participatory research methods would also yield a fuller picture of local WES behaviours and the effects of UNICEF and GOI programmes on those behaviours.

Partnerships

- UNICEF staff, partners and the evaluation team concur that *UNICEF's long-standing partnership with the GOI over the past 30 years has greatly enhanced its access and credibility.* The duration of the commitment, as well as the style of close collaboration, contribute to the effectiveness of the relationship.
- Partners cite *institutional support, particularly training and information sharing, as UNICEF's greatest contribution to their capacity.*

Future Directions

How should UNICEF focus its future WES activities and through which mechanisms? There was general consensus among partners, staff and the evaluation team that UNICEF should focus on fewer subject areas, rather than spread itself too thinly.

- *All partners surveyed felt that health and hygiene are the most important subject areas for the WES programme.* Rural water supply and sanitation were also felt to be important, although this view depended on the background of the partner. Most partners felt that UNICEF should not give first priority to pure latrine construction, water quality control and urban services.
- *Staff surveyed felt that hygiene and sanitation are the most relevant areas for future UNICEF activity.* They are less inclined than partners to consider rural water supply a high priority and more inclined to consider urban services as a relevant area for UNICEF.
- Partners and staff agree that the *two key mechanisms that UNICEF should use to support these areas are development of new approaches and capacity-building* through training and other activities. Partners were also more likely to cite direct funding; staff were more likely to cite advocacy. Very few in either group supported direct implementation as the most appropriate UNICEF WES activity.

Recommendations

The findings of the evaluation led the team to recommend that UNICEF:

- *focus its efforts on areas where it has a comparative advantage,* such as sanitation and hygiene promotion. This means that UNICEF should leave the leadership of some important areas, such as water quality monitoring and urban WES services, to other organisations and instead contribute through collaboration and partnerships.

- *scale back its work in rural water supply.* UNICEF still can play a useful role in rural water supply by concentrating on priorities related to sustained and reliable universal access and use of safe water for consumption and sufficient water for hygiene. UNICEF could develop a strategy for holistic community management of an evolving mix of water supply types and service levels. Another remaining priority area is to assure continued quality in borehole construction and handpump manufacture. However, with GOI capacity greatly enhanced over the past several decades, UNICEF should limit its overall role in rural water supply and free up resources.

- *make sanitation and hygiene a higher priority.* UNICEF must allocate sufficient resources to back up its stated commitment to increase sanitation and hygiene efforts. It should continue to support more affordable latrine options and other pilot approaches.

- *strengthen its partnerships* through working with fewer, closer partners. If UNICEF works on fewer issues, it will work with a smaller set of partners. This can potentially build stronger relationships.

- *change its staffing and staff development system* to ensure that social and institutional aspects of WES are adequately addressed. UNICEF needs to look at whether staff has the appropriate expertise to take on these new challenges and that they are not carrying excessive workloads that can compromise quality.

- *address the challenges of decentralisation,* which offers new opportunities for community-managed services. The GOI and external support agencies (ESAs) need to develop general WES guidelines and frameworks and agree on common objectives and indicators in approaches that would otherwise be locally specific, and then meet regularly to compare progress and results. UNICEF may be in a prime position to develop and facilitate such a partnership.

- *improve its monitoring and evaluation* of projects and alternative strategies. Recommended improvements include tighter specification of evaluation studies; closer partnership with those involved in the studies; and definition of clearer outcomes, objectives and criteria for success when the projects are planned.

- *collect and use cost data.* Areas where cost data are needed but lacking include borehole drilling and rejuvenation technology, sanitation technology and promotion, and approaches for behavioural change. It may be too late to evaluate past decisions, but the data collected now and in the future can greatly assist the UNICEF WES programme in India and in other countries.

- *undertake focused studies to fill some information gaps and use the results to improve its programmes.* Subjects for further exploration identified in this evaluation include cost-effectiveness analyses of borehole rejuvenation techniques; evaluation (jointly with the Bureau of Indian Standards) of handpump manufacturers' qualifications and standards; pre-testing of IEC messages; and cost-effectiveness analyses of CCA, social marketing and community-managed services.

- *protect and preserve its long-standing, well-deserved legacy and reputation* by ensuring that the quality of its programme remains high. UNICEF has built its reputation through hard work over more than 30 years. As it withdraws from some of its activities, it must do so in ways that encourage others to continue to provide quality WES services to the people. By working closely with partners and developing and testing new approaches, UNICEF can sustain its achievements and maintain its hard-earned legacy and reputation in contributing to WES services.

Lessons Learned

In addition to the specific recommendations above, the evaluation team gathered lessons that can be more generally applied to UNICEF programmes.

- *Long-term commitment and partnership produce results.* UNICEF staff, partners and the evaluation team concur that UNICEF has earned the trust and confidence of senior-level officials and credibility at the national, state and district levels through its 30-year-plus relationship with the GOI. This gives UNICEF a tremendous comparative advantage.
- *An external agency such as UNICEF has greater freedom to test new approaches than a government has.* This relative freedom suggests an important role for UNICEF in many sectors as an organisation that can develop and test new approaches.
- *Going to scale too quickly has adverse repercussions.* It is tempting to expand on pilot projects that seem successful. However, in the long run, it is better to move slowly to find out through a systematic approach that is gradually scaled up to learn whether a promising strategy is indeed replicable on a larger scale.
- *Institutional arrangements at the district and community levels can help or hinder the implementation of centrally made decisions.* A supporting national policy framework is important to move ahead in WES and many other sectors. However, what is taking place on the ground will determine the likelihood that a policy is successfully implemented.
- *A gender and poverty perspective must be consciously planned for and its systematic implementation monitored.* Even with the best of intentions, incorporating such a perspective in participation, education and training will not happen without ongoing and deliberate attention.
- *Programme staff needs to be realistic about how much work they can take on and still be effective.* With many pressing tasks, committed staff often shoulder large workloads and find it difficult to scale back or end an activity. However, staff must recognise that with too much to do, they cannot maintain high-quality work and the overall programme suffers.
- *Cost data are needed for more effective analyses.* It is difficult to collect and keep track of this cost information. However, the lack of such data impedes cost-effectiveness analysis, which, especially in an era of limited resources and greater accountability, is necessary for decision-making.

Résumé directif

L'UNICEF considère que les services d'approvisionnement en eau et d'assainissement revêtent une très grande importance pour l'exécution du mandat qui lui a été donné de promouvoir la survie, la protection et le développement de l'enfant. Le programme d'approvisionnement en eau et d'assainissement du milieu (AEAM) exécuté en Inde est le plus ancien des programmes de ce genre et l'un des plus importants parmi ceux que l'UNICEF appuie dans le monde. C'est au milieu des années 60 que le Fonds a commencé à aider le Gouvernement indien à accroître le taux de couverture de l'approvisionnement en eau dans le cadre des mesures prises pour faire face aux situations d'urgence créées par la sécheresse. Le Fonds a commencé à appuyer les activités dans le domaine de l'assainissement au début des années 80.

L'appui financier de l'UNICEF est modeste par rapport au montant total des dépenses que le Gouvernement indien consacre à ce programme, mais le Fonds a joué un rôle de catalyseur important pour la mise au point, l'essai et la promotion des principaux changements technologiques et institutionnels qui ont amené le gouvernement à infléchir ses priorités en matière de politiques et d'investissements dans le sens d'un développement des services d'AEAM fournis à la population indienne. C'est ainsi qu'ont vu le jour les nouvelles orientations suivantes : un gros effort d'investissement du gouvernement dans l'approvisionnement en eau et l'assainissement dans les zones rurales et l'adoption de nouvelles techniques de forage; une contribution à l'exécution d'un programme concluant d'approvisionnement en eau des zones rurales reposant sur les pompes à main; et la croissance exponentielle du taux de couverture de l'approvisionnement en eau.

À propos de la présente évaluation

Pour tirer les enseignements de cette riche expérience et en dégager de nouvelles orientations pour l'avenir, l'UNICEF a fait établir une évaluation externe de son programme d'AEAM en Inde. Cette évaluation a été réalisée à la fin de 1998 et en 1999 et a été financée par le Département du développement international (DFID) du Royaume-Uni, le Ministère néerlandais des affaires étrangères, l'Agence suédoise de développement international (SIDA), UNICEF-Inde et la Division de l'évaluation, des politiques et de la planification (EPP) de l'UNICEF. L'EPP a géré cette évaluation dans le cadre d'une évaluation thématique multinationale dont les résultats pourraient être mis à profit dans le reste du monde.

Composée de cinq spécialistes internationaux et indiens, l'équipe a interrogé un grand nombre de personnes à tous les niveaux, effectué des tournées d'inspection sur le terrain, interrogé par correspondance les partenaires et les agents de l'UNICEF, et analysé un très grand nombre de documents. Ses membres ont examiné séparément les questions relevant de leurs domaines de compétence respectifs et ont également procédé à un examen collectif de questions interdisciplinaires telles que les aspects sociaux du forage de puits et de la mise au point de pompes à main. Deux spécialistes locaux ont contribué à l'évaluation en procédant à une étude de la documentation relative à l'AEAM dans le contexte indien. L'évaluation a également profité d'une étude de l'impact des services d'AEAM qu'un institut indien a réalisée avec la participation des bénéficiaires au Rajasthan et au Tamil Nadu.

En consultation avec UNICEF-Inde, l'EPP a créé un groupe consultatif national chargé d'épauler l'équipe dans son travail. Présidé par le directeur de la Mission nationale d'approvisionnement en eau potable Rajiv Gandhi (MNAEPRG), ce groupe comprenait également des représentants du Panchayati Raj, d'organisations non gouvernementales (ONG), d'organismes donateurs, d'organismes des

Nations Unies et d'un Institut de recherche indien. Les conclusions préliminaires de l'évaluation ont été présentées lors d'un atelier qui s'est tenu à New Delhi en avril 1999 et a rassemblé un large éventail de participants s'occupant du secteur de l'approvisionnement en eau et de l'assainissement.

Pour analyser cette évaluation du programme d'AEAM de l'UNICEF, il est bon de garder trois éléments à l'esprit. En premier lieu, étant donné l'ampleur d'un programme étalé sur 30 ans et le fait qu'elle avait tout à apprendre sur ce programme, l'équipe peut ne pas avoir pris pleinement conscience de l'importance relative de certaines questions, à la différence des personnes disposant d'une expérience plus longue du secteur de l'AEAM en Inde. Ensuite, la longueur de la période considérée a posé des problèmes particuliers, qui tenaient soit aux pertes inévitables dues au "nettoyage" des vieux dossiers, soit au fait que certaines informations, telles que les données relatives aux coûts, pouvaient ne jamais avoir été rassemblées. Enfin, l'exécution des activités d'AEAM relève pour l'essentiel non pas de l'UNICEF, mais des départements de génie sanitaire (ou organisations équivalentes) du Gouvernement indien et des États. Il faut en être bien conscient lorsqu'on évalue l'influence que l'UNICEF peut réellement exercer sur le terrain.

Principales conclusions

Approvisionnement en eau

Étant donné que l'approvisionnement en eau a précédé la promotion de l'assainissement et de l'hygiène dans les préoccupations du Gouvernement indien et que celui-ci a mis de bonne heure l'accent sur le premier, l'équipe d'évaluation a pu constater que nombre de réalisations tangibles et durables de l'UNICEF en matière d'AEAM concernent l'approvisionnement en eau des zones rurales. Toutefois, il reste à garantir en permanence la qualité de la construction et de la remise en état des puits et de la fabrication des pompes à main. De nouvelles tâches sont imposées par le panachage des approvisionnements mettant en œuvre différents mécanismes institutionnels au niveau communautaire et la nécessité d'améliorer la gestion des ressources en eau et la qualité de l'eau.

- Le taux de couverture de l'approvisionnement en eau a beaucoup augmenté en 30 ans, pour atteindre 95% de la population indienne. Toutefois, *l'équilibre entre les progrès réalisés dans le domaine de l'approvisionnement et la qualité de celui-ci pose des problèmes.* Étant donné l'envergure et la diffusion du programme d'approvisionnement en eau et le fait qu'il est exécuté à l'initiative de l'offre, il est inévitable que l'amélioration quantitative des approvisionnements se fasse dans une certaine mesure aux dépens de l'amélioration de la qualité des pratiques de construction. Sachant qu'il est difficile de contrôler comme il se doit un programme de cette ampleur, l'UNICEF a appuyé la conception et l'adoption d'un modèle de puits et de techniques de mise en œuvre normalisés, ce qui a permis d'aboutir à des normes minimales acceptables. S'agissant de l'assurance de la qualité de la fabrication des pompes à main, les changements de direction ont abouti à une application moins stricte des procédures d'assurance de la qualité, ce qui s'est traduit par une diminution de la qualité des pompes et des pièces de rechange.
- Parmi les succès de l'UNICEF figurent les contributions dans les domaines du *forage* et de la *fabrication des pompes à main,* qui ont été rendues possibles par une volonté nettement affirmée d'améliorer la qualité dans la longue durée. *L'équipe d'évaluation a jugé appropriées et rentables les technologies et approches retenues,* encore que l'absence de documents ne lui ait pas permis de faire un travail rigoureux de vérification sur ce point. Les systèmes d'information de gestion (SIG) pourraient renseigner utilement sur la faisabilité technique et financière des différentes options en matière d'approvisionnement en eau, mais l'UNICEF n'a pas utilisé les SIG à cette fin.

- Les *ressources indiennes en eaux souterraines* sont menacées, mais le rôle le plus approprié que l'UNICEF pourrait jouer pour les protéger n'a pas encore été défini. *L'UNICEF peut assurément jouer son rôle de porte-parole, mais il doit demeurer réaliste en ce qui concerne ses capacités techniques et s'employer plutôt à s'associer avec d'autres entités possédant des compétences mieux affirmées dans ce domaine complexe.*

- La *gestion communautaire de l'approvisionnement en eau* peut alléger les énormes dépenses publiques de fonctionnement et d'entretien, mais *cet objectif ne pourra être réalisé que moyennant l'exécution et l'évaluation de nombreuses activités pilotes judicieusement choisies.*

Assainissement du milieu

L'assainissement du milieu n'étant soutenu par l'UNICEF que depuis les années 80, les résultats enregistrés dans ce domaine ne peuvent être les mêmes que pour le taux de couverture de l'approvisionnement en eau. Vingt-six pour cent seulement de la population indienne (urbaine et rurale) bénéficient de ce que le Gouvernement indien considère comme une couverture suffisante.

- *L'UNICEF a joué un rôle de premier plan pour réduire la place des méthodes d'assainissement tenant du rafistolage* au profit d'un ensemble de services qui combine la construction des latrines et des activités intéressant l'hygiène et la santé, et pour abandonner les subventions à 100% à la construction au profit de subventions partielles en fonction de la demande.

- Au cours des 15 ou 20 dernières années, *l'assainissement a donné lieu à des activités prometteuses qu'il n'a pas été possible de pérenniser.* C'est le cas des latrines à double fosse à chasse d'eau manuelle, recommandées par l'UNICEF et d'autres à la fin des années 80. Il convient de rendre hommage à l'UNICEF qui a eu le courage de procéder à des essais et a été assez perspicace pour en comprendre la nécessité. *Certaines approches ont été jugées "concluantes" trop hâtivement* tant au sein de l'UNICEF que du Gouvernement indien, qui espéraient formuler une stratégie de mise à l'échelle comme il avait été fait pour l'approvisionnement en eau des zones rurales.

Aspects sociaux des services d'AEAM

L'UNICEF a pris conscience de très bonne heure que l'utilisation et la durabilité des systèmes ne peuvent être assurées que si les progrès techniques sont étroitement associés à la participation des bénéficiaires. outefois, on n'est pas encore passé à une approche systémique qui permette aux communautés de gérer et d'entretenir leurs propres programmes d'approvisionnement en eau, d'assainissement et d'hygiène avec un appui minimal ou nul du gouvernement.

- *Les activités existantes, et en particulier les matériels d'information, d'éducation et de communication (IEC) et les contacts interpersonnels, donnent généralement satisfaction.* Toutefois, l'UNICEF pourrait faire un meilleur usage de ses ressources pour procéder à des essais préliminaires des matériels d'IEC et en focaliser les messages, puisque les services de l'administration locale, les ONG et le secteur privé ont les capacités voulues pour les produire.

- L'UNICEF a bien conscience que la problématique hommes-femmes n'est pas absente du secteur de l'eau et de l'assainissement, mais *il est rare de voir formuler et appliquer des stratégies véritablement attentives aux besoins des femmes.*

- D'autres approches – telles que les communications de santé publique, la gestion communautaire et l'action communautaire de convergence (ACC) – peuvent être des moyens plus rentables de faciliter le changement, mais *ces approches nouvelles n'ont pas encore été suffisamment testées par l'UNICEF dans le cadre des activités d'AEAM menées en Inde.*

Rapport coût-efficacité

L'UNICEF a manifestement pris les coûts en considération pendant toutes ces années, mais le rapport coût-efficacité n'a pas fait systématiquement partie intégrante du processus décisionnel. Qui plus est, la pénurie de documents ne permet pas de procéder à une évaluation rigoureuse du rapport coût-efficacité.

- À l'aide des données actuellement disponibles sur les coûts de revient, par habitant et par mètre cube, des pompes à main et des pompes électriques rapportés au nombre de puits, l'équipe a calculé que *les pompes à main devraient être les plus rentables par personne pour les communautés de moins de 4 500 habitants.*

- En outre, les bilans plus qualitatifs paraissent dans l'ensemble confirmer la thèse selon laquelle *les décisions fondamentales concernant le choix des technologies d'approvisionnement en eau semblent avoir été judicieuses.*

Conséquences sur les femmes, les hommes et les enfants des zones rurales

S'efforçant de distinguer les effets directs des activités d'AEAM de l'UNICEF de leurs effets indirects par le biais de la collaboration avec le Gouvernement indien, l'équipe d'évaluation a sollicité les vues des utilisateurs ruraux. Elle a pu constater certaines améliorations dans les districts bénéficiant d'un appui de l'UNICEF. Dans la mesure où les activités dont le Fonds avait posé les premiers jalons ont invariablement été reprises par le Gouvernement indien, les différences entre les deux types de districts pourraient avoir été plus marquées au départ que par la suite.

- *Les villages associés aux activités de l'UNICEF ont signalé une utilisation de l'eau plus importante et une meilleure hygiène* que les villages qui n'avaient accès qu'aux services fournis par le Gouvernement indien.

- *Les femmes vivant dans les districts bénéficiant d'un appui de l'UNICEF connaissaient mieux et utilisaient davantage la thérapeutique de réhydratation orale (TRO)* pour lutter contre les maladies diarrhéiques.

- *Certaines améliorations de la situation sanitaire et sociale générale* ont été constatées par les villages associés aux activités de l'UNICEF. Il s'agit en particulier d'une amélioration de l'instruction, et notamment d'une augmentation du nombre des filles scolarisées; d'une amélioration des établissements de santé; et d'une diminution des contraintes imposées aux femmes dans les communautés moins conservatrices.

Organisation et gestion de l'UNICEF

L'efficacité des activités d'AEAM de l'UNICEF dépend largement de son organisation et de sa gestion.

- *La structure décentralisée d'UNICEF-Inde et le dévouement de son personnel sont remarquables.* Néanmoins, le dosage des compétences du personnel (compte tenu en particulier de la nécessité de se concentrer sur les questions comportementales et institutionnelles) et le volume de travail de ce personnel sont des questions préoccupantes.

- La pratique suivie par plusieurs bureaux extérieurs consistant à "partager" les spécialistes de la programmation entre les secteurs (par exemple, l'AEAM et la santé) pourrait avoir conduit à *ne pas accorder suffisamment d'attention aux subtilités sociales de l'AEAM.*

- Le montant effectif des dépenses est difficile à préciser, mais *l'enveloppe budgétaire AEAM allouée à la programmation (environ 10% du total) semble mince* pour une organisation qui affirme vouloir donner plus d'importance aux aspects sociaux dans le cadre de ses politiques et stratégies.

- *Les études sur le terrain n'ont pas été conçues pour comparer des approches ou évaluer systématiquement un impact.* On pourrait avoir davantage recours à ces études pour définir un ensemble de critères d'évaluation des résultats, se concentrer sur des comparaisons plus significatives et accorder une place plus grande à l'analyse des données qu'à leur présentation. En utilisant davantage les méthodes de recherche participatives, on pourrait dégager un tableau plus complet des comportements locaux en matière d'AEAM et des incidences des programmes de l'UNICEF et du Gouvernement indien sur ces comportements.

Partenariats

- Le personnel de l'UNICEF, les partenaires et l'équipe d'évaluation s'accordent à reconnaître que *la collaboration que l'UNICEF apporte depuis 30 ans au GI a renforcé l'accessibilité et la crédibilité du Fonds.* La durée de l'engagement et le style de collaboration étroite contribuent à l'efficacité de cette relation.

- Les partenaires considèrent que *l'appui institutionnel, en particulier la formation et la mise en commun de l'information, représente la plus importante contribution de l'UNICEF au renforcement de leurs capacités.*

Orientations pour l'avenir

Sur quoi l'UNICEF devrait-il faire porter ses activités futures en matière d'AEAM et par le biais de quels mécanismes ? Les partenaires, le personnel et l'équipe d'évaluation ont été unanimes à considérer que l'UNICEF devrait se concentrer sur un plus petit nombre de domaines d'activité au lieu de trop disperser ses efforts.

- *Tous les partenaires interrogés estimaient que la santé et l'hygiène sont les deux domaines les plus importants pour le programme d'AEAM.* L'approvisionnement en eau des zones rurales et l'assainissement ont également été jugés importants, encore que cette opinion ait été fonction de l'expérience des partenaires. La plupart des partenaires ont considéré que l'UNICEF ne devrait pas accorder la priorité à la construction de latrines, au contrôle de la qualité de l'eau et aux services urbains.

- *Les membres du personnel interrogés étaient d'avis que l'hygiène et l'assainissement étaient les domaines les plus appropriés pour les activités futures de l'UNICEF.* Ils sont moins enclins que les partenaires à considérer que l'approvisionnement en eau des zones rurales revêt un rang de priorité élevée et estiment généralement que les services urbains sont un domaine d'activité approprié pour l'UNICEF.

- Les partenaires et le personnel sont convenus que les *deux mécanismes essentiels que l'UNICEF devrait utiliser à l'appui de ces domaines d'activité sont la formulation de nouvelles approches et le renforcement des capacités* par le biais de la formation et d'autres activités. Les partenaires ajoutaient plus volontiers le financement direct et le personnel les activités de plaidoyer. Les membres des deux groupes pour lesquels l'exécution directe était l'activité d'AEAM de l'UNICEF la plus appropriée étaient très peu nombreux.

Recommandations

Les conclusions de l'évaluation ont amené l'équipe à recommander à l'UNICEF :

- *de concentrer ses efforts sur les domaines dans lesquels il dispose d'un avantage comparatif,* tels que l'assainissement et la promotion de l'hygiène. C'est dire que le Fonds devrait abandonner la direction de certains domaines importants, tels que le contrôle de la qualité de l'eau et les services d'AEAM dans les zones urbaines, à d'autres organisations et apporter sa contribution par le biais de la collaboration et de partenariats.

- *de réduire ses activités dans le domaine de l'approvisionnement en eau des zones rurales.* L'UNICEF peut toujours jouer un rôle utile dans ce domaine en concentrant son intervention sur des priorités liées à l'accès universel à l'eau salubre et son utilisation durables et fiables aux fins de la consommation et de l'hygiène. L'UNICEF pourrait formuler une stratégie en vue de la gestion communautaire intégrée d'un ensemble évolutif de types d'approvisionnement en eau et de niveaux de services. Un autre domaine prioritaire touche à la nécessité de maintenir la qualité de la construction des puits et de la fabrication des pompes à main. Toutefois, les capacités du Gouvernement indien ayant été considérablement renforcées ces dernières décennies, l'UNICEF devrait limiter son rôle global dans le domaine de l'approvisionnement en eau des zones rurales, ce qui lui permettrait de libérer des ressources.

- *d'accorder un rang de priorité plus élevé à l'assainissement et à l'hygiène.* L'UNICEF doit dégager des ressources suffisantes à l'appui de son intention déclarée de renforcer les activités dans les domaines de l'assainissement et de l'hygiène. Il devrait continuer de soutenir la construction de latrines plus économiques et d'autres approches pilotes.

- *de consolider ses partenariats* en collaborant plus étroitement avec un nombre plus limité de partenaires. S'il décide de s'occuper d'un plus petit nombre de questions, l'UNICEF sera amené à travailler avec un plus petit nombre de partenaires. Il pourra ainsi nouer des relations plus solides avec eux.

- *de modifier son système de dotation en personnel et de perfectionnement du personnel* de façon à pouvoir compter sur un personnel pouvant s'occuper des aspects sociaux et institutionnels de l'AEAM. L'UNICEF doit se demander si son personnel possède les compétences voulues pour exécuter ces tâches nouvelles et s'assurer que son volume de travail n'est pas de nature à en compromettre la qualité.

- *de relever les défis de la décentralisation,* qui ouvre de nouvelles perspectives aux services gérés par les collectivités. Le Gouvernement indien et les organismes d'appui extérieur doivent élaborer des directives et cadres d'AEAM et s'entendre sur des objectifs et indicateurs communs dans le cadre d'approches qui sont à tous autres égards spécifiques aux situations locales, puis se rencontrer régulièrement pour comparer les progrès accomplis et les résultats obtenus. L'UNICEF est sans doute particulièrement bien placé pour mettre sur pied et faciliter un tel partenariat.

- *d'améliorer le suivi et l'évaluation* des projets et des nouvelles stratégies. Les améliorations suivantes sont recommandées : définition plus précise de la portée à donner aux études d'évaluation; collaboration plus étroite avec les entités participant aux études; et définition plus précise des résultats, objectifs et critères de succès au stade de la planification des projets.

- *de réunir et d'utiliser les données relatives aux coûts.* Les données relatives aux coûts sont nécessaires mais non disponibles dans les domaines suivants : techniques de forage et d'entretien des puits; techniques d'assainissement et promotion de ce dernier; et approches retenues pour modifier les comportements. Il est sans doute trop tard pour évaluer les décisions passées, mais les données rassemblées aujourd'hui et à l'avenir peuvent être d'un grand secours pour le programme d'AEAM de l'UNICEF réalisé en Inde et dans d'autres pays.

- *de réaliser des études ciblées pour combler les lacunes au niveau de l'information et d'utiliser les résultats pour améliorer ses programmes.* Il ressort de la présente évaluation qu'il convient d'approfondir la réflexion dans les domaines suivants : analyses du rapport coût-efficacité des techniques d'entretien des puits; évaluation (à mener en coopération avec le Bureau indien de la normalisation) de la qualification et des normes des fabricants de pompes à main; pré-tests des messages d'IEC; et analyses du rapport coût-efficacité des ACC, de la commercialisation parallèle et des services gérés par les collectivités.

- *de défendre et de préserver ses acquis et la réputation bien méritée qu'il a depuis longtemps* en veillant à ce que ses programmes demeurent d'excellente qualité. C'est le sérieux de son travail depuis plus de 30 ans qui a valu à l'UNICEF cette réputation. À mesure qu'il met un terme à certaines de ses activités, il doit le faire selon des modalités qui encouragent d'autres entités à continuer de fournir à la population des services d'AEAM de bonne qualité. En œuvrant en collaboration étroite avec ses partenaires et en élaborant et essayant des approches nouvelles, l'UNICEF peut conserver ses acquis et continuer de justifier sa réputation en fournissant un appui aux services d'AEAM.

Leçons à retenir

Indépendamment des recommandations spécifiques ci-dessus, l'équipe d'évaluation a dégagé des enseignements qui s'appliquent d'une façon plus générale aux programmes de l'UNICEF.

- *Les engagements à long terme et le travail d'équipe donnent des résultats.* Le personnel de l'UNICEF, les partenaires et l'équipe d'évaluation sont unanimes à considérer qu'une collaboration de plus de 30 ans avec le GI ont valu à l'UNICEF la confiance des hauts fonctionnaires et lui permettent de jouir d'une bonne crédibilité à l'échelle de la nation, des États et des districts. L'UNICEF jouit donc d'un énorme avantage comparatif.

- *Un organisme extérieur comme l'UNICEF a les mains plus libres qu'un gouvernement pour tester des approches nouvelles.* Cette liberté relative autorise à penser que l'UNICEF peut jouer dans maints secteurs un rôle important en tant qu'organisation pouvant formuler et tester des approches nouvelles.

- *Une mise à l'échelle* ***trop*** *rapide a des conséquences néfastes.* Il est tentant de mettre à l'échelle des projets pilotes dont les résultats semblent concluants. Toutefois, dans une perspective à long terme, il vaut mieux avancer à pas comptés afin de se convaincre, en mettant en œuvre une approche systématique de mise à l'échelle progressive, qu'une stratégie prometteuse se prête bel et bien à une reproduction sur une grande échelle.

- *Les arrangements institutionnels pris aux niveaux des districts et des communautés peuvent faciliter ou entraver l'application des décisions des instances centrales.* Il est important de disposer d'un plan directeur pour avancer dans le secteur de l'AEAM, parmi bien d'autres. Cela dit, la possibilité de voir une politique mise correctement en œuvre dépend des arrangements pris sur le terrain.

- *Il importe de planifier avec rigueur une perspective tenant compte de la problématique hommes-femmes et de la pauvreté et d'en suivre systématiquement la mise en œuvre.* Même avec les meilleures intentions du monde, l'incorporation d'une telle perspective dans la participation, l'éducation et la formation ne se fera qu'en lui consacrant une attention constante et systématique.

- *Le personnel chargé des programmes doit faire preuve de réalisme en ce qui concerne le volume de travail dont il peut se charger sans sacrifier l'efficacité.* Avec de nombreuses tâches urgentes à remplir, le personnel, confronté à un très fort volume de travail, éprouve souvent des difficultés à réduire une activité ou y mettre un terme. Cela étant, il doit bien comprendre qu'en menant trop de tâches de front, il ne peut pas garantir la qualité du travail accompli, et le programme d'ensemble peut s'en ressentir.

- *Les données relatives aux coûts sont nécessaires à la réalisation d'analyses plus utiles.* Il est difficile de rassembler et de suivre ces informations relatives aux coûts, mais leur absence entrave la réalisation d'analyses du rapport coût-efficacité, lesquelles, surtout à une époque de ressources limitées et de plus grande responsabilité, sont indispensables à la prise de décisions.

Resumen Ejecutivo

El UNICEF considera los servicios de agua y saneamiento cruciales en su mandato para promover la supervivencia, la protección y el desarrollo del niño. El programa de agua y saneamiento ambiental en la India no sólo es el que más tiempo lleva en aplicación sino también el programa de agua y saneamiento ambiental más importante de los que el UNICEF apoya en todo el mundo. El respaldo del UNICEF a las actividades del Gobierno de la India, dirigidas a mejorar la cobertura del abastecimiento de agua, comenzó a mediados del decenio de 1960 como respuesta a las situaciones de emergencia ocasionadas por la sequía. El UNICEF comenzó a apoyar las actividades en materia de saneamiento a principios del decenio de 1980.

Aunque el monto del apoyo financiero del UNICEF en relación con el total del gasto público es pequeño, el UNICEF ha desempeñado una función importante y catalizadora a la hora de crear, probar y promover cambios tecnológicos e institucionales fundamentales, que han influido en las políticas y prioridades de inversión del gobierno dirigidas a ampliar los servicios de agua y saneamiento entre la población india. Estas consistieron en inversiones públicas a gran escala para el abastecimiento de agua y saneamiento en el ámbito rural, en la adopción de nuevas técnicas de perforación, en contribuciones para la ejecución de un acertado programa rural de abastecimiento de agua basado en bombas manuales y en el logro de aumentos exponenciales en la cobertura del abastecimiento de agua.

Sobre esta evaluación

A fin de extraer lecciones de esta rica experiencia y obtener orientaciones para futuras actividades, el UNICEF encargó una evaluación externa del programa de agua y saneamiento ambiental en la India. La evaluación fue llevada a cabo a finales de 1988 y 1999, y recibió financiación del Departamento de Desarrollo Internacional (Reino Unido), del Ministerio de Relaciones Exteriores de los Países Bajos, del Organismo de Desarrollo Internacional de Suecia, de la oficina del UNICEF en la India y de la División de Planificación, Políticas y Evaluación del UNICEF. La División ha gestionado esta evaluación como parte de una evaluación temática multinacional dirigida a extraer lecciones que puedan ser de aplicación mundial.

El equipo de cinco miembros, compuesto por expertos tanto indios como internacionales, realizó entrevistas exhaustivas a todos los niveles, llevó a cabo visitas sobre el terreno, elaboró una encuesta por correo dirigida a aliados y personal del UNICEF y revisó un sinfín de documentos. Cada miembro se ocupó de asuntos relacionados con su esfera de conocimiento especializado, pero también se unieron para examinar cuestiones interdisciplinarias, como los aspectos sociales de la perforación de pozos y el desarrollo de bombas manuales. Dos expertos locales apoyaron la evaluación mediante un examen informático de la bibliografía sobre agua y saneamiento ambiental existente en el ámbito de la India. También contribuyó a esta evaluación otra evaluación ¾que contó con la participación de los beneficiarios¾ sobre las repercusiones de los servicios de agua y saneamiento ambiental, realizada en Rajastán y Tamil Nadu por un instituto de la India.

En consultas con la oficina del UNICEF en la India, la División de Planificación, Políticas y Evaluación constituyó un grupo asesor nacional para apoyar las tareas del equipo. El grupo asesor estuvo presidido por el director de la Misión Nacional sobre el Agua Potable Rajiv Gandhi e incluyó también representantes de Panchayati Raj, organizaciones no gubernamentales y una institución investigadora de la India. Los resultados preliminares de la evaluación fueron presentados en un curso práctico

celebrado en Nueva Delhi en abril de 1999, al que asistieron numerosos participantes que desarrollan tareas relacionadas y están interesados en el sector del agua y el saneamiento.

Al examinar el programa sobre agua y saneamiento ambiental del UNICEF deberán tenerse en cuenta tres factores. En primer lugar, considerando la amplitud del programa, el hecho de que se haya aplicado durante un período de 30 años y la necesidad de estudiar el programa sobre agua y saneamiento ambiental del UNICEF de abajo a arriba, puede que el equipo no haya calibrado plenamente la importancia relativa de algunas cuestiones, al menos con la misma perspectiva de quienes tienen más dilatada experiencia en el sector del agua y el saneamiento ambiental en la India. En segundo lugar, fue especialmente problemático el amplio marco temporal, debido a la inevitable pérdida causada por la "limpieza periódica" de viejos archivos o al hecho de que, desde el principio, puede que cierta información no fuera recopilada, como los datos relativos a los costos. Por último, es el Gobierno de la India y los departamentos de ingeniería aplicada a la salud pública en el ámbito estatal u organizaciones equivalentes quienes ejecutan la mayoría de las actividades de agua y saneamiento ambiental, y no el UNICEF propiamente dicho. Ello debe tenerse en cuenta a la hora de evaluar hasta qué punto el UNICEF puede haber influido de verdad en las actividades sobre el terreno.

Resultados fundamentales

Abastecimiento de agua

Teniendo en cuenta que el abastecimiento de agua tiene un historial más prolongado (en relación con el saneamiento y la promoción de la higiene) y que el Gobierno de la India siempre hizo hincapié en la cobertura del abastecimiento de agua frente al saneamiento, el equipo de evaluación descubrió que muchos de los éxitos en materia de agua y saneamiento ambiental a largo plazo más notables del UNICEF se referían sobre todo al abastecimiento de agua en el ámbito rural. No obstante, queda todavía mucho por hacer si se quiere garantizar una calidad sostenida en la construcción y rehabilitación de pozos perforados y en la fabricación de bombas manuales. La gestión de una combinación de suministros mediante una serie de mecanismos institucionales en el ámbito comunitario, así como una mejor gestión de los recursos hídricos y de la calidad del agua, siguen planteando nuevas problemáticas.

- La población a la que llega el abastecimiento de agua ha aumentado de forma muy importante durante los últimos 30 años, hasta situarse en el 95% de la población de la India. No obstante, *el equilibrio entre los logros conseguidos en cuanto a cobertura y los logrados en calidad es precario.* Considerando la magnitud y la difusión del programa de abastecimiento de agua así como el hecho de que su ejecución haya estado centrada en el abastecimiento, es inevitable que exista un cierto compromiso entre la cantidad y los requisitos de calidad que exigen las prácticas adecuadas de construcción. Reconociendo la dificultad que supone proporcionar una supervisión eficaz a un programa tan amplio, el apoyo del UNICEF para el desarrollo y la adopción de procedimientos estandarizados de diseño y ejecución de pozos perforados ha ayudado a lograr un mínimo de calidad aceptable. En cuanto a la garantía de calidad en la fabricación de bombas manuales, el cambio de responsabilidad ha hecho que el cumplimiento de los procedimientos de garantía de calidad se haya relajado, en perjuicio de la calidad de las bombas manuales y los repuestos.

- Entre los éxitos del UNICEF se cuentan sus contribuciones en materia de *perforación y en la fabricación de bombas manuales,* que se debieron a su inquebrantable compromiso con la calidad a largo plazo. *El equipo de evaluación consideró que la elección de la tecnología y los enfoques era apropiada y eficaz en cuanto a los costos,* aunque una cierta falta de documentación impidió al equipo verificar con rigor este último punto. Los sistemas de información de gestión pueden proporcionar datos útiles sobre viabilidad técnica y financiera de diversas opciones de abastecimiento de agua, pero el UNICEF no los ha utilizado para este fin.

- Los recursos hídricos subterráneos de la India están en peligro, pero la función más adecuada que puede desempeñar el UNICEF en su defensa sigue sin estar definida. *El UNICEF puede, desde luego, desempeñar su función de promotor de derechos, pero debe ser realista en cuanto a su capacidad técnica y, a cambio, asociarse con otros grupos que cuenten con mayores conocimientos técnicos en esta compleja esfera.*

- *La gestión del abastecimiento de agua de base comunitaria* puede suponer un alivio para los enormes gastos públicos de funcionamiento y mantenimiento, pero *deben hacerse todavía muchos trabajos y evaluaciones de carácter experimental antes de que ese objetivo sea una realidad.*

Saneamiento ambiental

Con un historial que se remonta tan sólo al decenio de 1980, el saneamiento ambiental no ha arrojado los mismos resultados que la cobertura en el abastecimiento de agua. Sólo alrededor del 26% de la población total (urbana y rural) tienen lo que el Gobierno de la India considera una cobertura adecuada.

- *El UNICEF ha adoptado una función rectora* al abandonar un criterio meramente técnico con relación al saneamiento y adoptar un "conjunto" de servicios que combina la construcción de letrinas con actividades en materia de higiene y salud, y descartar los subsidios plenos para la construcción a cambio de subsidios parciales basados en la demanda.

- Durante los últimos 15 o 20 años, en el ámbito del *saneamiento se han realizado diversas actividades que han demostrado no ser sostenibles a largo plazo,* como la letrina de sifón provista de pozos gemelos, demasiada costosa, que el UNICEF y otros promovían a finales del decenio de 1980. El UNICEF es digno de elogio por haber tenido el valor de experimentar y por la visión de futuro que ha demostrado al considerar que la experimentación era necesaria Tanto dentro del UNICEF como en el Gobierno de la India *se dio por seguro demasiado rápidamente el "éxito" de algunos enfoques,* porque se albergaba la esperanza de encontrar una estrategia que pudiera aplicarse gradualmente en otros planos, de la misma forma que se había hecho con respecto al abastecimiento de agua.

Aspectos sociales de los servicios de agua y saneamiento

Desde el primer momento, el UNICEF se dio cuenta de que las mejoras tecnológicas debían combinarse plenamente con la participación del usuario si se quería que los sistemas fueran plenamente utilizables y sostenibles. No obstante, todavía no se ha logrado modificar el enfoque adoptando otro distinto, basado en los sistemas, que permita a las comunidades gestionar y sostener sus propios programas de servicios de agua, saneamiento e higiene sin contar con el apoyo, mínimo o continuo, del gobierno.

- *Las actividades que se llevan a cabo en la actualidad, inclusive los materiales de información, educación y comunicación y los contactos interpersonales, son en general satisfactorias.* No obstante, el UNICEF podría utilizar mejor sus recursos para experimentar previamente sus materiales de información, educación y comunicación y afinar sus mensajes, puesto que los departamentos gubernamentales locales, las organizaciones no gubernamentales y el sector privado tienen capacidad para producirlos.

- Aunque el UNICEF reconoce que el género es un factor en el abastecimiento de agua y saneamiento, *rara vez se diseñan y ejecutan estrategias genuinamente sensibles con respecto del género.*

- Otros enfoques – como las comunicaciones en materia de salud pública, la gestión comunitaria y la Acción Comunitaria Convergente – pueden ser medios más eficaces de conseguir el cambio, pero *el UNICEF no ha experimentado suficientemente estos nuevos enfoques en las actividades en materia de agua y saneamiento ambiental en la India.*

Eficacia en función de los costos

Aunque el UNICEF, a lo largo de los años, ha tenido presentes los costos, la eficacia en función de los costos no ha sido un factor que se haya tenido en cuenta de forma sistemática en la adopción de decisiones. Además, la falta de documentación hace que la evaluación rigurosa de la eficacia en función de los costos sea imposible.

- Utilizando los datos de los que se dispone en la actividad sobre los costos per cápita y por metro cúbico de las bombas manuales y las bombas eléctricas en las perforaciones, el equipo consideró que, *en comunidades de menos de 4.500 habitantes, las bombas manuales deberían ser las más eficaces en función de los costos, atendiendo a un criterio per cápita.*

- Además, las evaluaciones más cualificadas generalmente apoyan la opinión de que *las decisiones fundamentales en cuanto a la selección de la tecnología de abastecimiento de agua parecen haber sido las más adecuadas.*

Repercusiones sobre las mujeres, los hombres y los niños del medio rural

A fin de tratar de separar la repercusión directa de las actividades del UNICEF en materia de agua y saneamiento, frente a la repercusión indirecta sustantiva lograda a través de su colaboración con el Gobierno de la India, el equipo de evaluación pidió la opinión de los usuarios rurales. Estos consideraron que había habido algunas mejoras en los distritos apoyados por el UNICEF. Como las actividades pioneras del UNICEF fueron invariablemente adoptadas por el Gobierno de la India, las diferencias entre los dos tipos de distritos puede que hayan sido mayores al principio que con el paso del tiempo.

- *Los pueblos que participaron en actividades del UNICEF informaron que había un mayor uso de agua y que la higiene era mejor* que en los pueblos que disponían tan sólo de servicios del Gobierno de la India.

- *Las mujeres de los distritos que contaron con el apoyo del UNICEF demostraron tener un mayor conocimiento de las técnicas de rehidratación oral* para combatir las enfermedades diarreicas.

- En pueblos que participaron en actividades del UNICEF se observaron *algunas mejoras en la salud general y en las condiciones sociales.* Las mejoras consistieron en una mejor educación, con más niñas escolarizadas; mejores instalaciones de atención de la salud y una menor restricción de las condiciones de vida de la mujer en comunidades menos conservadoras.

Organización y gestión del UNICEF

La eficacia del UNICEF en sus actividades en materia de agua y saneamiento depende, en gran parte, de su organización y gestión.

- *La estructura descentralizada de la oficina del UNICEF en la India y la dedicación de su personal son impresionantes.* No obstante, la mezcla de personal con diferente grado de cualificación (especialmente teniendo en cuenta la necesidad de concentrarse en cuestiones de comportamiento e institucionales) y la carga de trabajo que recae sobre el personal son asuntos que preocupan.

- La práctica, en varias oficinas sobre el terreno, de "compartir" profesionales de programación informática entre los sectores (por ejemplo, en agua y saneamiento ambiental) puede haberse traducido en *una insuficiente atención a las complejidades sociales que entraña el agua y el saneamiento ambiental.*

- Si bien los gastos reales son difíciles de rastrear, *el presupuesto para agua y saneamiento ambiental asignado a programas informáticos (aproximadamente el 10% del total) parece escaso* para una organización que asevera que está modificando su enfoque hacia los aspectos sociales de sus políticas y estrategias.

- *No se han elaborado los estudios sobre el terreno que permitan comparar enfoques o evaluar las repercusiones de forma sistemática.* Ejemplos de cómo se podría aumentar la utilización de esos estudios podrían incluir la formulación de un conjunto de criterios comunes con los que medir los resultados, centrándose en las comparaciones más significativas, y ciñéndose más a los análisis de datos y menos a la presentación de los mismos. Un mayor uso de métodos de investigación participativos podría también arrojar una visión más completa de las conductas locales en materia de agua y saneamiento ambiental y de los efectos que los programas del UNICEF y del Gobierno de la India tienen en esas conductas.

Asociaciones

- El personal, los aliados y el equipo de evaluación del UNICEF están de acuerdo en que *la dilatada asociación del UNICEF con el Gobierno de la India durante los últimos treinta años ha mejorado sobremanera su acceso y credibilidad.* La duración del compromiso, así como la modalidad de dicha colaboración, contribuyen a la eficacia de la relación.

- Los aliados consideran *el apoyo institucional, especialmente la capacitación y la puesta en común de la información, la mayor contribución del UNICEF a su propia capacidad.*

Direcciones futuras

¿Cómo debería el UNICEF centrar sus actividades futuras en materia de agua y saneamiento ambiental y por qué mecanismos? Hubo un acuerdo generalizado entre los aliados, el personal y el equipo de evaluación de que el UNICEF debería centrarse en menos esferas temáticas, en lugar de abordar demasiados ámbitos de manera poco profunda.

- *Todos los aliados consultados consideraron que la salud y la higiene son las esferas temáticas más importantes para el programa en materia de agua y saneamiento ambiental.* El abastecimiento de agua y el saneamiento rurales se consideraron también importantes, si bien esta opinión dependió de los antecedentes del aliado en cuestión. La mayoría de los aliados consideraron que el UNICEF no debería conceder prioridad absoluta a la mera construcción de letrinas, al control de la calidad del agua y a los servicios urbanos.

- *El personal consultado fue de la opinión de que la higiene y el saneamiento son dos esferas que corresponden mejor a las actividades del UNICEF con miras al futuro.* Están menos inclinados que los aliados a considerar el abastecimiento de agua rural una prioridad absoluta y tienden más a pensar que los servicios urbanos son una esfera más propia del UNICEF.

- Los aliados y el personal coincidieron en que los *dos mecanismos fundamentales que el UNICEF debería utilizar para apoyar estas esferas son el desarrollo de nuevos enfoques y la creación de capacidad* mediante la capacitación y otras actividades. Los aliados se referían a la financiación directa; el personal citaba la promoción de derechos con mayor frecuencia. Muy pocos, en ninguno de los dos grupos, apoyaban la ejecución directa como la actividad más apropiada del UNICEF en materia de agua y saneamiento ambiental.

Recomendaciones

Los resultados de la evaluación aconsejaron al equipo recomendar que el UNICEF:

- *centre sus actividades en esferas en las que tiene una ventaja comparativa,* como el saneamiento y la promoción de la higiene. Ello supone que el UNICEF debería dejar la dirección de algunas esferas importantes, como la supervisión de la calidad del agua y los servicios urbanos en materia de agua y saneamiento ambiental, a otras organizaciones y, a cambio, contribuir mediante acuerdos de colaboración y asociación.

- *reduzca sus tareas con relación al abastecimiento de agua en la esfera rural.* El UNICEF todavía puede desempeñar una función útil en relación con el abastecimiento de agua en el plano rural, concentrándose en prioridades relacionadas con el acceso universal sostenido y fiable, el uso de agua segura para el consumo y la disponibilidad de suficiente agua para la higiene. El UNICEF podría desarrollar una estrategia para la gestión comunitaria integrada de un conjunto cambiante de tipos de abastecimiento de agua y niveles de servicios. Otra esfera de prioridad que queda es garantizar una calidad continua en la construcción de pozos y la fabricación de bombas manuales. No obstante, habiendo aumentado notablemente la capacidad del Gobierno de la India durante los últimos decenios, el UNICEF debería limitar su función global en relación con el abastecimiento de agua en el ámbito rural y liberar recursos.

- *convierta en prioridades el saneamiento y la higiene.* El UNICEF debe asignar recursos suficientes para apoyar su compromiso declarado de aumentar sus actividades en materia de saneamiento e higiene. Debería continuar apoyando opciones de letrinas más asequibles y otros enfoques de carácter experimental.

- *refuerce sus acuerdos de asociación* trabajando con menos aliados, si bien más estrechamente. Si el UNICEF trabaja en menos cuestiones, lo hará con un conjunto menor de aliados. Esto podrá quizás crear relaciones más fuertes.

- *modifique su sistema de dotación de personal y de desarrollo del personal* para asegurarse de que se abordan adecuadamente los aspectos sociales e institucionales relacionados con el agua y saneamiento ambiental. El UNICEF debe considerar si el personal tiene los conocimientos técnicos apropiados para hacer frente a estos nuevos desafíos y si dicho personal no debe soportar una carga de trabajo excesiva, lo que puede poner en peligro la calidad.

- *haga frente a los problemas derivados de la descentralización,* que ofrece nuevas oportunidades de servicios gestionados en el ámbito comunitario. El Gobierno de la India y los organismos de apoyo externo deben desarrollar directrices y marcos generales en materia de agua y saneamiento ambiental y acordar objetivos e indicadores comunes en enfoques que de otra forma serían específicos en el ámbito local, y después reunirse con carácter sistemático para comparar los progresos y los resultados. El UNICEF puede gozar de una situación ventajosa para desarrollar y facilitar dicha asociación.

- *mejore la supervisión y evaluación* de proyectos y estrategias alternativas. Entre las mejoras recomendadas están una especificación más clara de los estudios de evaluación; una mayor asociación con quienes participan en los estudios, y la formulación, cuando se planifican los proyectos, de unos resultados, objetivos y criterios para medir el éxito más claros.

- *recopile y utilice datos sobre costos.* Algunas de las esferas en las que se necesitan datos sobre costos, pero estos no existen, son la tecnología de perforación y mejora de pozos, la tecnología y la promoción del saneamiento y enfoques que favorezcan el cambio conductivo. Puede que sea demasiado tarde para evaluar decisiones del pasado, pero los datos recopilados ahora y en el futuro pueden ayudar enormemente al programa sobre agua y saneamiento ambiental del UNICEF en la India y en otros países.

- *emprenda estudios centrados que permitan llenar algunos vacíos informativos y utilizar sus resultados para mejorar los programas.* Según esta evaluación, entre los temas en los que se debe profundizar el estudio están los análisis de los costos de las técnicas de mejora de pozos; la evaluación (junto con la Oficina de Normativas de Calidad de la India) de la cualificación y normativas de calidad de los fabricantes de bombas manuales; la experimentación previa de los mensajes sobre información, educación y comunicación y los análisis de eficacia en función de los costos de la acción comunitaria convergente, la comercialización social y los servicios gestionados en el ámbito de la comunidad.

- *proteger y preservar su legado y su reputación, tan dilatados y merecidos,* asegurando que la calidad de su programa sigue siendo excelente. El UNICEF se ha ganado su reputación trabajando de firme a lo largo de más de treinta años. Al retirarse de algunas de sus actividades, debe hacerlo de forma que aliente a otros a seguir prestando a la población servicios en la esfera del agua y el saneamiento ambiental. Trabajando estrechamente con aliados y desarrollando y experimentando nuevos enfoques, el UNICEF puede mantener sus logros y conservar su legado y reputación, ganados con esfuerzo, en relación con la prestación de servicios de agua y saneamiento ambiental.

Lecciones aprendidas

Además de las recomendaciones específicas mencionadas *supra*, el equipo de evaluación hizo acopio de lecciones que pueden aplicarse de forma más general a los programas del UNICEF.

- *El compromiso y la asociación de largo plazo dan resultados.* El personal del UNICEF, los aliados y el equipo de evaluación estuvieron de acuerdo en que el UNICEF se ha ganado la confianza y la fe de los funcionarios superiores y la credibilidad en los planos nacional, estatal y de distrito en sus relaciones con el Gobierno de la India a lo largo de más de treinta años. Esto otorga al UNICEF una tremenda ventaja comparativa.

- *Un organismo externo como el UNICEF tiene mayor libertad que un gobierno para experimentar nuevos enfoques.* Esta libertad relativa parece indicar que el UNICEF tiene una función importante en muchos sectores, en su calidad de organización que puede preparar y experimentar nuevos enfoques.

- *Aplicar los programas a gran escala excesivamente rápido tiene repercusiones adversas.* Ampliar sobre la base de proyectos que parecen exitosos es tentador. Sin embargo, a la larga, es mejor moverse despacio para averiguar, mediante un enfoque sistemático que se vaya ampliando de forma gradual, si una estrategia prometedora puede realmente reproducirse a una escala mayor.

- *Los acuerdos institucionales a escala de distrito y comunitario pueden ayudar u obstaculizar la aplicación de decisiones adoptadas de forma centralizada.* Para avanzar la esfera del agua y el saneamiento ambiental, y en otros muchos sectores, es importante disponer de un marco político nacional favorable. No obstante, lo que sucede sobre el terreno determinará el grado de probabilidad de que una política se aplique de forma exitosa.

- *Es necesario planear de forma consciente una perspectiva de género y un enfoque relativo a la pobreza, y supervisar su ejecución sistemática.* Incluso con las mejores intenciones, la incorporación de una perspectiva semejante en la participación, la educación y la capacitación no tendrá lugar si no se presta una atención deliberada y continua.

- *El personal del programa debe ser realista sobre la cantidad de trabajo que puede asumir sin perder eficacia.* Con muchas tareas apremiantes por delante, el personal dedicado a menudo debe arrimar el hombro para sacar adelante grandes cantidades de trabajo y luego resultarle difícil reducir o terminar una actividad. No obstante, el personal debe asumir que si tiene mucho trabajo por hacer, es muy posible que no consiga seguir sacándolo adelante con un buen nivel de calidad, lo que repercutirá en la totalidad del programa.

- *Se necesidad datos sobre costos para realizar análisis más eficaces.* Es difícil recopilar y rastrear esta información sobre costos. Sin embargo, la ausencia de dichos datos dificulta al análisis sobre la eficacia en función de los costos, necesario para la elaboración de políticas, especialmente en una época en la que los recursos son limitados y se exige una mayor rendición de cuentas.

1 Introduction

Why Evaluate the UNICEF WES Programme in India?

UNICEF considers water and environmental sanitation (WES) crucial to its mandate to promote the survival, protection and development of children. Over the years, UNICEF has made water and sanitation one of its largest programme investments. UNICEF support to water and sanitation started in India in the mid-1960s in response to drought emergencies. Since then, UNICEF has assisted many governments to move towards universal access to safe water supply and sanitation services as a basic right, in line with the goals of the World Summit for Children. It has also promoted the behavioural changes essential to realising the full benefits from such services, especially for those most in need.

India has UNICEF's longest-running and one of its most prominent WES programmes. Drinking water supply and more recently environmental sanitation have remained high on the political agenda of successive Indian governments, in spite of the changes in political affiliation at the helm. Although UNICEF funding represents only about 1 per cent of the government's total WES budget, UNICEF impact has been considerable. For example, UNICEF played a key role in the development of the India Mark II handpump, which became widely adopted throughout India and exported to other countries.

In commissioning this evaluation (see Annex 1: Terms of Reference), UNICEF wanted to glean lessons from its India WES programme experience that would benefit both the India country programme and UNICEF global work in the sector. This evaluation of the UNICEF WES programme in India is part of a multi-country thematic evaluation to draw lessons for global application. It was carried out in late 1998 and 1999 and was funded by the Department for International Development (DFID, UK); Netherlands Ministry of Foreign Affairs; Swedish International Development Cooperation Agency (Sida); UNICEF-India; and the UNICEF Division of Evaluation, Policy and Planning (EPP).

The evaluation had the following specific objectives:

- examine UNICEF's role over time, identifying lessons learned from each phase of the national WES programme;
- assess the current status of the programme: its strengths, weaknesses, achievements, failures and constraints;
- identify potential areas for future UNICEF contributions in India; and
- share lessons from India with other countries.

Key Issues

In order to meet the objectives of the evaluation, the Terms of Reference specified that the evaluation team examine the following key issues:

- *UNICEF's influence on policy, planning, programme and priorities for the national water and sanitation sector:* Have UNICEF's advocacy, pilot projects, and research and development (R&D) efforts affected the GOI's WES programmes over the years at the national and state levels? If so, how much? How did UNICEF's credibility develop in spite of its small financial contribution? What would happen if UNICEF/India withdraws its support from the water and sanitation sector?

- *Operational linkages with other sectoral programmes:* How much and how effectively have linkages been built between WES programmes and other sectoral programmes, especially health, education, environment, and nutrition?
- *Technology choice and its appropriateness and introduction strategy:* Was the choice of technology (e.g., handpumps, drilling rigs, hydrofracturing and tractor-mounted compressors) appropriate in the local context? Have innovations improved the quality of services as perceived by the users? Was the standardisation of technology, including rigs and handpumps, appropriate in the Indian context?
- *Cost-effectiveness:* How cost effective have programme interventions been?
- *Cost recovery and cost sharing:* Who pays for WES services? On what basis are those decisions made? To what degree do the cost recovery and sharing structures work?
- *Monitoring systems:* How have WES programmes been monitored? How has UNICEF's input been monitored? Has monitoring and evaluation (M&E) information been used in a timely fashion and for what purposes?
- *Stakeholder analysis:* Who have been key players in India's WES programme over the years? What have been the roles of the GOI, state governments, donors, UNICEF, private sector, international and local NGOs, and communities?
- *Funding patterns:* How has the size and patterns of UNICEF's financial input changed over the years? To what extent has UNICEF's work attracted new funding?
- *Impact:* What has been the impact, including benefits, of UNICEF's assistance? Who has benefited from the programmes, how, and by how much?
- *Sustainability:* Are national WES programmes sustainable in the areas of technology, systems, management capacity and ownership given the ever-increasing demand for both quantity and quality of services? Are programmes financially and environmentally sustainable? Was national capacity built?
- *UNICEF management:* How has the number and background of UNICEF staff changed over time? How well has staffing reflected the changing requirements of strategy and policy (e.g., shift from hardware to software, and towards decentralisation)?
- *UNICEF's future contribution:* In what direction does UNICEF need to evolve in its policy and strategies in assisting the India WES programme? What should be new directions for future contributions, if any, of UNICEF in the sector?

Methodology

To meet the objectives of the evaluation, six complementary methodologies were used:

1. *Key informant interviews* to gain more in-depth knowledge. The team interviewed current and retired government and UNICEF staff, representatives of NGOs and private entrepreneurs.
2. *Field visits* to observe current UNICEF work and discuss past and present activities with UNICEF staff, partners and users. The evaluation team collectively visited sites in eight states in three weeks.
3. *Participatory user assessment* to understand how rural users viewed the benefits and shortcomings of WES services. The assessment took place in Rajasthan and Tamil Nadu, which have a long and extensive history with UNICEF programmes and represent very different physical and socio-economic conditions. The Socio-Economic Unit Foundation, an independent institute in Kerala, conducted the assessment by comparing villages that had participated in UNICEF programmes with those that had only received GOI services. Village women, men and school children took active roles in the assessment.

4. *Mail survey* to learn the views of UNICEF partners and staff who could not be interviewed in person because of time constraints. To ensure greater objectivity, the Rajiv Gandhi National Drinking Water Mission (RGNDWM) distributed the questionnaires, and replies were anonymous. Seventy-four of 160 people responded to the survey.
5. *Desktop review,* conducted by two national consultants and an assistant, to gather extensive background information on WES programmes in the Indian context. They reviewed more than 400 UNICEF and non-UNICEF documents.
6. *Document review,* conducted by each member of the team to learn about issues relevant to his or her area of expertise. For example, the team reviewed a large number of UNICEF field studies; information, education and communication (IEC) materials; and UNICEF internal documents and monitoring reports.

The five-member evaluation team consisted of experts in the areas of handpump technology and community management; economics, finance and resource management; hydrogeology, drilling and groundwater resources; sanitation and public health; and social aspects of WES. Team members were carefully selected for their understanding of specific subject areas and their independence from the UNICEF-India programme.

To support the evaluation effort, UNICEF formed a national advisory group. The group consisted of representatives from the RGNDWM (who also chaired the group), Panchayati Raj, donor organisations, other UN agencies, NGOs and an Indian research organisation. The group contributed its expertise at all stages of the evaluation: from reviewing the Terms of Reference to providing valuable feedback on the preliminary and final results. Just as important, by being involved at these critical stages, the group increased its stake in the findings and how they might be used to improve WES programmes.

In addition to input from the national advisory group, a dissemination workshop was held in Delhi in April 1999 to present preliminary findings with a wide range of active and interested participants from the Indian water and sanitation sector.

Three factors should be kept in mind in reviewing this evaluation of the UNICEF WES programme. First, given the size of the programme, the 30-year time scale, and the need to learn about the UNICEF WES programme from the ground up, the team may not have fully appreciated the relative importance of some issues as perceived by those with longer experience in India's WES sector. Second, the long time frame was particularly problematic, given the inevitable loss to "housecleaning" of old files or the fact that information, such as cost data, may never have been collected in the first place. Finally, the GOI and the state PHEDs or equivalent organisations implement most WES activities, rather than UNICEF itself. This must be appreciated in evaluating the real scope for UNICEF to influence activities at the site level.

Organisation of the Report

This report, *Learning from Experience: Evaluation of the Water and Environmental Sanitation Programme in India, 1966–1998,* summarises the team's findings and is supplemented by comments from the national advisory group and participants at the April 1999 workshop. The report is divided into three parts:

1. **Background.** Chapters 1 and 2 establish the context of the evaluation and of UNICEF work in the sector. Annexes 1 through 3 provide more information about the evaluation itself, including the tools developed and used by the team, and Annex 4 contains the report from the desktop review.

2. **Findings.** Chapter 3 describes and evaluates rural water supply activities that UNICEF has undertaken in support of the GOI WES programme; Chapter 4, sanitation; and Chapter 5, hygiene promotion and other social aspects of WES services. These three chapters examine the *content* of UNICEF work over the past 30 years. Readers seeking more detailed information can also refer to Annexes 5 and 6 for water-related issues, Annex 7 for sanitation, and Annex 8 through 10 for IEC and other social aspects.

   The evaluation then examines the *effectiveness and impact* of these UNICEF WES activities. Chapter 6 looks at cost-effectiveness by comparing handpumps and powerpumps. Chapter 7 highlights an assessment of UNICEF impact on rural women, men and children. Chapter 8 addresses UNICEF organisation and management, such as personnel and budget issues, while Chapter 9 discusses partnerships. Annexes 11 through 13 provide greater detail on the cost-effectiveness analysis, the impact assessment and UNICEF expenditures.
3. **Conclusions and Next Steps.** The views of partners and staff about future UNICEF WES directions are reflected in Chapter 10. Chapters 11 and 12 summarise the main findings of the evaluation team, both in looking at the past and, perhaps most importantly, in looking at how UNICEF may best continue and enhance its tradition of outstanding service to the people of India through its contributions to the WES sector.

2 The Context of Water and Sanitation in India

Introduction

UNICEF involvement in the WES sector can best be understood in relation to three key points in Indian development over the last 50 years:

- *India's tremendous achievements and the enormous potential for material improvement these achievements demonstrate.* Both per capita income and life expectancy have doubled since Independence in 1947.
- *The enormity of the task ahead in achieving a decent life for all.* Of greatest relevance to this evaluation, one in six people in the rural areas still does not have what the GOI considers an acceptable water supply ("full coverage"), and combined rural and urban sanitation coverage only reaches 26 per cent of the population. Diarrhoea and other water and sanitation-related diseases still account for nearly 400,000 child deaths in India annually.
- *Large differences in life expectancy, literacy and other measures of well-being between the advantaged and disadvantaged* (geographically and socially). District literacy rates range from more than 90 per cent to 10 per cent. Mortality among Scheduled Castes is one-third higher than among the rest of the population.

These points are critical to understanding the past, present and future of UNICEF activity in WES. They factor into progress made in water supply and in sanitation, as summarised below. Annex 4 provides more detailed background, while other annexes (particularly those on water supply, hand-pump development and sanitation) round out the picture.

Water Supply in India

India's Progress in Water Supply

Water supply in India has improved remarkably over the last 30 years. Latest estimates suggest that, by 1997, 87 per cent of the country's rural population and 85 per cent of its urban population had "full coverage" of safe drinking water, defined, in non-hilly and non-desert areas, as access to at least 40 litres per capita per day (lpcd), 250 users per spot source, within 1.6 kilometers or less. Nearly 95 per cent of the rural population had at least one village-level source of water. Expansion was particularly rapid during the Water Decade of the 1980s, when coverage increased from 31 per cent in 1980 to 78 per cent in 1991. While interpretation of these statistics is complicated by the variation in norms and definitions over the period, progress has been evident to all observers.

Much remains to be done. A gap remains between access to protected sources (approximately 95 per cent) and actual use of water from protected sources, estimated to be closer to 70 per cent. In addition, serious problems of water quality, contamination and declining water tables confront the country. Problems of water depletion are particularly serious in Gujarat, Rajasthan, Uttar Pradesh, Andhra Pradesh and Madhya Pradesh.

Evolution of the National Water Sector

Three distinct phases mark the evolution of India's drinking water policy since Independence.

1947–1980: Despite formal recognition of the importance of universal access to water and sanitation, the government provided little financial support until the 1966–1968 drought period in several states. Responsibility for water and sanitation shifted to the Ministry of Works and Housing during the Fourth Five Year Plan (1969–1974), and a centrally funded scheme for accelerated rural water supply was developed in 1972–1977. This programme, which continued into the Fifth Five Year Plan, gave

100 per cent assistance to States and Union Territories to extend water supply to acute problem villages, with preference to Scheduled Castes/Scheduled Tribes (SC/ST).

1980-1986: Serious planning for an expanded attack on the problem of water and sanitation took place, triggered partly by the increased global attention to the role of water and sanitation in health.

1986-onwards: Since 1985, the RGNDWM (formerly NDWM) has co-ordinated increased activity. The directness of this support and relative freedom from bureaucratic constraint are frequently cited as reasons behind the RGNDWM's success in improving coverage and eradicating guinea worm.

Table 2.1 reflects the steadily rising financial allocations and commitment from the GOI to the sector from 1951 through 1986. Table 2.2 shows the near doubling in per capita expenditure since the advent of the RGNDWM. While these statistics refer to both water and sanitation, the overwhelming majority of funds have been allocated to water supply.

Table 2.1: Plan Allocations to Water and Sanitation, 1951–1985 in Indian Rupees (Rs.)

Development Plan		Total Budget	Water Supply and Sanitation Sector	
	Years	Rs. in billions	Rs. in billions	% of total
First	1951-56	23.5	0.4	1.78
Second	1956-61	48.0	0.9	1.89
Third	1961-66	85.7	1.0	1.23
Annual	1966-69	66.2	1.0	1.55
Fourth	1969-74	157.8	4.6	2.91
Fifth	1974-79	394.6	10.9	2.77
Annual	1979-80	121.7	3.8	3.18
Sixth	1980-85	975.0	39.0	4.01

Source: GOI Plan Documents

Table 2.2: Per Capita Public Expenditure, 1975–1992, in Indian Rupees

Years	Public health	Education	Water and Sanitation
	Rs. In billions	Rs. In billions	Rs. In Billions
1975-76	12.77	23.0	2.38
1980-81	21.94	46.1	5.60
1985-86	48.75	93.3	12.51
1991-92	58.99	207.9	20.35

Source: CMIE

Sanitation in India

India's Progress in Sanitation Issues

Unlike the longer and steadier evolution of drinking water supply strategy, development of sanitation policy occurred in fits and starts, covering a wide set of issues over a few years. As elsewhere in the world, progress in sanitation coverage has been much slower than that of water supply, particularly in rural areas, reflecting the variation in demand. Until recently, the emphasis in India was on subsidised latrine construction, but overall sanitation conditions did not greatly improve. In recent years, there has been a move toward a more complex package of services, including efforts to generate demand,

link sanitation and health issues, and develop latrines that can be built locally and at a low cost. There has also been far greater involvement of the NGO sector, rather than relying on the government agencies responsible for drinking water supply.

Evolution of the National Sanitation Sector

Five phases mark the evolution of India's sanitation sector since the early 1980s.

Early 1980s: In 1983, The World Bank formed a Technical Advisory Group (TAG), with its members and funds also drawn from the GOI, UNICEF and UNDP. The TAG supported a variety of sanitation studies and demonstration projects and finally recommended a single specific design of the twin-pit pour flush (TPPF) latrine to replace the single-pit service latrine in urban areas.

1985–1986: Sanitation became a distinct priority when the GOI launched the Centrally Sponsored Rural Sanitation Programme (CRSP) in 1985. Through this programme, it allocated funds and prepared guidelines for a sanitation programme exclusively focused on rural areas, with a target of 1 million fully subsidised latrines for SC/ST households under a wider rural housing programme. In 1986, the TAG completed its work and recommended adoption of locally built TPPF latrines as the most cost-effective option for both rural and urban areas. The GOI and the RCRSP accepted this recommendation as the standardised design to be adopted across the country.

1986–1990: In 1986, the GOI approached UNICEF for funding support and to become full-fledged partners in the RCRSP. UNICEF launched a series of area-based micro projects in rural sanitation in 1986–1987, as an instrument of advocacy and to directly learn from the field. In 1987, the rural sanitation programme was formally included in the state sector under the minimum needs programme, and the emphasis was on increasing coverage through full subsidies. Once the results of the pilot area-based projects began to emerge, informal dialogues continued between UNICEF and GOI about alternative approaches.

1990–1995: In 1990–1991, the government revised its RCRSP guidelines. Its target of 25 per cent latrine coverage of all rural households was found to be unrealistic as government data showed coverage at only 3 per cent, although the 1991 census revealed 9.5 per cent toilet coverage in rural households. A 1992 national-level seminar played a critical role in influencing GOI policy away from full reliance on the TPPF design and toward an approach, that combined more hardware options with education and health linkages. The budgetary allocation for sanitation continued to be small in relation to water: India's Eighth Five Year Plan allocated Rs. 6,743 million (approximately US $400 million) for sanitation compared to Rs. 108,700 million (approximately US $6,400 million) for drinking water supply. Nonetheless, sanitation found its own identity in the state governments' plans, policy announcements and political governance agendas.

1995 and onward: Between 1995 and 1997, the GOI had no Five Year Plan, but an annual planning exercise and government budgetary allocations were made in sanitation programmes. In 1996, the GOI issued a guideline on a range of sanitary toilet designs, ranging in cost from US$10 to $100. The guideline also gives information on sanitation upgrading, encouraging households to start with a simple, cheaper toilet design that can be upgraded later. No major policy changes either in the RCRSP approach or guidelines have been made since then, although involvement by NGOs in the RCRSP has increased as the government has recognised its role in community mobilisation and in promoting demand for sanitation services.

3 Water

Introduction

UNICEF first became involved in India's water sector when it provided drilling rigs to bore through hardrock to reach groundwater during the 1966 drought that affected Bihar and several other states. Since then, the UNICEF-India WES programme has worked with governments at all levels and with the private sector on drilling, borehole rejuvenation, groundwater sustainability issues, handpump and powerpump schemes, and operations and maintenance.

This chapter provides a brief summary of UNICEF activity and the findings of the evaluation team. Annex 5 includes more detail about borehole drilling and rejuvenation and about other groundwater issues, and Annex 6 discusses handpump development.

Ignoring the complexities of detailed geology, India can be divided into three principal hydrogeological zones for the purposes of this evaluation:

- hardrock areas of peninsula India, which make up some 82 per cent of the land area;
- alluvial tracts of the Indo-Gangetic plain; and
- coarse, bouldery sediments of the Himalayan mountain front.

These three distinctive geological settings determine the occurrence and movement of groundwater, and thus the approach to the design and construction of boreholes and method of drilling used. Most land in India lies within the hardrock areas. Where groundwater levels are shallow, hardrock aquifers can be exploited by dug wells, which are widely used as traditional sources in India. However, water tables are often beyond the depth of simple dug wells, and groundwater is often drawn from restricted fractured zones in the deeper, unweathered rock, attainable only by drilling. Further, supplies that are safer bacteriologically and more reliable during drought conditions are provided by drilled boreholes. All three of the geological environments listed above lend themselves to drilling for groundwater, although the borehole design and drilling method vary significantly. Thus, drilled boreholes with handpumps were identified by UNICEF as the best technical and economical option for rural water supplies from a very early stage.

Borehole Drilling

UNICEF Drilling Activities

Because drilling is required in so much of the country, the UNICEF WES programme devoted much of its efforts in its first 20 years to the introduction of new down-the-hole (DTH) drilling technology, adaptation of this technology to local conditions, and the promotion and support of local manufacture of suitable rigs. UNICEF accompanied its massive investment in rigs with efforts to train drillers in state organisations, observe rig performance and provide geophysical equipment to increase the chances of encountering water.

UNICEF interest in bringing DTH drilling to India dates from the 1966–1967 Bihar drought. In response to a direct request from the GOI, nine DTH rigs were airfreighted from the United Kingdom and deployed immediately to stricken villages. Inspired by this success, UNICEF offered to increase its support to maintain the impetus, and 149 rigs had been procured by 1976.

With much better demographic information, the number of villages recorded as requiring water supplies became much larger, and the pressure for coverage grew, spurred on by the coming of the United Nations Water and Sanitation Decade. Greatly increased drilling productivity was required, but many of the so-called "problem" villages were in places where both drilling conditions and vehicle access were difficult. The trial introduction by UNICEF in 1978 of hydraulically powered rigs quickly showed that they were not too sophisticated in terms of operations and maintenance for Indian conditions. First the PHEDs, and then the private sector, embraced the new generation of DTH rigs, which laid the technological foundation for the 1980s expansion of coverage referred to in Chapter 2.

Once borehole construction technology had been successfully introduced and adopted, UNICEF attention turned to sustainability. The drilling-relevant objectives of the UNICEF WES programme during the 1980s and 1990s included:

- improvement of drilling logistics to increase production and reduce lost time;
- training to improve borehole construction;
- service training and spares control to improve rig productivity;
- adaptation of the rigs to reduce costs and improve mobility and access; and
- encouragement of local manufacture to reduce costs and enable programme sustainability.

These are described in detail in Annex 5, with only two important examples given here. First, a key feature of UNICEF support that promoted the sustainability of the borehole sources was the development with the GOI of norms to ensure adequate minimum depths drilling and casing. Data from the rig monitoring systems indicate that these have been widely followed. Second, the advice of UNICEF drilling staff to state implementing agencies and rig manufacturers led to the general adoption of 100 mm rather than 150 mm drilling rig technology as the norm for handpump boreholes. While there always remained a small niche in the programme for the larger rigs, the strong appreciation by UNICEF drillers of India's hydrogeological conditions allowed the adoption of a "horses for courses" approach, which greatly helped to keep down drilling costs without compromising productivity. Drilling costs of hardrock, handpump boreholes of Rs. 200 to 250 per month, and overall borehole costs (with handpump) of Rs. 30,000 to Rs. 40,000 are probably the lowest of any government-implemented programme in the world.

Findings about UNICEF Drilling Activity

The introduction, promotion and support of technology for borehole construction, development and rejuvenation have been a major component of UNICEF support to India's WES programmes. The evaluation team, therefore, assessed the appropriateness and effectiveness of these technologies in some detail although, as described in Annex 5, contemporary documentation about important programme and procurement decisions is either lost or did not exist.

Box 3.1: Advantages of Promoting Local Manufacture

Once the technical feasibility of using hydraulic rigs in India was established, UNICEF encouraged local manufacture of rigs for two reasons. First, programme experience led to such significant adaptations as a two-truck arrangement, which increased access to remote villages. Second, local manufacture by several companies avoided the danger of a monopoly. However, one unintended consequence was that numerous "cottage"-style firms manufactured cheaper but less robust rigs in the late 1980s and early 1990s. Many of the rigs (and the firms) lasted only a few years.

In total, UNICEF supplied 330 drilling rigs to India's rural water supply programme, at a total capital cost, at the time of purchase, of some $33 million. On the way, important technology choices were made to improve the capacity of the programme to meet expanding and changing requirements (for example, the move from pneumatic to hydraulic hammer rigs). Despite reservations expressed from time to time, it appears from the detailed appraisal

of this evaluation described in greater detail in Annex 5, that drilling technology choices were appropriate at the time they were made.

UNICEF-supported rigs have achieved an average output of five to eight boreholes per month over a wide geographic area, and consistently over time. (See Table 5.2 in Annex 5.) This translates to a regular and continuing annual contribution by UNICEF-supplied rigs of some ten thousand rural water supply boreholes to the national programme. This achievement is a tribute to the long-term commitment of UNICEF in terms of training and other driller support, and the provision of spare parts and service agreements. Over the years, UNICEF consistently maintained a policy of supporting UNICEF-supplied rigs for a period of ten years, far longer than any other externally funded project. During the period 1995 through 1998, UNICEF phased out support for service training and the manufacturers' service agreements, with the intention that state agencies would take them on. The failure of the states to do so has caused concern among suppliers, which they expressed to the evaluation team. The long and productive lives of the rigs also reflect the appropriateness of the technical specifications and choice, as they have been demonstrated to be robust and reliable under Indian conditions. This was strikingly illustrated during the team visit to Rajasthan, where a UNICEF rig was seen drilling its 1411th borehole! This picture of long and productive lives in which each UNICEF rig has drilled hundreds of boreholes compares very favourably with other donor-supported programmes in India and even more so with other programmes elsewhere in the world. Improved training, logistical support, spare parts provision and better road access have helped to increase productivity, but this increase has been offset by the need in later years to reach more remote locations and to deal with villages where finding adequate groundwater is more problematic.

As early as the mid-1970s, recommendations were made to use management information systems (MIS) in support of better decision-making to reduce overall costs and promote cost-effectiveness. This logic was, however, implicit and the team found no documentary evidence that cost-effectiveness was given explicit or detailed consideration at the time. In fact, over the years, UNICEF has emphasised the need for monitoring systems within its drilling programme. The original objectives were to track the deployment and usage of UNICEF-supplied equipment and spares. These objectives were largely achieved, but the more ambitious aim of turning the assembled data into full-fledged MIS has not been realised. Significant variability exists between states in their uptake and use of the monitoring systems. The support of management decisions with information on costs and quality control has not been introduced, and these data are not used for the assessment of technical and economic feasibility.

With UNICEF's declining support to the drilling programme, further development of rig MIS is probably not justified. Different considerations apply, however, to monitoring borehole rejuvenation, as described in the next section. More detailed technical and cost data are required to enable UNICEF to undertake comprehensive evaluations to support its advice to the GOI and state governments about these technologies. MIS enhancement would provide essential data for such analysis.

Notwithstanding these concerns, UNICEF has played a significant role in extending water supply coverage through its contributions to the drilling aspects of India's rural water programme. The partnerships between UNICEF and government agencies to extend coverage have spanned 30 years. The evaluation team found that this long-term partnership helps explain the overall success of UNICEF's involvement in the sector.

Borehole Rejuvenation

UNICEF Rejuvenation Activities

Some wells drilled in the hydrogeologically difficult terrain of India inevitably have inadequate or marginal yields. Moreover, well yields tend to reduce over the years as a result of silting of the well and/or clogging of the fractures due to encrustation and weathering. UNICEF has therefore supported the development and testing of "rejuvenation" techniques to increase the discharge from some of these boreholes. UNICEF has invested in two such techniques: *hydrofracturing* to increase the local aquifer yield to the well and *tractor-mounted compressors* (TMCs) to clean boreholes.

UNICEF imported its first hydrofracturing units to India in 1989, using GOI funds. The initial uptake and success was variable, due to poor technique, handling, mechanical problems and lack of interest, but UNICEF promoted hydrofracturing through training courses and field demonstrations. To date, the national fleet consists of 40 hydrofracturing units from four suppliers.

TMCs rejuvenate boreholes by cleaning and re-developing them. The approach can be used effectively for lined boreholes in sedimentary formations as well as in hardrock areas. Mounting the compressor on a tractor aids mobility and access. UNICEF introduced the TMC units in 1991. To date, 37 have been introduced at a total value of some US$485,000.

Findings about UNICEF Hydrofracturing Activity

The evaluation team confirmed that the performance of the imported hydrofracturing units has varied from negligible to high, depending on such factors as the competence and enthusiasm for the technique in different states and different rock types. Moreover, in some instances, rejuvenation techniques are completing or fixing work that should have been done correctly during initial drilling.

Box 3.2: Potential and Pitfalls

During field visits to see hydrofracturing units in Tamil Nadu, Rajasthan and Maharashtra, the evaluation team made the following observations.

At the Tamil Nadu site, field procedures appeared to be well carried out under the direction of a competent assistant hydrogeologist, but the interpretation of yield data was dubious. Although hydrofracturing improved the yield, the implementation of the technique appeared far from ideal. The visit to a Rajasthan site demonstrated the technique's true potential: a worse than marginal borehole was improved to provide an adequate discharge for a handpump in a village with little prospect of alternative supply. In Maharashtra, a community with three boreholes drilled in 1992 was visited. While data from one of the three sites clearly demonstrated the benefits of the technique, the second borehole was found by the hydrofracturing crew to be high-yielding, which suggested unnecessary deployment and hence expenditure, and emphasised the need for careful selection of sites at the village level.

These observations confirm both the potential of the technique and the care with which it must be applied.

Although hydrofracturing seems both technically and economically feasible, it has been taken up rather slowly by some state organisations, and not at all by the private sector. There are *potentially* 200,000 marginal boreholes suitable for its application. The RGNDWM agreed with this estimate by the evaluation team, although whether this potential can be realised remains to be seen. The Ninth Plan estimates that 50 more units could be required and makes budget provision for them. The lack of an authoritative and detailed evaluation by UNICEF of the technical feasibility and cost-effectiveness of hydrofracturing may be constraining its uptake. While some partial reporting of experiences by the respective state organisations has occurred for Maharashtra and Uttar Pradesh, UNICEF has performed no overall evaluation of the programme. To support such a badly needed evaluation effectively, the monitoring system for hydrofracturing must be more comprehensive than that in use for drilling.

Findings about UNICEF TMC Activity

As with the hydrofracturing units, the effectiveness of TMCs has varied widely, based on review of past experiences and field observations. Units in Rajasthan, Orissa and Andhra Pradesh have performed well, while progress in Madhya Pradesh is limited and the Maharashtra units were returned unused by the State implementing agency. UNICEF field offices should have made greater efforts to deploy the units where they would have been most effective and followed up with more vigour where they were not being used.

A range of estimates exists about TMC costs. A 1996 estimate, based on completing 200 boreholes per year and taking account of depreciation, crew, moving and repairs, is Rs. 1,950 (approximately US $56) per borehole. Data from Orissa for 390 boreholes rejuvenated between December 1993 and December 1995 by four units (approximately 50 boreholes per year) suggest average costs of some Rs. 2,200 (approximately US $73) per borehole. Costs quoted separately to two members of the evaluation team in Rajasthan were Rs. 3,000 to Rs. 4,000 (approximately US $86-$114) and Rs. 7,500 (approximately US $214) respectively, for 80 per cent "success", but these appear inconsistent and too high.

The TMC method may be appropriate and cost-effective in the right hydrogeological environment. As this is often likely to include shallower boreholes in sedimentary formations, the technique may be complementary to hydrofracturing. UNICEF has not, however, carried out a comprehensive analysis of the total potential or cost-effectiveness of this method, even though units have been regularly provided since 1991. The evaluation team cannot confidently advocate TMC use from the information available. In particular, criteria for selection of sites for rejuvenation by airlift pumping and criteria for evaluating success, including comparison of yields pre- and post-airlifting, need to be established.

The present cleaning operation seems an unsatisfactory compromise. If TMC rejuvenation is meant to be really cheap, rapid, and fairly frequent, it could perhaps be done with an old tractor and smaller compressor. Then, in contrast to hydrofracturing, the capital investment would be very low and perhaps attractive to small, local contractors. On the other hand, if a more comprehensive borehole rehabilitation through TMC is intended, it needs to be undertaken more professionally, with proper selection criteria and recording of results.

Groundwater Supply Sustainability

Many technical and social issues influence the sustainability or long-term viability of water supplies. The institutional issues of system management are considered later in this chapter. This section briefly discusses technical threats to sustainability, and UNICEF's potential role in alleviating these threats through support for better siting, construction practise and other technical options.

Water Quantity

Can UNICEF-assisted rural boreholes continue to discharge adequate quantities of water for the future? While local hydrogeology is complex, two practical construction questions and one major policy issue must be considered:

- Are wells deep enough to withstand seasonal and annual variations in groundwater table?
- Are wells sufficiently cleaned and developed at construction to maximise and maintain inflow?
- How can UNICEF be most effective in helping to ensure that overall water resource policy in India reflects a sustainable balance between agricultural and domestic needs?

Well depth

The balance between well depth and cost is a common challenge to groundwater supply agencies throughout the world. Deeper wells are more secure against seasonal or annual variations in groundwater table, but cost more to construct.

UNICEF and GOI worked together to develop drilling norms, including a minimum depth of 60m for handpump supplies. The evaluation team's review of data and experience in India suggest this is adequate except in areas of rapid and severe drawdown. At some individual sites, shallower depths may have been sufficient, but the norm has helped to ensure adequate depth in large-scale routine construction programmes.

Where higher yields are required for motor pumps, and where heavy agricultural abstractions have produced falling water levels, siting geologists appear to recommend much greater depths. Where drilling is cheap and fast, the extra cost of drilling somewhat deeper "to be sure" is not very great for an individual well, but the cost of consistent, excessively deep drilling could add up over a large programme. Although the evaluation team encountered some examples of excessively deep boreholes in its field visits, these had been drilled by private contractors and not by GOI or UNICEF rigs. In the more complete review presented in Annex 5, the team examined records of boreholes drilled throughout the evolution of the drilling programme, and saw no overall trend towards average depths greater than 60m by either GOI or UNICEF rigs. It was not possible to extend this review to contractors' rigs, as their data were not collected by the RGNDWM.

Well cleaning, development and testing

Sound borehole construction calls for adequate cleaning, development and testing. Private contractors are not paid for such operations. This means that there is negligible on-site supervision by either state or private drilling crews and that shortcuts in borehole completion are likely. If inadequate borehole cleaning is indeed widespread, it is not surprising that rejuvenation has such a high apparent success rate. In many cases, it may be completing the task of cleaning that should have been done at the time of drilling!

Following cleaning and development, borehole yield must be measured to ascertain its adequacy for the proposed pump capacity. For handpumps, UNICEF and the GOI established the norm of 12.5 l/min during the 1980s, and states follow this or something very close to it. As with cleaning, the team's field visits raised concerns about a lack of incentives and supervision to ensure that yields are properly measured. These concerns about the effects of poor construction on yield sustainability are also reflected in water quality issues, as described shortly.

Policy issues

Rural water supply is not a *cause* of groundwater depletion, but it is certainly *affected* by the problem. Thus, while UNICEF is not "responsible" for dropping water tables, it has begun to consider the consequences of groundwater depletion in its field work and advocacy. UNICEF recently collaborated with the World Wide Fund for Nature on a report highlighting the need for improved conservation and management of freshwater resources. It has not, however, been visibly involved in the public policy debate about controlling excessive agricultural use as a key management issue for groundwater resources. For UNICEF, advocacy on behalf of the rural domestic water user, backed up by strategic alliances and partnerships with those who can provide sound technical understanding, is likely to be the way forward.

UNICEF has been involved in exploration of technical options for water conservation and groundwater recharge. Review by the team of some of this work in Tamil Nadu, described in Annex 5, raises

serious questions about the quality of some of these studies, and about UNICEF's capacity to manage such studies in general. The ideas behind the studies are worthy of exploration, but UNICEF needs to be more realistic about its capacity to design and manage such work. This concern is a generic one expressed by team members reviewing research and pilot programmes funded by UNICEF.

Water Quality

The choice of site and the construction of a proper sanitary seal determine whether a borehole source meets its objectives in terms of bacteriological quality. While general siting is a function of geology and user requirements, the precise location on the ground should reflect consideration of local pollution sources and pathways. For example, drillers should avoid siting a borehole in flat, low-lying areas that encourage surplus water to stand around the pump.

In a 1986 handpump survey, waterlogging around pumps was reported at 44 per cent of the sites. Subsequent, albeit limited, monitoring by UNICEF confirmed widespread bacteriological contamination. During the present evaluation, visual impressions of an admittedly biased "roadside" sample of handpump sites confirmed that siting remains a common problem. Many are sited-for user convenience, easy (lazy) access by drilling rigs or to be on public land-in the strip of ground between houses and the road. Although UNICEF has given guidance on this in its training, good practise is by no means universally followed in the field.

Reliable sanitary sealing could keep away much of this pollution. UNICEF has long recognised the need for such sanitary sealing, advocated it, considered various designs of seal and held training courses specifically on the issue. Field visits and discussions made it clear, however, that almost all handpump boreholes are completed without proper sanitary seals in the programme at large. The principal reasons for this shortcoming appear to be time and money. When drilling is so rapid (boreholes may be completed in less than a day), the additional time and hence cost for sanitary sealing is not attractive to the contractor. The lack of sanitary sealing was highlighted in discussions at the Central Ground Water Board (CGWB) drilling conference in January 1999, attended by a member of this evaluation team. One way to improve the sanitary situation is to construct more substantial handpump aprons, and the UNICEF field office in Hyderabad has been piloting this approach in a small way. Improved public education of local governments and village communities within the new social and administrative framework could enable them to monitor the performance of drillers and installation teams more effectively.

Chemical quality constraints on the potability of groundwater were identified in India many years ago. They include, in different parts of the country, high fluoride concentrations, arsenic, salinity, nitrate and excess iron. The RGNDWM has recognised these problems by developing four submissions on control of brackishness, fluoride, and arsenic, and on removal of excess iron.

UNICEF has supported the GOI in some of its efforts to improve water quality. For example, to control fluoride, which affects more that 1 million people with serious skeletal fluorosis and an estimated 20 to 60 million with dental fluorosis, this support has included:

- development and testing of small-scale fluoride removal plants;
- support (with WHO) for a national workshop on monitoring and surveillance in 1997;
- R&D of simple water quality monitoring kits;
- introduction of domestic defluoridation (discussed as a case study in community mobilisation in Annex 9); and
- research on methods of augmenting groundwater recharge to help reduce fluoride concentrations.

Incomplete and somewhat anecdotal evidence suggests that heavy groundwater abstraction has worsened the fluoride situation in some areas. This calls for a systematic and thorough evaluation of the hydrogeochemistry of fluoride in various geological environments, including spatial and depth distribution. Further studies are necessary to address the occurrence and distribution of high-fluoride groundwaters, the potential for and experience with methods of enhancing recharge to alleviate the problem, and the scope for locating alternative groundwater supplies.

UNICEF's contribution to eradicate guinea worm disease serves as example of the link between a water quality issue and the role of the community. UNICEF, Sida, and the GOI collaborated on the Sanitation, Water and Community Health (SWACH) project in Rajasthan, which encompassed both technological and hygiene components to eradicate guinea worm in India in about a decade. Annex 9 provides more information about the SWACH project.

Conclusions about UNICEF's Role in Groundwater Supply Sustainability

UNICEF's strong national advocacy regarding technical aspects of programme implementation in rural water supplies has been backed up by advice, site visits and training courses. However, the quality of workmanship and effectiveness of supervision of both government and private crews at the state and site levels determine how good the final "product" will be. With a programme of this size and spread, some trade-off is inevitable between the *quantity* requirements of coverage targets and the *quality* requirements of sound construction practise. This evaluation has tried, therefore, to probe the balance between these conflicting requirements. In so doing, it is important to be reminded that the rural water supply programme is a GOI activity. The state PHEDs or equivalent organisations are the implementing agencies, rather than UNICEF itself, and this must be appreciated in evaluating the real scope for UNICEF to influence activities at the site level.

Nevertheless, as a long-term and substantial supporter of the programme, UNICEF should have been able to describe and quantify the trade-off between coverage and the quality of the product. This would be done by answering the questions: what proportions of the boreholes are compromised to what extent, and what are the financial and health impacts? If most boreholes provide sustainable supplies of good quality water for a reasonable operating life of 20 to 25 years, then a reasonable balance is maintained. If many provide poor water quality and last only a few years, then the balance has slipped too far. Given that up to 80 per cent of boreholes are now constructed by private contractors, and the albeit limited impression of construction shortcomings gained during the team's field visits, the questions above are certainly worthy of further probing.

The ability of the more than 3 million rural water supply boreholes to meet the programme objective of supplying safe water on a continuous and sustained basis depends on many factors. A programme of this size could only be completed in a reasonable time span if the technical specifications were greatly simplified so that the main steps in the construction process were relatively standardised and routine. There is almost no scope for the kind of decision-making on site by hydrogeologists and drilling engineers that characterises programmes in which a relatively few, but individually very high value, boreholes are constructed as sources. In the present programme, individual boreholes could clearly be sub-standard and reduce the value of the investment. The key to success is first to establish and then to implement appropriate routine operations so that most of the individually cheap boreholes are soundly sited and built.

Handpump Development and Manufacture

UNICEF Involvement

The cast-iron handpumps available during the UNICEF 1967 drought-relief effort had a very high failure rate. They were designed for individual family use and could not withstand the much heavier requirements of almost continuous operation for more than 10 hours a day. A number of NGOs began trying to develop a sturdy, low-cost, easy-to-manufacture pump.

The Sholapur pump, designed by a Swedish engineer, came closest and was the point of departure for development of the India Mark II (MKII) handpump. In 1975, UNICEF purchased 6,500 Sholapur "conversion heads" and provided them to various state governments. They replaced the multi-pivot handle cast-iron handpump heads to operate the older pump cylinders and rods already installed. The successful outcome of this hybridisation changed the GOI's attitude toward handpump development.

The MKII handpump was developed at very little cost to UNICEF. It did not pay for engineering inputs, but instead contributed manpower and commitment. UNICEF staff visited manufacturers monthly and joined in an intense exchange of views with the designers and manufacturers. UNICEF was not just technically interested; the partners knew that UNICEF would purchase the products that evolved from these R&D efforts, a commitment of utmost importance. UNICEF also had the technical and financial capability to put the products into the field quickly for testing and could monitor the pumps in large field-tests.

The India MKII design was established by the end of 1977 when UNICEF purchased 1000 pumps for large-scale field-testing. The GOI and a number of state governments accepted the design, and demand rose. UNICEF helped to identify and support new manufacturers. It actively encouraged the private sector because it realised that the traditional NGOs could not produce the quantity required. To establish mass production, UNICEF focused on established companies. This decision achieved quick, tangible results.

UNICEF engaged an independent inspection agency, Crown Agents, to inspect the technical and financial capability of companies that had applied to become India MKII manufacturers. Upon identification of potential manufacturers, UNICEF placed trial purchase orders with them, and UNICEF and the inspection agency then provided technical assistance. Within a few years, the handpump programme expanded phenomenally. By 1984, more than 600,000 handpumps had been installed, and UNICEF had expanded its list of approved manufacturers of the India MKII to 36 firms with a combined production capacity of over 200,000 units/year. By 1998, some 3 million India MKII handpumps provided water to India's rural and urban population.

Findings about UNICEF Handpump Involvement

UNICEF's strict commitment to quality has been a key factor to the success of both domestic and export handpump sales. UNICEF support for independent pre-delivery inspections of all handpumps purchased for GOI use has:

- created awareness among implementing agencies of the need to procure high-quality handpumps and spare parts;
- monitored the manufacturers' consistency in quality control on a continuous basis; and
- monitored the effectiveness of the quality control mechanism through consignee end inspections.

In the 1970s, UNICEF entered into a long-standing partnership with the Indian Standards Institution (ISI, later named Bureau of Indian Standards, BIS) to develop handpump standards. In 1993, BIS took over responsibility for licensing of manufacturers and batch inspection of handpumps. By the

end of 1998, UNICEF stopped supporting spare parts inspections. Instead, the BIS issues self-inspection licences to manufacturers: in other words, these parts are no longer subject to third party inspection.

Box 3.3: Quality and Cost

Many manufacturers stopped selling MKII pumps to state governments because they felt that the push to lower costs has compromised quality. Instead, they said that they are focusing on the export market. The trade-off between quality and cost, as well as between quality and coverage, is a delicate balance for UNICEF, the GOI and others involved in WES efforts.

Many manufacturers feel that UNICEF's withdrawal from inspection and quality control has been a clear step backwards. They complain that BIS has neither the capacity nor the internal management capability to ensure factual unbiased inspection as the independent agencies did. However, UNICEF had supported this function for 17 years, and felt that the responsibility should devolve to the appropriate government bodies. This development could pose a threat to India's handpump programme. The evaluation team recommends that UNICEF and BIS carry out a joint evaluation of manufacturers' qualifications and standards.

It is noteworthy that the Indian private sector was and still is willing to contribute towards a product that is in the public domain; whoever works with UNICEF does not have the exclusive right to capitalise on the inventions made during the co-operation. Handpump R&D was based on the mutual understanding that if the product proved a success, the GOI would take it up on a large scale and manufacturers would then have a chance to recover their development costs. During this evaluation, however, manufacturers visited by the team expressed their doubts about whether this faith and trust still hold. As one example, the manufacturer that led the development of the 50 mm cylinder paid for the prototype components and the engineering. Once the design was established , UNICEF, through the procurement process, went out to competitive tender for the pumps required for field testing. During the evaluation, the company expressed a sense of dissatisfaction because of its earlier investment.

Further Developments: the India MKIII

During the 1980s, the UNDP/World Bank water and sanitation programme (now WSP) initiated the development of the next handpump model, the India MKIII pump. UNICEF supported and followed this development and became involved in large-scale field testing. The Coimbatore Project in Tamil Nadu showed that although capital costs for the MKIII were higher, maintenance costs and time requirements were much lower (see Annex 6). These advantages contributed to a shift in government thinking about a greater role for communities in handpump operation and maintenance (O&M). Although the potential of the MKIII has not translated into much change on the community level, it has been a useful tool for the advocacy of community-based handpump maintenance.

Another factor limiting more widespread use of the MKIII was a parallel R&D effort to improve the reliability of the MKII, which yielded significant results. The introduction of nitrile rubber piston seals extended the life of the below-ground components by more than a factor two. Therefore, the frequency of O&M interventions on the MKII could be reduced.

Piped Water Supply

The growing demand for an installation of piped water supply has benefits as well as potentially negative effects on the well-being of the poorest and for public health. For the better-off who can afford house connections, it brings water within the home. They are also better able to cope with irregular delivery by installing private water tanks. The higher water consumption for personal and domestic hygiene resulting from piped water supplies is one of the main contributors to better health. It also saves women in these households considerable time and reduces the hard labour of women and

children, especially girls, of carrying domestic water home. However, the usually unmetered connection and the flat tariff for piped water also stimulate over-consumption, including use of water for income-generation purposes from irrigation, livestock production, informal enterprises, and sale of water to the poor.

Without accounting for other differential effects, piped water supplies exacerbate the division between rich and poor. The evaluation team's field study in Tamil Nadu showed that in villages with piped water supply, poor families and especially women and children depended on irregularly functioning public taps from which water still must be carried home. The alternative source was handpumps, but their maintenance as a secondary source was less well taken care of than when they were the primary source of village water, as in Rajasthan.

More experimentation with shared used and managed family and neighbourhood taps and appropriate payment systems for connection costs and tariffs are thus needed. In doing so, it is worthwhile to start with reviewing the experiences and insights on sharing and financing in India and in other countries. This helps build on lessons already learned and replaces the "reinvention of the wheel" by adjusting to what people in India want to and can do.

The experiment with responding to user demands in Uttar Pradesh visited by one member of the evaluation team showed that a demand-based approach has potential in India. However, it also showed that there is an inequity effect. In North India, villagers opted for piped systems, rather than wells and handpumps, when given the choice. Although the households contributed 10 per cent to the capital costs of either system, the government-financed share of a piped system with private connections costs much more than the government-financed share to install handpumps. This means that with the same amount of public funds, fewer villagers are served with a higher service level. An apparent strategy may be a higher and equitable user contribution than the standard 10 per cent co-financing of construction costs when villagers choose a piped system. Projects that involve men and women in households, councils and state water agencies are also useful so that private connections with piped water supply do not worsen the current problems with drainage of waste water.

Management of Rural Water Supply

Rural water supply coverage increased from 31 per cent to nearly 90 per cent in less than two decades. With this growth, maintenance costs rose rapidly as well. If the three-tier system described below were applied, the present annual cost to the government for the maintenance of 3 million boreholes with handpumps would be approximately Rs. 4,000 million (approximately US $100 million). An additional 200,000 to 300,000 piped water systems add another Rs. 2,000 million (approximately US $50 million) to the national maintenance cost. It is no wonder that the RGNDWM wants to set up an effective cost-sharing arrangement.

The National Conference on Deepwell Handpumps held at Madurai in 1979 recommended a three-tier system handpump maintenance with: 1) a village caretaker, 2) a block-level mechanic to look after 100 pumps, and 3) a mobile repair team at district level for every 1000 pumps. The village caretaker would work on an unpaid basis and interact with villagers to keep pump surroundings clean, do preventive maintenance, report breakdowns, and promote handpump water as "safe". Most village caretakers soon gave up these responsibilities, so that only the two upper tiers were effectively established.

Under the current implementation of this system, a wide variation exists in which operations and maintenance (O&M) of different types of externally introduced water supplies (handpumps and piped systems) are maintained. In most states, the technical departments (PHED, PRED, TWAD) are responsible for installations and major technical repairs and the Panchayats are responsible for O&M.

Indigenous sources should be, but are not always, maintained by the community councils. This arrangement leaves much scope for confusion. In practise, the three-tier system has been replaced by a one-tier system in which mobile teams carry the main burden. They react to reported breakdowns and have some limited scope to carry out preventive maintenance. The complicated institutional setting of handpump O&M, with unclear relations between Panchayats and technical departments, is relatively expensive and also lacks responsiveness. Often, much time passes between breakdown and the arrival of the repair unit.

Community-based management is clearly included in RGNDWM policy, but the high-level policy has not yet filtered down to the ground. The political will in many states is lacking. Water is still a sensitive issue and helps to gain votes, so politicians are reluctant to support cost-sharing. Community-based handpump management (CBHM) projects have not led to a lowering of costs. Because the technical departments cannot be restructured immediately and are still responsible for spare parts supply, cost on their side remain significant. Meanwhile, the communities have to pay for parts and repairs, including less apparent economic costs. (A woman who repairs a pump might not send an invoice, but the economic cost for her service is still there.)

The fact that capacities in technical departments are usually dissolved faster than the capacity is built up within the communities to cope with problems leads to a transition stage in which standards are not yet up to mark. Further, in the places where the roles and responsibilities (piped versus handpump systems) are not clearly defined, repairs are normally deferred until complete breakdowns, or until the government steps in, as in Rajasthan.

Why have the results been so mixed? Community-based management is not a problem of technology. Rural India manages to keep 15 million irrigation wells operational, and these require a higher level of skill and management ability than handpumps. Rather, it would appear that institutional aspects are the cause.

In principle, India has been moving toward ideal institutional arrangements for decentralised management under the Panchayati Raj system. Local Panchayats now have directly elected representatives, of whom at least one-third are women. The Panchayats may raise funds and have the authority to make their own decisions. Decentralised management has the potential to work, but it requires a holistic approach for its introduction (not separating between handpumps and piped systems, as well as establishing spare-part supply chains, using private sector mechanics, and the like) and capacity-building at all levels.

Some CBHM projects have worked through NGOs and some have established separate water and sanitation (WATSAN) groups and did not work directly with the Gram Panchayats. Gram Panchayats, as relatively new institutions, have not yet always developed the capacity to assume full responsibility in CBHM. The evaluation team feels that the potential of CBHM has not yet been fully explored, and the projects already executed did not pay close enough attention to the institutional aspects, at all levels. Now that India is moving towards decentralisation (Ninth Five Year Plan) it is essential to develop well-designed CBHM pilot projects. To be meaningful, they must include all aspects of the required change in water management responsibilities, such as legal ownership, technical back-up, financing and equity in gender and poverty aspects. A gender and poverty perspective prevents poor women from being asked to work for free and without a say in water management decisions.

Findings about Management of Rural Water Supply

Under the three-tier norms, the annual cost of the maintenance system (including capital depreciation) would be Rs. 1,300/pump/annum (US $31) or less than Rs. 7 per user. In reality, the repair service is not carried out as envisioned. A mobile team can realistically be expected to service approxi-

mately 500 pumps per year. The lack of maintenance personnel and transport means that the repair services cannot in practise be carried out to the anticipated level planned. This is also documented by the relatively long response time between the reporting of a breakdown and its actual repair.

The presently reported results of handpump performance vary from 98 per cent (Tamil Nadu) operational at any one time to about 60 per cent (Rajasthan). The Tamil Nadu statistics are based on figures from the complaints received, while Rajasthan estimates figures from the pumps repaired during its repair campaign at the beginning of summer. These figures are likely to be in error. A more realistic assessment would be a range between approximately 60 per cent operational in Tamil Nadu to approximately 80 per cent functioning in Andhra Pradesh and Rajasthan. The figures reflect the dependence on handpumps in the various states. Tamil Nadu has a piped system in virtually every village and handpumps are only used as a secondary source of water supply. In contrast, Rajasthan and Andhra Pradesh are much more dependent on handpumps, and therefore more likely to achieve better handpump repairs. Other factors that may affect handpump performance and repairs include the location of the community (more handpump-dependent areas may be more remote and difficult to reach for repair) and the relative comprehensiveness and accountability to users of the water management system.

The satisfactory rates of handpump performance can be attributed to several factors: the catchment population norms set for handpumps (200 people/pump) are sensible; the India MKII and India MKIII are good pumps; the level of competence and commitment within PHEDs is high; and the political will to provide water to the rural population is strong. UNICEF involvement has definitely had a positive impact on at least the first three of these factors.

Despite belief to the contrary, a community-based approach does *not* provide a total cost reduction. Computations, shown in Annex 6, indicate that the cost per handpump for O&M will remain about the same under CBHM. The main financial difference between the two systems lies in *who* pays the costs. In contrast to the centralised system, where all financial resources come from the governments, CBHM may introduce effective cost-sharing arrangements, so that those who benefit are those who pay. Such an arrangement could help to make CBHM more responsive and thus would provide better service for the same cost. While this sounds reasonable, the evaluation team is concerned that much sound pilot work and evaluation of the institutional arrangements remain to be done before this goal can be achieved.

4 Environmental Sanitation

Introduction

Concern about sanitation coverage is recent relative to water supply, stemming from the early 1980s. From the beginning of its work in environmental sanitation in India, UNICEF focused on:

- supporting a major partnership in defining technological options;
- piloting various approaches to sanitation; and
- advocating the importance of sanitation as an issue.

This chapter provides an overview of the UNICEF WES programme's role in increasing sanitation services in India. Annex 7 provides a more detailed account.

The Search for Solutions

UNICEF first became involved in sanitation projects in 1982, when it initiated a rural sanitation programme with three NGOs in West Bengal. Prior to this, sanitation was part of the hygiene component of health education programmes. The "formalisation" of sanitation in the West Bengal programme could be criticised in current terms as it actually *delinked* sanitation from the health issue for the first time and looked at it as a separate "problem".

In 1983, UNICEF-India appointed sanitation project officers in two of its field offices and launched pilot district-level projects in Andhra Pradesh, Madhya Pradesh and Maharashtra that focused on hygiene education and school sanitation, the then so-called "software" approaches. In this early period, UNICEF did not focus on sanitation hardware or technology.

By the mid-1980s, success of the water supply programme (both in drilling and the development of the MK II handpump) made the idea of a "Model T" of sanitation very attractive to government staff and others facing the massive problems of rural and peri-urban sanitation in India. The challenge seemed to be to develop a suitable standard low-cost design of latrine using small quantities of water but that eliminated some of the least attractive aspects of service latrines, including the daily transport of fresh human wastes by "scavengers".

UNICEF was the major funder of the influential TAG study *The Feasibility Study Based on Demonstration Schemes for Sanitary Latrines in Rural India*. This study recommended the TPPF latrine as the most cost-effective design. The TAG adopted an approach that latrines should be provided free to beneficiaries. Issues of use and demand did not factor into the recommendation. The TAG completed its work in 1986, and the RCRSP accepted the recommendation, a decision which has had major repercussions ever since. UNICEF itself was well aware of many of the limitations of a purely technical fix. It stressed the need for health education to achieve health benefits, and worked on a variety of software strategies in addition to latrine construction.

Box. 4.1: Going to Scale

The twin-pit pour flush (TPPF) latrine, which is relatively expensive yet not sufficiently valued by the target population, shows the risk of going to scale too quickly. Once that happens, it is often difficult to undo the damage. Although subsequent experience has shown that the TPPF is not the best option for rural India, it has been difficult to gain support for other options.

What is wrong with the TPPF? Its cost, more than Rs. 2,500 in 1999, is well beyond the means (or at least interest) of most of the rural poor, the target population. Under these circumstances, massive subsidy programmes become necessary, and these in turn introduce fundamental difficulties of sustainability, bureaucracy and suppression of any real demand for sanitation. Ironically, the biggest criticism of the TPPF (and indicative of the dangers of going to scale too quickly) stems from its very success as a standard design. The PHEDs and other engineering bodies incorporated the design into the mainstream of engineering practise, thanks in part to aggressive promotion by members of the TAG and others. Once standardisation occurred, it has become very difficult for engineers to backtrack and accept alternative designs that are more affordable. This is an important lesson for any of the approaches piloted by UNICEF and claimed as a "success": if one goes to scale too quickly, it is difficult to undo the damage.

UNICEF also appointed sanitation staff in its zone offices with social sciences and communications backgrounds, developed training modules, and sponsored district and state KAP (knowledge, attitude and practises) studies to better understand on-the-ground realities.

As an instrument of advocacy and direct learning from the field, UNICEF launched a series of area-based rural sanitation projects in 1986–1987 through direct funding of concerned state governments. The first projects took place in the Alwar district of Rajasthan and in the Periyar district (formerly known as Erode) of Tamil Nadu. They were based on what was termed the Total Sanitation Concept: a "package" of services not just for the individual, but also for the household and community. In both sites, the programmes promoted a package of latrines, soakpits or drainage, and bathing platforms. In Alwar, the package also included garbage pits and smokeless chullas for cooking; in Periyar, the package added biogas systems. Local women's groups promoted these systems as unpaid volunteers.

Another UNICEF sanitation project, formally launched as the Mednipore Intensive Sanitation Project in 1990, took place in the Mednipore district of West Bengal. It had many unique features. The main partner of UNICEF was the Rama Krishna Mission, an NGO. It introduced self-financing of latrine construction for the first time. Consumers were offered a variety of technical options in latrine construction, with different costs to suit different abilities to pay. The project emphasised local employment generation through training of masons, and credit was organised for the poor to purchase latrines. IEC helped generate demand, and more than 350,000 latrines were built in Mednipore from 1990 to 1999.

Findings about UNICEF's Sanitation Efforts

During this evaluation, team members visited Alwar and Periyar sites where the Total Sanitation Concept projects took place. Many facilities were constructed, and some of the provided facilities (e.g., latrines) were and are used. The latrines were the standard TPPF models, and were heavily subsidised or free. While the women's organisations may have flourished and moved on to other issues, there is little evidence at either site of any ongoing activity along the original lines of the projects or if the work empowered women in any other ways. There is also no evidence of any "takeoff" through copycat activities to promote sanitation outside the originally chosen families.

UNICEF still continues water and sanitation activities in these districts, but the Total Sanitation Concept is not visible. In Periyar, for example, it is now remembered very much as a government-

funded construction scheme, and the Total Sanitation Concept is now replaced by local implementation of CDD-WATSAN (see section below), which links sanitation and control of diarrhoeal diseases. In hindsight, it is likely that "Total Sanitation" is too complex to promote, and the shift by UNICEF to the more sharply focused CDD-WATSAN approach is entirely appropriate.

For UNICEF, however, the projects were critical in developing sanitation as a mandate and work domain within the organisation. They were also effective advocacy tools to influence the state governments where such projects were being implemented. This was possible both because of the projects' visibility, and because of their organisational structure right up to the state level, thus involving the state government system. As the results of these pilot area-based projects emerged, and as informal dialogues between UNICEF and GOI continued, the GOI focus on fully subsidised latrines and coverage began to change.

The Mednipore experience has been extensively evaluated and documented (see Annex 7). A brief field visit to Mednipore during this evaluation suggested the following:

- The programme has been successful. Random spot checks confirmed not only that latrines had been built, but that they are currently used and well-maintained. The generation of local employment is visible, and many people have a stake in the programme's success. The Gram Panchayat is actively involved in the programme, and the "promotion" of latrines occasionally resorts to peer and local government pressure on community members.
- The most practical outcome of the "range of technical options" is the offer of sanitation options at one-tenth the cost of a TPPF. At present, so little of the business is at the "high end" that it appears that "product range" is less important than "cost reduction". The issue of cost is more important than the issue of subsidy. Most of the latrines being built during the field visit benefited from a 50 per cent subsidy. In government circles, a 50 per cent subsidy of Rs. 200 (approximately US $5) is much easier to accept than a 50 per cent subsidy of a Rs. 2,500 standard latrine (approximately US $55)! Many factors are unique to the situation in West Bengal, not least the extensive network and deep roots of UNICEF's principal partner, the Rama Krishna Mission. Other relevant factors are the high population density and the reduction of private places for defecation, high literacy rates, and strong community organisation and commitment of the Panchayati Raj institutions in West Bengal.

UNICEF has played an advocacy role in establishing sanitation policy. It had a substantial influence on the National Seminar on Rural Sanitation (in support of the Eighth Five Year Plan) in September 1992. The Seminar was a critical event that influenced the policy perspective of the sanitation "sector" within the government. UNICEF advocated such policies as a move to a package approach (including hygiene, drainage, and clean water), a range of technology options, and a move from full to partial subsidisation.

The seminar, combined with the launching of the GOI's Eighth Five Year Plan, led to a comprehensive revision of the operational guidelines of the RCRSP in 1993. The fundamentally new approach reduced subsidies, included a strong IEC approach and emphasised community participation.

Rural Sanitary Marts (RSMs)

The RSM concept was first demonstrated in the field by a rural technical institute, the Institute of Education and Rural Technology in the Allahabad district of Uttar Pradesh. An RSM is a "one-stop" retail outlet that sells sanitation construction materials and hygiene products, advises interested households on the different types of latrines and other sanitary facilities, and maintains a list of trained masons.

UNICEF involvement with RSMs began in 1990. It underwrote the low capital costs to establish them, and offered some technical support in the first two years.

The RSM is an intuitively attractive idea to those who promote sanitation, as it encourages revenue generation and should thus require less subsidy. Thus, even before the Uttar Pradesh demonstration project had become fully commercially viable, the RSM idea was quickly diffused and replicated. This meant there was no time to go through the full learning cycle, which would have allowed more practical and focused development. Progress was in fact slow. In 1994, there were only about 100 RSMs, which had established 17,000 sanitary latrines in different states. In 1999, there were 658 RSMs established in different states by UNICEF, either as part of integrated sanitation projects or as stand-alones.

During the present evaluation, field visits in Periyar and Alwar to RSM sites suggested that the concept was not as successful in practise as many had hoped. Some RSMs in these areas had gone out of business, while those still active were either in deficit or barely breaking even. One of the more successful ones claimed its success was attributable to being slightly cheaper than the private sector, which belies the idea of a gap in the market.

CDD-WATSAN

In the early 1990s, UNICEF began to apply the Control of Diarrhoeal Diseases-Water and Sanitation (CDD-WATSAN) strategy, with Sida support, in one district of 15 large states. The strategy tried to integrate the lost link between water and sanitation hardware and specific health issues - in this case diarrhoea. CDD-WATSAN integrates water, sanitation and diarrhoeal disease control through projects that stress not only the supply of water and sanitation facilities and health education, but also improved diarrhoeal case management at home, supported by community ORS depots and public health facilities.

At the sites visited during this evaluation, substantial efforts were made to collect statistics through the public health system. This approach is especially significant for UNICEF as an example of sector convergence.

It is perhaps not surprising that the relative emphasis on the basic components of CDD- WATSAN varies from place to place. In Periyar, the organisation of the CDD efforts was most impressive, while work on sanitation facilities appeared at a virtual standstill. In Alwar, the hardware efforts, promotion and installation of sanitation facilities were making reasonable progress, but the CDD component was less evident within the public health system. This may reflect local interests: in Periyar, the nodal officer was a medical officer; in Alwar, the most interested government bodies are in rural development.

The use of the data that are collected at local health centres and sub-centres is not straightforward, and should be viewed with caution. In Alwar, for example, the local NGO noted with pride a "decrease" in diarrhoea as a result of the project. In fact, this could just as easily be explained by the fact that a baseline was measured in the summer (a likely time of high diarrhoeal incidence), while the "after" project data were collected in a different season with less diarrhoea.

Experimentation and Going to Scale

Many observers believe that the key to the solution of India's sanitation challenges lies in the exploration of low-cost, fast-diffusing alternatives on the supply side and sustainable, self-financed, promotional techniques and institutions on the demand side. UNICEF, while an important contributor to possible solutions, is only one of the actors (especially through its area-focused projects). Other actors include selected NGOs, donors and government officials at different levels.

Sanitation is filled with "success stories" that work well in one place and not another, so caution about the feasibility of going to scale-for example, outside West Bengal with the Mednipore approach-is in order.

True experiments in sanitation should *not* always succeed. Promising avenues may turn out to be dead ends, but the only way to know is to try them. Like the TPPF, it is not surprising or shameful that the Total Sanitation Concept did not emerge as a "magic bullet" for sustainable hardware dissemination. An important lesson must be drawn however, by both UNICEF and the GOI about how easily pilot experimentation can be promoted as "successful" in an effort to meet the requirements of going to scale. The RSM, the TPPF and the Total Sanitation Concept projects reflect the risks of valid experimentation in a climate that demands "success stories" and "going to scale". They demonstrate the need for rigorous external examination of such experimentation, after the passage of a decent interval of time. Such evaluations would allow UNICEF and partners to learn real lessons and avoid the waste of scarce resources before going to scale within UNICEF programme and, later, within the GOI.

5 Social Aspects of WES Services

Introduction

The priorities of the WES programme have evolved with new challenges. In the 1960s and 1970s, the physical provision of basic water supply in rural areas was the first priority; in the 1980s, the issues of sanitation and its marketing emerged. More recently, hygiene and community management have come to the fore as critical issues in sustainable improvements in people's lives. Gender perspectives, while still not often operationalised, have been found to be critical to the success of projects in WES, as in other sectors. In promoting behavioural change, the emphasis in WES programmes is on IEC. New approaches, such as public health communication (also known as social marketing) and community-managed change, are not yet playing a large role. This chapter reviews how the UNICEF-WES programme plans for and implements these aspects of its services. Readers may also refer to Annexes 8 through 10 for more details.

UNICEF's Recognition of the Need for a User Perspective

UNICEF staff have been long aware of the need for changes in individual, family, institutional and social behaviour for lasting improvements in health and well-being, but only relatively recently has this need been reflected in programme design. Approaches to promote these changes are varied, and have had various names in different places or times: what started off as community participation evolved into awareness raising; social mobilisation; IEC; and, more recently, "software" (in contrast to the "hardware" of pipes and pumps). UNICEF's involvement in these social aspects of water and sanitation over the last 30 years has been both relevant and timely, but the transition to an effective balance between and integration of technical and social aspects has been neither systematic nor complete.

UNICEF began the transition from exclusive reliance on technological solutions earlier than most multilateral and bilateral agencies. UNICEF guidelines from 1987 on community participation and health education stated: "…the provision of safe drinking water to the community [is] a very complex task.…This ... involves not only the change of existing facilities, but also the network of behaviour and beliefs which has developed around the ownership and use of water and which involves every person. This is a long and complicated process; however, the start should be made".

UNICEF's collaboration with the GOI and with the Sida on the eradication of guinea worm, a water-borne disease, is an example of the role of community-based efforts in WES. Through the Sanitation, Water and Community Health (SWACH) project, described more fully in Annex 9, health promoters in Rajasthan, the state most affected by guinea worm disease, promoted safe water use and hygiene, while "scouts" traced new patients. The project organised village contact drives, showed women how to filter water, installed new handpumps and wells, and undertook other activities. The debilitating disease was effectively eliminated.

Historically, social processes and their results related to water supply, sanitation and decentralised development have been labelled community participation, health/hygiene education (or promotion) and community management. UNICEF currently uses somewhat different terms and concepts in different settings: "communication and social mobilisation" when applied to sanitation and hygiene and "Convergent Community Action (CCA)" for improving the response and service provision from social service departments and communities. Communication and social mobilisation has existed as a programme for some 15 years. CCA is quite new-its strategy paper was published in 1997-and it is still

in the development stage. Hence more is known, and written here, about the communications approach, although the CCA approach is also discussed.

The current UNICEF WES programme uses a combined strategy of *mass information,* through printed materials and mass media, and *personal contacts,* through community mobilisers, to promote safe use of water and better sanitation and personal hygiene. There is a strong emphasis on the production and distribution of printed and audio-visual materials, as part of the IEC process. More recent thinking has looked to social marketing, community management and CCA.

Community Participation

Community participation made its first limited appearance in WES after it was noted that well drilling stopped as soon as water was found. As a result, wells drilled during the monsoon fell dry when summer came and the water table dropped. The programme thus set minimum standards for well depth, casing depth and yield, and introduced a well completion certificate. A Sarpanch (the politically elected village head) signed the village's certificate that attested to the number of drill pipes used in well construction. This established an early system of accountability by the implementers to the stakeholders. It worked well when the Sarpanch had the users' interests at heart, but was not universally effective.

Later on, well siting involved consultations with a larger group of villagers, usually men. However, consultations were never required, and depended largely on the individual engineer. An evaluation in 1984 found that in 80 per cent of the sampled cases, the selected site was acceptable to users; in 20 per cent, it was not. Whether this had any links with social processes is not clear: the study looked only at results and did not link the findings with information on whether consultations took place and with whom.

Handpump development has brought new problems of maintenance and repair, as described in Chapter 3, as well as efforts to seek ways for communities to take on more of the O&M. UNICEF has supported the development of community-based handpump maintenance. The work has been researched and documented in over twenty reports. There is, however, no clear and comprehensive definition of user participation in the whole project cycle. The focus has always been on maintenance and repairs, rather than on a systematic approach to jointly plan, design and operate a community-managed water system. In Tamil Nadu, for example, the team saw that community water systems include other locally present water sources and distribution systems, including traditional systems and, where relevant, piped supplies. A comprehensive strategy for community involvement in water management still remains to be developed. The present approach does not yet span issues of technology choice, site selection, local maintenance, and management and financial planning with women and men. It also does not yet address implementation with equitable distribution of benefits and burdens to all or monitoring of effectiveness and impacts of processes and results. To achieve UNICEF's objectives, the strategy must also incorporate both a gender and poverty perspective. Attempts have been made to incorporate this perspective, but have not led to a clearly formulated and systematically applied strategy that reflects UNICEF's objectives.

Gender Perspective in Water and Sanitation

Gender perspectives are critical in defining the problem to be solved, and the approach to its solution. The evolution of WES participation strategies implicitly recognises the need for a gender perspective, but this recognition has not translated into much change.

In operational terms, women have been involved in voluntary maintenance and repair of handpumps, if not in decision-making and management. In a limited number of examples, women's role in water supply has since widened to include that of village or area handpump mechanic. Providing women with training and local handpump maintenance and repair positions reduced a previous problem that when a new water system came in, all training and jobs went exclusively to men. It has also ensured that women-with their traditional roles in water, their greater personal interest in a reliable water supply, and their daily visits to pumps and taps- have direct opportunities to influence the quality of the service.

Yet, the WES programme must start to address gender issues in terms of the *sharing* of burdens and benefits between women and men. In the terms of the Gender Issues Network of the Water Supply and Sanitation Collaborative Council, a gender approach looks at the *balance* between women and men by asking such questions as –

Box 5.1: Making WES Services Gender Sensitive

These questions were used in a UNICEF training session to make WES services more responsive to the needs of women and men:

- Does the project lead to improving access to safe drinking water and sanitation?
- Do women have a say in planning, implementation and management of water resources?
- Have training programmes included time for women to analyse their position in society, the burden associated with water, and its implications for education of girls?
- Is the community aware of the injustice of the burden?
- Have they encouraged their sons to share responsibility with their daughters?
- Have men shown some responsibility?
- Is the technology "woman friendly"?
- Can women maintain water systems?
- Are there any sustainable mechanisms/organizations to maintain the system once the project is over?
- Is the community involved in planning and implementation?
- Has the project explored the potential of using the intervention as an opportunity for gender-sensitisation of service providers and the community?

Source: UNICEF-WESS training presentation, Rajasthan

- Who has access to information? Men, women or both?
- Who does physical work? Men, women or both?
- Who makes decisions? Men, women or both?
- Who gets benefits: water, training, jobs? Men, women or both?
- Who controls benefits: services, income, and training? Men, women or both?
- Who has access to information? Men, women or both?
- Who does physical work? Men, women or both?
- Who makes decisions? Men, women or both?
- Who gets benefits: water, training, jobs? Men, women or both?
- Who controls benefits: services, income, and training? Men, women or both?

The evaluation team found that this conceptual side of gender issues, rather than the simple participation of women, has yet to gain ground. Expertise on gender and natural resources management is available in some field offices and some WES staff have started to demand this input (see Box 5.1). However, the workload of these specialists in their own programmes is high, and training in operationalising a gender approach in WES projects has not been followed up by field visits to help apply these

concepts on the ground. It is thus not known if the guidelines presented in training are followed in practise. Even where both women's participation and a gender approach are practised, it is not yet consistently implemented, as is illustrated by two examples:

- In Tamil Nadu, UNICEF and the State Water and Drainage Board (TWAD) have jointly undertaken an R&D project to modify traditional water use. Although the villages are meant to manage the new systems, they have not been involved in the local selection, planning and management of the project. Rather than assessing demand for these improvements among the communities, the "target" villages were selected by outsiders, and villagers were paid for work they would normally undertake themselves. The State UNICEF officer in charge of health and community has expressed reservations about these arrangements, as they are neither demand-responsive, nor reflect a gender-sensitive understanding of community participation.
- In Rajasthan, a fluoride control pilot project involved the training of female handpump mechanics. The training recognised women as principal water managers and gave them more equal access to new technological knowledge and paid jobs. Yet, in the same area, men have taken on the paid job of testing the drinking water for fluoride contents after (unpaid) home treatment by women. While women have learned new water treatment skills, the management and control of that skill has passed back from women to men.

Finally, in Tamil Nadu, a meeting took place with some 25 women and members of the evaluation team. The women have maintained the handpumps in their villages for the last six years, primarily changing washers and preventing rust formation. The work is voluntary and depends on when the women are available, as the lifting of the pump rods has to be done by a group of seven. Calculations based on changing washers twice a year (although three or four times may be necessary, depending on the intensity of use) showed that the group may spend five to six working days on preventive maintenance per year. Male leadership does not consider this work should be paid for, as the project was set up to have voluntary maintenance by women. Some men even expect the women to pay for the washers. Men perform other tasks in community water supply and sanitation, such as operations of the piped water supply and solid waste removal, for which they are paid. The women believed that if their work were done by men, it would be paid work.

Strategies and Activities for Behavioural Change

Information, Education and Communication (IEC)

In UNICEF's WES programme, the production and diffusion of educational material is very visible, although it is difficult to determine its share of the budget. Currently available IEC materials include some 200 booklets, pamphlets, posters, videos, manuals and other materials, all produced and disseminated in large quantities. Three-quarters are visual or audio-visual, and one-quarter is written. Most is for use at the community level.

The evaluation team analysed the materials in terms of language used, message development, and local production (presented more fully in Annex 8).

Languages used

The evaluation showed that 18 per cent of the IEC materials are in English, 48 per cent in both Hindi and English, and 34 per cent are also available in a local language. Thus, the complaint by a few respondents and interviewees that the programme has too many documents in English is not corroborated by the above data. It is true, however, that the more extensive material is generally in Hindi and English. Guidebooks and training manuals are predominantly published in English and therefore can

only be used by English-speaking staff. Many of the videos, however, are training videos, and these are either bilingual (16) or in Hindi (12).

Message development

The greatest focus in the materials is on health and hygiene (52 materials, 25 per cent of the total). Water and sanitation technologies come next, with 18 per cent and 12 per cent respectively. Community participation and the use of participatory tools and techniques are under-represented in the WES collection or in the villages visited, with the exception of handpump maintenance by women mechanics. Relatively few WES IEC materials focus on standard health knowledge, which by now has much increased in India; the emphasis is rightly on improving conditions and practises. Yet motivational factors other than health, such as status and privacy for wives and daughters, are hardly reflected, although these are known to be major reasons why both women and men in India and elsewhere support sanitation.

UNICEF materials promote seven broad areas of sanitation and hygiene: safe disposal of human excreta, adequate personal hygiene, safe handling of drinking water, safe disposal of waste water, safe disposal of solid waste, good home sanitation and food hygiene, and a clean public environment. The evaluation found, however, that these categories are so broad and general, each state or district programme can pick its own emphasis and include its own idiosyncrasies. It then becomes very difficult to compare results and effects against costs. Nor are all subject areas equally important for an impact on health. Given the UNICEF special mandate to focus on children, a priority focus on the most important risk factors (safe disposal of child stools and appropriate handwashing) and the measurable reduction of these risks would be more cost-efficient and effective than trying to improve too many unsanitary conditions and practises at the same time.

UNICEF and government staffs are largely responsible for the choice of themes and the formulation of messages, rather than community members themselves. As a result, choices are imposed from above rather than based on community analysis, although there are exceptions. (For example, local villagers in Dungapur, Rajasthan, developed the wall slogans shown in Box 5.2.) Messages are also the same for all population groups. In practise, the habits and living conditions, and the possibilities to influence and improve these conditions and practises, are not the same for all. Important differences exist between groups with different socio-cultural (religious, ethnic, gender) and economic conditions. These are sensitive issues and the UNICEF tendency has been to avoid the tailoring of message content to the respective user groups.

Box 5.2: Locally Developed Wall Slogans in Villages in Dungapur

- Clean water and clean air will prevent 100 diseases
- We shall go house to house and we shall get rid of guinea worms
- Inform about guinea worm patients before rupture of the blister and get Rs. 500
- Use iodised salt and prevent mental retardation
- It is your responsibility to keep mothers and children healthy
- Use waste water in your kitchen garden

Local production

Although the evaluation team did not analyse materials produced by UNICEF field offices together with their state and district level partners, the impression from the team's fieldwork is that participation of service staff in the design and production have increased, along with adaptation to local conditions. While local participation in design has increased, local cost sharing has not. After many years, UNICEF still finances 100 per cent of the initial cost of IEC materials, although the GOI and NGOs have funded large-scale re-printing of the same or modified forms of some materials. A gradu-

al increase in cost sharing for educational materials would encourage districts and states to plan and budget for them. UNICEF could then shift its support to the pre-testing of materials and messages that focus on behaviour change, and to evaluating programmes that use these materials on their cost-effectiveness. These are more urgent priorities that make better use of UNICEF's comparative advantage and resources, now that local production capacity is established. At present, pre-testing is done in only some cases, yet authorities in the field view it as an essential pre-requisite for effective material development.

The evaluation team could not assess to what extent training documents and videos have been effectively used in the field. The team did, however, make efforts to assess whether promotion materials were available at the community level. The emerging picture was rather variable. In Periyar, Tamil Nadu, and in the some areas visited in Rajasthan, health workers and village animators generally had some IEC materials on water and environmental sanitation. Often these had been supplied years ago, and, after much apparent use, were still treasured and cared for. Elsewhere, in Alwar in Rajasthan, the material was hardly visible in primary health centres and subcentres. The visited angawadis (nursery schools) in Periyar and other parts of Tamil Nadu had none and would benefit greatly from access to materials of the learning-by-playing type.

Gender is a cross-cutting issue, and it was not possible to go through all the materials to see to what extent gender issues are incorporated. In the reviewed materials on health and hygiene, however, men's roles were mainly absent or confirmed existing gender stereotypes. The emphasis was on women's work in health and hygiene. Culturally women are often limited in the degree to which they can change male hygiene behaviours. It would therefore help if UNICEF education materials and programmes also addresses *men's* roles in personal and community hygiene and helped women and men analyse and appreciate gender relations.

Person-to-Person Contacts

Mass media do not change health practises; motivators do. Mass campaigns, involving media and village contact drives and camps, are therefore backed up by person-to-person contacts. WES projects can engage, train and equip local motivators to visit families and promote the adoption of improved sanitation and hygiene. The many UNICEF evaluations (a sample of which are reviewed in Annex 8) that have been carried out have generally indicated some change for the better, but they have not assessed the longevity of the changes, with what inputs, or at what cost.

At the same time personal visits are very labour-intensive and results can be slow. Several evaluation reports in the mid-1990s, for example, indicate that three or four visits were required for every adopted latrine. Slow results are especially common where local conditions do not foster a demand for improvements for reasons unrelated to health, such as privacy and status.

There are other disadvantages besides slow results. Most promoters are only taken on as temporary staff and are laid off at the end of a project. The government fears that otherwise they will become permanent members of the government payroll. While such concerns are understandable from an administrative point of view, valuable resources and training investments are lost. Moreover, the approach fails to build capacity in a community to assess and manage its own environmental sanitation and hygiene conditions.

Alternative Approaches: Social Marketing and Community Management

UNICEF has used this combination of mass media for awareness raising and personal contacts for behaviour change for many years and has not planned for any changes. Yet re-examination would be useful, since two more recent developments show promise of equal or better results at a lower cost: public health communications, also referred to as social marketing, and community management of

hygiene and sanitation improvements. *Social marketing* adapts marketing techniques to focus on a few key behaviours of a target audience that can be measurably changed. If involved, an external agency usually takes on an active role in the design, implementation and monitoring of the intervention. In the *community management* approach, a local organisation (e.g., a village water and sanitation committee, a health committee or local neighbourhood group) begins with an assessment of the problems of environmental sanitation, water use and hygiene. They then plan, implement, manage and monitor selected priority improvements using mainly local resources. An external agency acts only as a facilitator and trainer.

It would be worthwhile to try out these alternative strategies in the near future and compare them with the current approach in terms of costs and results. Public health communications would be particularly useful to test as part of, or linked to, GOI's upcoming campaign promoting sanitation and hygiene in almost 60 of the country's sector reform districts. UNICEF has been closely involved in the development of this programme and will continue its involvement during implementation. The use of the most cost-effective approach is therefore very important.

Convergent Community Action (CCA)

CCA is based on the philosophy that local conditions in need of improvement are not compartmentalised but interact and influence one another. For example, gender relations and concepts affect the position of women and girls, which affect girls' access to education. Access to education in turn is constrained by the time available to women and girls for schooling, which depends upon (among other things) the presence of a good reliable water source near the home. Similarly, a school in the local community and the availability of sanitation in it has a bearing on continued school attendance, especially by girls reaching puberty. More education for women and girls has a positive influence on the size of the family, the adoption of sanitation and hygiene practises, and thus upon better family health. Hence action to achieve these improvements needs to be convergent and mutually strengthening.

In the field, CCA appears to have progressed better in making women aware of their rights vis-à-vis government services than in increasing the capacity of villagers to manage related local services. This part of the strategy is not sufficiently clearly conceptualised. Overall, the approach is too new for the evaluation team to assess its effectiveness. While promising, CCA needs the experience of further testing.

6 Cost-Effectiveness Issues

Introduction

The Terms of Reference of this evaluation call attention to the issue of cost-effectiveness: How cost-effective have programme interventions been in the areas of drilling rig development and operation, handpump development and maintenance, sanitation programmes and hygiene promotion?

Rigorous quantitative answers to many of these questions are not possible, because of both methodological complexity and insufficient data. The major methodological issue arises from the very definition of cost-effectiveness: the comparison of relative costs of different options to achieve the same result. The overriding principle must be one of comparing "like with like", yet many of the most interesting comparisons are in fact between options that are not directly comparable. This is particularly true where one of the options has been tried and tested on a large scale while the other is hypothetical-such as "surface water vs. groundwater" for rural water supply-or when different levels of service are provided.

The issue of insufficient data is straightforward: the historical data on comparable costs and options required for rigorous cost-effectiveness analysis of UNICEF WES programme support are simply not available. Sufficient data and experience are available for a more qualitative assessment of various technological decisions made, which are reflected throughout this report. Such assessments generally support the contention that fundamental decisions about water supply technology selection (e.g., drilling and handpump design and standardisation) appear to have been quite sound. More recent initiatives in water supply technology (e.g., hydrofracturing and TMCs) are certainly plausible, but need further evaluation.

The team concluded that while the UNICEF WES staff clearly bore costs in mind over the years, there is no evidence of formal cost-effectiveness analysis as part of the regular planning process. In the 1990s, UNICEF employed local consultants to develop a computer programme named WESCOST for cost analysis of drilling rigs, handpumps, and village water supply, but, like similar tools developed in other organisations, it was not widely used. UNICEF is not alone in its apparent reluctance to employ rigorous cost-effectiveness analysis; in the team's experience, most external support agencies (ESAs) consider costs at various stages of the project cycle, but without employing a rigorous methodology of cost-effectiveness appraisal.

This chapter uses the data at hand to focus on cost-effectiveness in comparing handpumps versus powerpumps. Annex 11 also explores economies of scale in borehole construction and the feasibility of cross-subsidy to ensure improved access to water supply for the poor as a result of the emergence of "mixed" powerpump/handpump systems. A further point of interest: a borehole in Africa costs from $6,000 to $20,000, depending on location and conditions. A similar borehole in India costs $1,000. If a borehole cost even $3,000 (still much less than elsewhere), the investment in India would have been $9 billion instead of $3 billion, and coverage would be far less. Reasons for the low cost are: 1) the magnitude of the program me and its economies of scale; 2) concentration on numbers and service delivery; 3) sensible specifications and standardisation; and 4) high level of competence in the GOI and the private sector.

Comparison between Handpump and Powerpump Schemes

Powerpump schemes have emerged in recent years as a common solution to water supply problems of rural communities. Powerpumps appeal to planners and community leaders because, unlike handpump schemes, they allow for individual house connections where finances and groundwater availability permit. This has implications for financial sustainability, as experience in India and elsewhere has shown that it is easier to collect fees for water supplied directly to the home than from public standposts. Some of these choices are explored in the next section, after a comparison of relative costs.

Cost per Capita

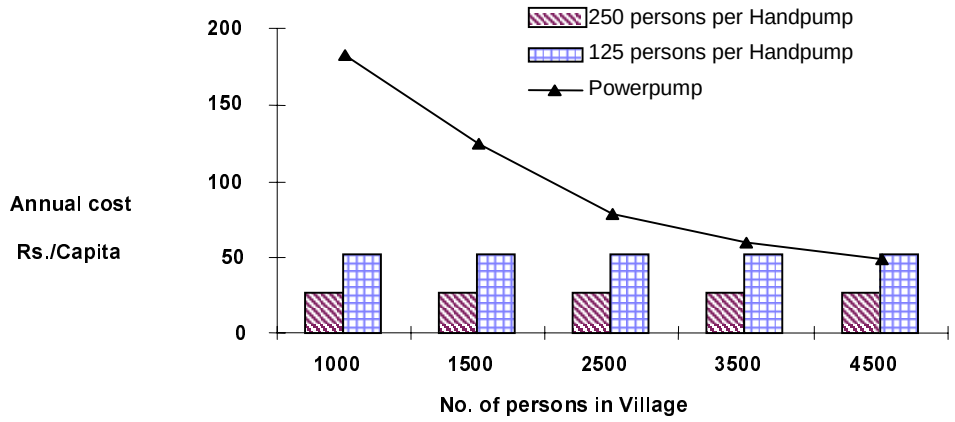
If the "number of people served with water supply" is considered as the "output" on which different approaches are to be compared, then the comparison between powerpump and handpump schemes depends critically upon the population served. The per capita costs of handpump options vary inversely with the population that is assumed to be served by each handpump. Once this "population served/handpump" is fixed, however, supply costs increase linearly with population, and per capita costs remain fixed. In other words, if each handpump is assumed to serve 125 persons, it costs 10 times as much to serve a community of 1250 with 10 handpumps as it does to serve a community of 125 people with one handpump. In determining per capita costs from handpumps, the most significant question is how many people are served per handpump.

Powerpump schemes, by contrast, show economies of scale; per capita costs decrease substantially with increased community size. Powerpump schemes involve significant fixed costs that are shared over the served population; as the served population increases, the per capita cost is lowered.

Figure 6.1 demonstrates the variation in per capita cost with community size for both powerpumps and handpumps. On the basis of per capita cost, handpump schemes cover more people at lower cost than powerpump schemes for communities with fewer than 4,500 people.

Such a comparison does *not* reflect any difference in the levels of service provided to consumers. Here the team found substantial differences between the *potential* of powerpump schemes to deliver better service and their *actual* performance under current institutional and financial arrangements.

Figure 6.1: Annual Cost/Capita of Handpumps and Powerpumps



Cost per Cubic Metre

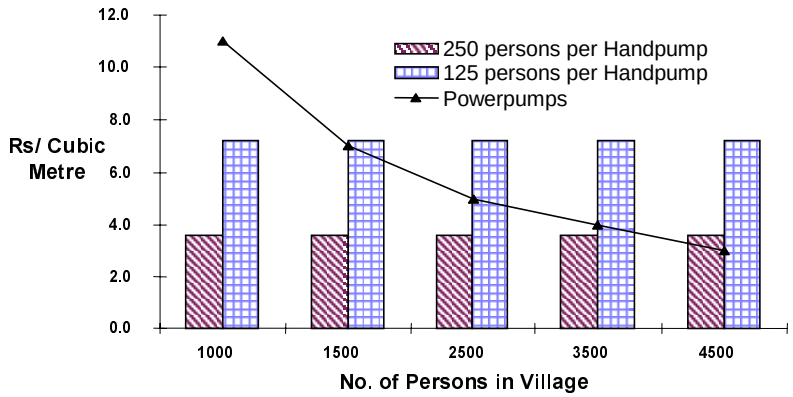
It is also revealing to consider cost-effectiveness in terms of cost per cubic metre rather than cost per capita (Figure 6.2). This, too, shows that powerpumps demonstrate substantial economies of scale, while increased demand for capacity from handpump systems are practically met through a linear increase in the number of handpumps. The major difference between Figures 6.1 and 6.2 is the

population size at which powerpump schemes become competitive with handpump schemes is lower. This is because water consumption from the powerpump scheme is higher, under the assumption that approximately 40 per cent of the users have house connections and are thus consuming 50 lpcd. To the extent that powerpump schemes increase consumption through the provision of house connections, they are also likely to achieve higher health benefits.

Although a cost per cubic metre comparison is more favourable to powerpump schemes, it is still clear that handpumps are more cost-effective for smaller communities. Indeed, if one assumes a population per handpump of 250, powerpumps only become competitive on a per cubic metre basis in communities with populations greater than 4,000.

This discussion illustrates the methodological difficulties of cost-effectiveness analysis for alternatives that provide different levels of service. From the point of view of a focus upon the poor, however, it can be argued that per capita cost is more relevant than other indicators that reflect higher levels of service enjoyed by some, but not all.

Figure 6.2: Cost/Cubic Metre of Handpumps and Powerpumps



Economics for a Balanced Alternative

In reality, field visits clearly established that communities do not choose between handpumps and powerpumps. Communities with powerpump installations still have handpumps, and not just for historical reasons. In some cases, handpumps serve as a backup when the more complex powerpump schemes need repairs; in others, the distribution pipes of the powerpump scheme do not reach certain portions of the community because they are remote or disadvantaged.

Effective cost recovery from house connections in powerpump schemes is not yet a reality in most of India. Its implementation can result in a substantial improvement in the reliability and long-term viability of the water supply, of direct benefit to those who are connected. Of equal importance, such cost recovery may permit cross-subsidy of public waterpoints by people fortunate enough to afford individual house connections.

The water supply sector in India is moving towards effective cost recovery from domestic connections. While such cost recovery offers much promise in promoting financial sustainability, better and more reliable performance, and increased social equity, two important conclusions of relevance to this evaluation emerge:

- UNICEF's past focus upon handpump technology (as opposed to powerpump schemes) has been entirely appropriate in ensuring the provision of service to those most in need in a cost-effective manner.

- Given that water supply in the future will involve a mixture of handpumps and powerpumps, UNICEF's work in rural water supply may be most helpful in supporting the government's efforts to address the issues of technical, financial and institutional sustainability under Panchayati Raj. Like cost recovery, decentralisation offers great promise, but local institutions need support in turning the promise into reality. There are many ways in which both increased cost recovery and increased decentralisation can distort the priorities with which the most urgent and basic needs of the poor are met.

7 UNICEF Impact on Rural Women, Men and Children

Introduction

A thorough impact study of the UNICEF WES programme in India would need to cover a wide range of physical, social, cultural and economic conditions to begin to approach some kind of meaningful representation of the whole. In any event, without a clear baseline and distinction between UNICEF and GOI policies and programmes, establishing overall UNICEF impact on WES in India would be extremely difficult. Such an assessment was not possible within the timeframe and resources of the present evaluation.

Instead, the evaluation team looked at the impact of UNICEF on its primary stakeholders: rural women, men and children. The findings summarised below should be taken only as an indication of the *kinds* of effect that the UNICEF programmes may have achieved on the ground, *particularly as distinct from the GOI programmes by themselves.* What follows, and what is shown more fully in Annex 12: Participatory User Assessment, does not take account of major, but indirect, impacts where UNICEF pioneered approaches that were adopted by the GOI, such as UNICEF influence on such solutions as borehole drilling and the India MKII handpumps. Also making the effort to differentiate between UNICEF and non-UNICEF districts more difficult is the fact that the GOI adopted many of the successful approaches that UNICEF pioneered, thus narrowing the differences between the two types of districts.

This chapter summarises the participatory user assessment conducted by the independent Socio-Economic Unit Foundation under the evaluation team's supervision in Tamil Nadu and Rajasthan. The assessment covered 18 communities located in two districts in the two states. In each state, one district was chosen where UNICEF has long been active in WES and one comparable district was chosen in the same vicinity where only the GOI has carried out WES programmes. Women, men and school children joined the study team to assess the impacts of the UNICEF programme on water supply, sanitation, hygiene, diarrhoeal disease control and their lives in general.

Summary of Impact

The results of this assessment suggest that UNICEF has made a modest start in influencing the sanitation and hygiene practises of its primary stakeholders. Men and women in the villages reported that, compared to the past, water supply has improved. This has led to more water use and better personal and domestic hygiene. Other, more general improvements in the 30 years of the UNICEF programme are:

- better education, including for girls;
- better health care facilities in some places;
- a less restricted life for women, although not in more conservative communities that also have strong caste restrictions.

The extent to which all these changes are inter-related is, of course, difficult to establish; it is important to note, however, that the people themselves view these changes as linked.

The assessment also shows a very slight but consistently better situation in excreta disposal and some signs of better handwashing in communities assisted by UNICEF's CDD-WATSAN programme.

Mothers in some villages practise traditional methods of safer disposal of infants' stools, but these are not promoted by the programme. Practises of women have been addressed more directly and relatively more effectively than those of children and men. Promotion of hygiene has not yet made the shift from transferring theoretical understanding to helping women and men identify their own risky conditions and practises and making measurable self-improvements.

Promotion of ORT has been practical, quite successful, and one of the strongest features distinguishing communities assisted by UNICEF. Most women say they know the method, have easy access to it and use it when their children have diarrhoea; they say it has drastically reduced diarrhoeas. (In fact, from a medical perspective, ORT reduces the dehydration from the diarrhoea and its often fatal consequences, but does not actually reduce the transmission of the disease.) They can also effectively demonstrate preparation of oral rehydration salts.

Both the UNICEF and non-UNICEF school sanitation programmes visited did not appear successful. Success in school latrine programmes requires a number of conditions: the programmes should be demand-based, with schools and parents contributing; the ratio of facilities to girl and boy students are adequate; and the school (teachers and students) accept responsibility for the management of use and maintenance. These conditions were not present in the school programmes evaluated in both Rajasthan and Tamil Nadu.

Specific Findings

Drinking Water Supply

In the eight villages visited in Rajasthan, drinking water conditions were much the same, whether or not UNICEF had been involved. Rather than indicating a lack of impact of UNICEF, this demonstrates the extent to which the GOI has taken up the approach that UNICEF helped develop, so that initial differences may have disappeared over time. At the same time, this constitutes a challenge for UNICEF, in that it may be difficult to show the impact that UNICEF has had.

Access to water via handpumps is generally good in all communities, although in several instances less so for people in isolated hamlets with little political clout. Women and men said that men make the major decisions about water systems, such as where to locate handpumps or taps. In one UNICEF-supported area, women are starting to demand a voice in where to locate water points. Villages with a UNICEF CDD-WATSAN project in place report that the functionality of water supplies are good. In addition, an NGO engaged by UNICEF to work in these communities has started to form village water committees and train community mechanics and caretakers. These positions often go to women, which gives them access to technical skills and administrative control over their drinking water supply (provided the water committees are effectively linked to the Panchayats). However, they are voluntary positions and may keep women from work that is directly compensated.

All study villages in Tamil Nadu have piped water supplies, handpumps, and often a well or other traditional source. However, the quality of the installation and of the service are better in the district with a UNICEF programme. Yet, the women and men who took part in the assessment sessions in Tamil Nadu were poorly informed about CDD-WATSAN, handpump maintenance and other projects in their community. They said that government officials and political leaders make major decisions on services, choice of technology and location of facilities without consulting community members of either sex.

Sanitation

Although generally still poor, the disposal of human excreta is slightly better in UNICEF-assisted CDD-WATSAN districts in Rajasthan. Some latrines are in use, and women reported that children and adults are using them. In the district without the CDD-WATSAN programme, progress is less visible. Three villages have no latrines. In another village, about 80 per cent of the households have latrines installed under the RCRSP, but villagers said they were afraid the latrine pits would fill up and do not use the latrines.

Tamil Nadu shows a similar lack of progress in the safe disposal of human excreta, with slightly better progress in the UNICEF-supported district. In two communities, 50 per cent or more of the families have a latrine, although usage is low. Several of the Panchayats in the CDD-WATSAN area have taken initiatives to improve public sanitation, such as provisions for drainage and collection of solid waste from households.

Hygiene

Women in the UNICEF-assisted district in Rajasthan said they use about 30 to 50 pots of water per day. With an average household size of six, this works out to water consumption of up to 50 lcpd. Women in the UNICEF-assisted district also exhibited slightly better handwashing practises than in the non-UNICEF district. Knowledge about the need to wash hands after defecation and before eating is high, but in the limited time available, the assessment could not determine how often this actually takes place. However, the fact that the presence of ash and soap was readily demonstrated indicated that better behaviours are to some extent practised. Practises of children and practises and responsibilities of men in hygiene were unclear.

In Tamil Nadu, the UNICEF-assisted district also has higher water consumption than the non-assisted district. But risky handling of water continues in both districts. Women's and men's knowledge about hygiene is high, but this knowledge is not acted upon in either the UNICEF or non-UNICEF area.

School Sanitation

In Rajasthan, the team visited three schools under the UNICEF school sanitation programme and one not under the programme. In the three UNICEF-supported schools, male and female teachers had received training in sanitation and hygiene. In one school, demand for latrines was high, and the school had contributed to the cost of installation. The facility was used, although there was only one latrine and one urinal for the students and teachers. In another school, there was no demand for a latrine and no local contribution. The latrine is neither functional nor used.

In Tamil Nadu, the team also visited schools with and without UNICEF sanitation support. In only one of the UNICEF-supported schools was there much indication of use of sanitation facilities. This school has a School Health Club and the community paid for several water filters used in the classrooms.

In both Rajasthan and Tamil Nadu, promotion of handwashing practises are promoted as part of the UNICEF school sanitation programme. Using individual pocket voting techniques, the reported use of handwashing with soap in schools in Rajasthan is 20 to 30 per cent for boys and 30 to 40 percent for girls. In Tamil Nadu, results differ greatly by school (ranging from 23 to 97 percent on the use of soap), but are consistently better for girls than boys.

Oral Rehydration Therapy (ORT)

An assessment of oral rehydration therapy to control diarrhoeal diseases showed the greatest and most consistent difference between the communities with and without UNICEF support. Mothers in the UNICEF-supported districts in both Rajasthan and Tamil Nadu know about and use oral rehydration salts (ORS), as shown in Table 7.1.

Table 7.1: Understanding and Use of ORS (both home made and by package)

Women's sessions	UNICEF-supported district				Other district			
	Village 1	Village2	Village3	Village4	Village1	Village2	Village3	Village4
Rajasthan								
Knowledge	+++	+++	+++	+++	-	+	+	-
Access[1]	+++	-	+++	+++	-	-	-	-
Skills	+++	+	+++	+++	-	-	-	-
Use	+++	-	+++	-	-	-	-	-
Tamil Nadu								
Knowledge		+++	+++	+++	+++	+++		
Access	N/A	+++	+++[2]	+++		+++	N/A	N/A
Skills		+++	+++	+++	no info	no info		
Use		+++	+++	+		+++		

+++ = general + some - none N/A Not assessed

[1]To ingredients or packages [2]Ready made packages only, from health dept.

Changes over Time

Using life cycle analysis in which participants look back over one generation, women and men in the UNICEF-supported district in Rajasthan agree that the greatest change they see is that access to water and the health of children have improved. In discussing these changes, the Integrated Child Development Services facilities are perceived to benefit children and mothers. Residents also value their ORT knowledge and skills. According to the women in CDD-WATSAN villages, diarrhoeas are less common and their frequency in the summer and monsoon seasons has been reduced. Home hygiene and food hygiene have improved, but not sanitation and drainage. Water access is poor in some places, and water availability and sometimes quality are inadequate, especially when handpumps break down. In non-UNICEF-supported villages, the two changes over time most commonly mentioned were improved water supply and reduced family size as a results of the GOI's family welfare programme.

In Tamil Nadu, women and men also mentioned improved water supply as a change from the previous generation. In communities where sanitation has improved, the people view this as a step forward, although irregular water service remains a constraint. The standard of living has also improved. In some communities, more girls attend school than in the past (in one village, all girls now attend), and women attend meetings and social activities more frequently. Women also said they felt more able to stand up against social evils. Although most working women still work as daily wage labour, younger women are seeking more secure jobs. However, in more conservative communities, these changes were not the case.

8 UNICEF Organisation and Management

Introduction

A deep question that cuts across all management and organisation is that of organisational identity. What *is* the UNICEF WES programme: what is its purpose and mandate, and how should UNICEF work to achieve them? The problem of organisational identity is complicated, as it is for many bilateral agencies and multilateral external support agencies (ESAs), by the fact that UNICEF raises funds and implements its programmes through partners.

In questionnaire surveys, UNICEF partners and staff told the evaluation team that key aspects of UNICEF identity and uniqueness included:

- its focus on the needs of children and women;
- its role as a catalyst and innovator, taking the risks in new approaches that government partners are unable to take;
- its widespread structure (e.g., its field offices);
- its organisation;
- its focus on community-based action and partnership; and
- its long-term commitment to the problems of water and sanitation.

While such classifications are necessarily abstract and broad, they nevertheless set a stage for discussion of the organisation's structure and function. This chapter examines the UNICEF structure as it relates to effectiveness in water and sanitation, as well as the relationship of the UNICEF-WES staff with their many partners.

UNICEF Structure and Function

Decentralisation

UNICEF as a whole is a highly decentralised organisation. Just as UNICEF HQ is not seen to "interfere" in the implementation of country programmes, the Delhi office has strongly devolved programme responsibilities to its field offices. Relations between UNICEF HQ and Delhi-WESS, as between Delhi-WESS and the field offices, seem cordial. Communication flows both ways; indeed, many of the principles identified in the international policy guidelines on water and sanitation published by UNICEF HQ have emerged from the Indian experience. This devolution of both responsibility and authority is reflected in WES, where the Delhi-based staff advise field offices on programme implementation when invited to do so, but do not "lead" the development or implementation of field office programmes.

The evaluation team strongly supports the principle of devolution of responsibility to competent staff close to the field. Arguments in favour of decentralisation include the ability to consider local realities in programme management, greater efficiency and greater responsiveness. Two reasons frequently used to justify tightly centralised organisations are greater coherence of policy and practise, and a shortage of appropriate resources that must be shared across the organisation. The first reason does not appear to be a major issue in WES practise for UNICEF: given the vast scale of the Indian subcontinent, involved staff are not surprised that different states have different policies that require UNICEF field offices to adapt general strategies to local conditions. In terms of the second reason,

the chief role of the Delhi staff is to serve as a "specialised resource" available to the field offices in the development of projects or the resolution of problems. The evaluation team was impressed with the calibre of Delhi-based staff in their respective fields. A question arose, however, over the mix of WES skills available to field offices from the Delhi-WESS, discussed below under Personnel Issues.

WES in the UNICEF Field Offices

WES is only a part of each UNICEF field office's activities. The field office's first obligation is the coherence of its overall programme, and WES must be integrated within it. Staff working on WES are accountable to their field office first and foremost, and are encouraged to view Delhi-WESS as a resource, not a taskmaster.

While the evaluation team supports the principle and practise of decentralisation, visits to field offices raised questions about the high demands on staff. A professional working in technical aspects is generally matched with a professional in social aspects in field office WES activities. In some offices, several sectors (e.g., health or education) share one social specialist. On the one hand, the sharing of social experts can strengthen intersectoral convergence; on the other hand, it is easy to underestimate, and pay insufficient attention to, WES social complexities and sector-specific complexities.

WES field office staff face very complex challenges and are responsible for relatively large budgets. Problems may be difficult for staff to manage effectively, given their limited numbers, background and experience. Few technical professionals are conversant with both water supply and sanitation and in both urban and rural areas, since each involves distinct technical issues. Yet UNICEF technical consultants or staff are often called upon to address all four issues, *in addition* to complex issues of financial and institutional sustainability. Social aspects of water, sanitation and hygiene are similarly complex, and require specialist expertise and experience. Finally, the roles of both technical and social specialists are further complicated, like that of the whole organisation, when they work through partners who all have distinct agendas.

Four values of critical importance to UNICEF need to be carefully balanced, as they are sometimes complementary and sometimes in conflict:

- *stability and continuity of employment,* to maximise benefits of experience and learning;
- *convergence* between development themes, to ensure coherence of policy and practise;
- *professional technical competence,* to ensure value for money; and
- *balance,* in terms of numerical and gender representation

Balancing these four values in field office staffing, where the need for integration is most acutely felt, is difficult.

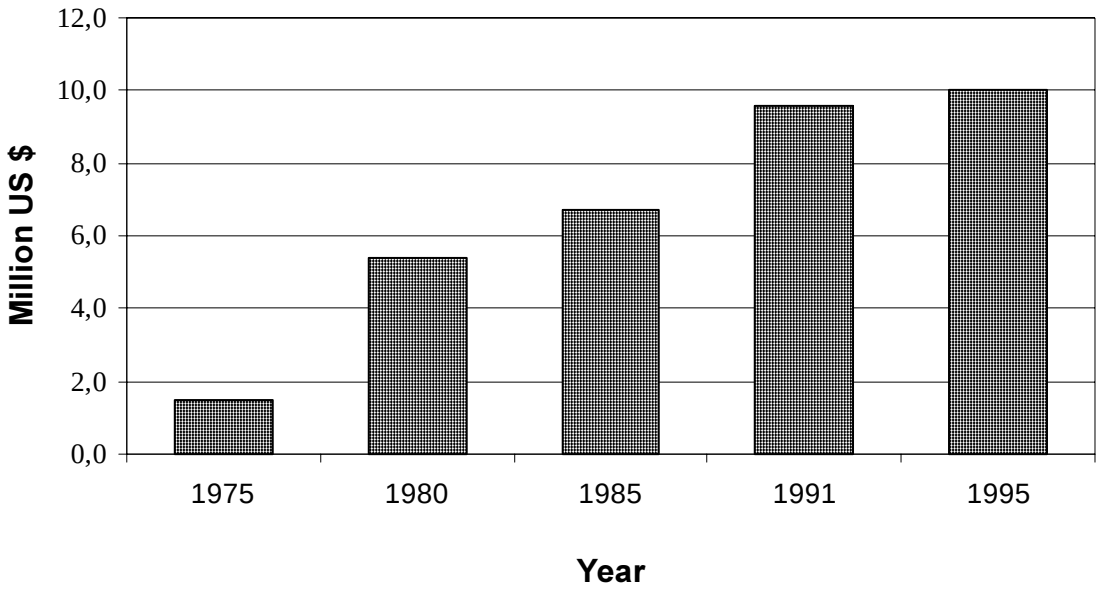
No clear policy process guides which activities are taken up with what intensity and by which mechanisms. The process by which WES prepares its contribution to Master Plan of Operations (MPO) is unclear. Many activities are started and few are ever stopped; there is rarely an explicit "exit" strategy. The "need" to undertake activities also appears to outweigh consideration of the WES programme's capacity to perform the task well. Better focus, based on a clear policy, may well give better results, since priorities are essential in an organisation with limited resources. The evaluation team endorses the decision of UNICEF-WESS to study the needs for human resource development (HRD) across the Indian WES programme.

Budgets and Trends

Overall budgets

There are historical reasons why useful data on budgets and expenditures on WES activities are not straightforward to collect. The need for budgets broken down by activity is well-recognised, and is reflected in the current effort to introduce programme management information systems (PROMS) in the Indian programme. One crude guide to *intentions* is shown in Figure 8.1 by the growth in budgets from 1975 to 1995, from various UNICEF planning documents. This does not reflect vicissitudes in actual donor contributions to WES (Supplementary Funds), or the ability to spend whatever budget was eventually allocated.

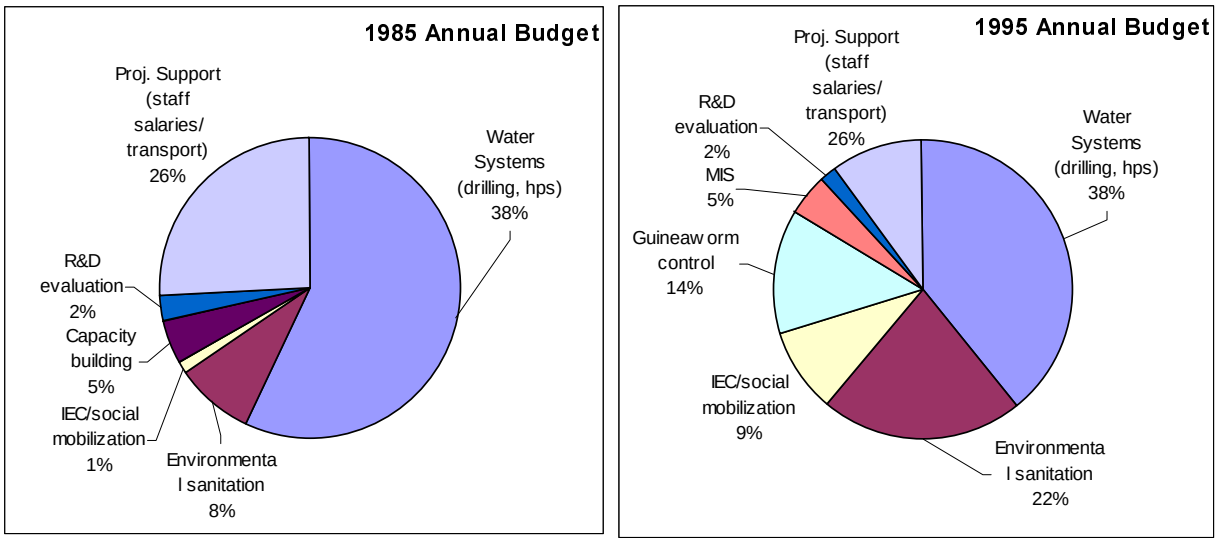
Figure 8.1: UNICEF Annual Budgets for the WES Programme in India



Budget composition

Similarly, a sense of the shift from water to "water and environmental sanitation" can be seen in a comparison of the 1985 and 1995 budgets in Figure 8.2. Even with the increased emphasis on sanitation during the 1980s and 1990s, water supply still dominates in budgetary planning, especially considering that guinea worm control (14 per cent of the total budget in 1995) is largely a water supply and health promotion effort, with little requirement for expenditures in sanitation.

Figure 8.2: Comparison of Budgetary Breakdowns, 1985 and 1995



As with sanitation, the budgets for mass communication and social mobilisation seem relatively small in comparison with water supply hardware. The first time a budget line for mass communication is mentioned is in 1985. The initial allocation to communication and social mobilisation in the 1985–89 UNICEF WES plan was less than 4 per cent. From 1991 onwards, it has averaged around 10 per cent. While this is a normal percentage within a general construction programme, it seems low for an organisation that states that it is shifting more towards social aspects in its policy and strategies. How much is actually spent is not clear as data on expenditure were not readily available.

Personnel Issues

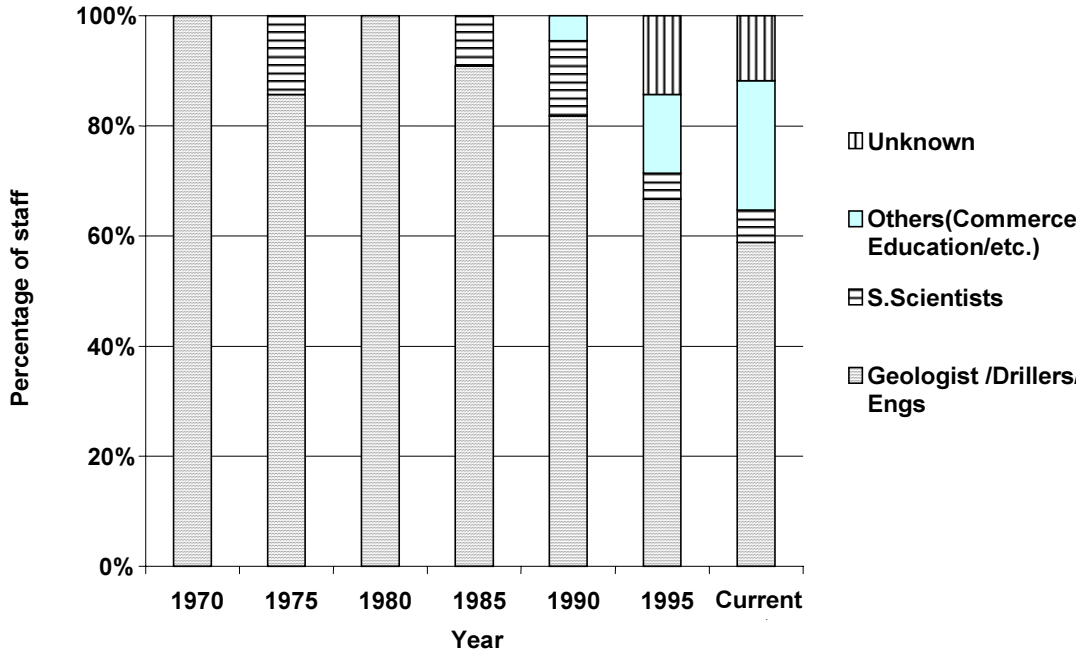
Current composition

Given the above budget data, it is not surprising that the WES staff profile over the last 30 years has a strong technical flavour. Figure 8.3 shows the composition over time of WES staff as defined by their professional training, and does not necessarily reflect what staff do now. Nevertheless, there are limits to the extent to which engineers can become social scientists, and vice versa.

As reflected in the budgets, staffing inputs related to social aspects in the sector are low. In human resources, only one staff member is assigned to community participation and hygiene promotion, including communication, social mobilisation, and training (for behavioural change). At the time of this evaluation, the position was vacant. WESS has no special designation for community participation and management of local water services and sanitation and hygiene programmes. In terms of staff composition, the section has usually had only one or two social specialists available. This cannot be simply ascribed to ignorance of the need for such expertise, but rather with the bureaucratic difficulties in changing staff skills and composition, and the changing philosophy on type of staff within the organisation.

In addition there is a particularly strong male bias: the one female professional was transferred out in 1998. (The current situation may be different.) The evaluation team is concerned about the practical difficulties of effective and responsible "outsourcing" for both technical and social-related skills, and the practical limitations of sharing in-house resources with other departments; there is no substitute for in-house expertise in managing outside technical resources. There did not appear to be any experienced backup in Delhi for field office staff in issues of sanitation and hygiene promotion at the time of the evaluation.

Figure 8.3: WES Staff Composition



Increasing Skills and Balance in WES

A number of HRD issues relate to the number, mix and calibre of staff working in UNICEF in general, and in WES in particular. These issues are particularly pressing on the hygiene promotion and participation side, and include the following:

- *A general UNICEF rule that only 25 per cent of the general funds may be used for its own staff costs.* Such a rule does not reflect that a shift from hardware to software is likely to increase staff costs, since the "investments" are staff facilitation and support and not pipes and pumps. The rule may also encourage subcontracting to sometimes less competent organisations.
- *A philosophy of sharing social expertise among sectors.* UNICEF has social specialists in other sectors who are expected to assist in water and hygiene, especially in the light of the convergence concept. In practise, they have a heavy workload and co-operation is not systematic and structured.
- *Difficulties in replacing staff whose competence no longer fits the changing requirements of the sector.* These difficulties appear to be more cultural than contractual, but are nevertheless very real. More than one staff member candidly implied that the ability to match skills to requirements was hindered by an organisational culture that emphasises job security.
- *Staff development without much structural support.* UNICEF staff development needs have been recently assessed across the region, and a plan and procedures for its support were developed. While improvement in general "effectiveness" and management is strongly encouraged, the high premium on transferable generalist skills actually works against commitment to deepening professional skills in a given area.

Two strategies are frequently cited to reduce the constraint of limited social science staff within the water sector: convergence between UNICEF sectors and partnerships with other organisations with social science expertise. As UNICEF is often involved in related sectors in the same geographical areas, convergence within UNICEF is a logical step to make better use of the available social science expertise. Such a strategy, however, still requires the availability of enough of that expertise. Workloads and schedules must also allow joint activities between sectors among the field staff, as well as joint planning of programmes with communities and their support services with a clear and concrete

objectives. Such practises are beginning to develop, with much expected to be learned in one or two concrete attempts at convergence, such as education and WES, or health and WES.

The UNICEF WES policy of pairing staff with technical and social expertise in field offices has varying degrees of success. There are difficulties in filling many posts with the right combination of experience and openness to new approaches. This difficulty is exacerbated by the nature of employment practise within UNICEF, which appears at times to bend over backwards to keep on existing staff rather than recruit external staff whose skills and temperament are more appropriate to the job. Evaluation team members were concerned about the magnitude and complexity of activities of relatively "junior" field staff and saw significant risks for the organisation in the overload of the limited capacity and experience of field officers.

Internal Mechanisms for Understanding Performance

Many organisations attempt to improve through understanding past performance. There have been many studies of UNICEF WES projects. The evaluation team collected some 315 such documents, of which 159 were field studies. The team randomly selected and reviewed 39 studies to determine whether and how the WES programme assesses the effects of its projects.

UNICEF has commissioned many small evaluation studies, but these do not reflect systematic assessment of the performance or impact of rural water supply, sanitation and hygiene. There are few, if any, reliable statistics on the access, availability and use of water from various sources under different socio-economic conditions; the number of water sources actually functioning; the output of water actually available from these sources; water quality (both actual and perceived by users); and the use of different volumes of water for drinking, cooking, personal hygiene, hand washing, etc. There have also been few systematic efforts, either by UNICEF or by the government, to evaluate the impact of rural water supply or sanitation upon earning opportunities, public health and infant or child mortality/morbidity.

Box 8.1: Seeking Common Indicators

UNICEF studies could test for results on common indicators, which would make the results more useful. In rural sanitation, for example, there is a broad consensus that evidence of results should include data on:

- the quality of installation, use and maintenance of sanitation facilities;
- the practice of disposal of infants' excreta;
- the adoption of hand-washing practices;
- the breakdown of ownership and use by socio-economic sections, gender and age;
- data on costs; and
- observations on the longer term sustainability of the approach.

Many projects share common objectives and could test for results on common indicators, although actors, strategies and activities would naturally differ locally. While many of the reviewed evaluations looked at some common indicators, there is no systematic set of criteria for evaluation. Agreeing on the common elements and the ways to measure them will make future studies more comparable and give a better indication of what works best where and at what cost. At present, this is not the case, and cost data-apart from some direct costs, such as for various types of latrines-are almost always inadequate. In the promotion of low-cost sanitation, the cost of the promotion itself can be at least as significant as the cost of the hardware, yet these costs are rarely worked out explicitly.

Study quality can also improve in other respects. Many studies have a gender-specific sample, but then do not report data separately for women and men. Comparisons are often geographic and administrative, such as between districts at various locations in a state, without explanations or hypotheses as to why certain districts do better or worse than others do. Comparisons between high, middle and low

classes are far less common, yet these data are more useful than a comparison of performance by administrative location. The balance between data presentation and data analysis is always in favour of the former, with statistics given in great and at times excessive detail with little analysis.

The favoured and indeed only method in which the studies assess the changes in conditions and practises is through KAP (knowledge, attitudes and practises) surveys. This method has a number of disadvantages. It is judgmental, as it measures what the project or researcher thinks the people *should* know, believe and do; when people do not give the intended answers, they are judged ignorant or "non-adopters". Local insights and alternative practises that may be as valuable for reducing disease transmission risks are not included in these surveys. Since both inputs and measurement of results would benefit from a better and more systematic use of participatory tools and techniques, capacity-building in this subject field would be very relevant.

The evaluation team's review established that some field studies were much better than others. The notably higher quality in one UNICEF-commissioned study (V.S. Chahan 1998) appears to stem from several factors:

- selection of a consultant on the merit of previous good quality work;
- detailed and carefully developed terms of reference;
- WES guidance in the information collection process; and
- critical review of the results.

During the analysis, the team attempted to assess which approaches achieved which results. This turned out to be impossible, because very few of the studies described both inputs (i.e., the approaches, actors, activities, funds) and results. At present, field studies are carried out as separate and disassociated activities, without much thinking as to what is measured, how, and why. While many of these studies provide invaluable background, they are inadequate to serve as the basis for impact assessment. This failure points to an important deficit in project management that UNICEF must consider. If the UNICEF WES programme is to remain credible to its partners and supporters, greater effort must go to increasing the quality of its understanding of its performance.

9 Partnerships

Introduction

Partners and partnerships are crucial to UNICEF's work in the WES field. UNICEF's original partners in WES consisted largely of PHEDs, as well as a few entrepreneurs and NGOs for technical aspects, procurement and quality control of rigs and handpumps. Since then, the shift in focus has seen a proliferation of work with more socially oriented government departments and NGOs. UNICEF's partners also include the private sector, research groups and individual WES experts. This chapter discusses the nature of UNICEF's relationships with its partners and how it has contributed to their capacity. In addition, it examines the perceptions that UNICEF staff and partners hold of the partnerships and where they feel improvements can be made.

Duration and Style

Partnership has come to mean many things in development, from ESAs supporting but not being directly involved in the work of others to their shaping a shared agenda of needs and interventions. UNICEF has many different types of partnerships. Its strongest WES partnership is with the GOI, where the relationship goes beyond these commonly accepted standards of partnership in two important ways: the *duration* of the commitment and its *style*. A number of responses in questionnaires, interviews and workshops reflect the belief that UNICEF has been a "true" friend in WES activities by working with the government continuously over the last 30 years. Almost all respondents reported that this has greatly enhanced UNICEF access and the credibility of its support and advice.

The *style* of UNICEF assistance has also contributed to credibility and access. UNICEF MPOs have always been closely identified with the corresponding GOI planning documents. UNICEF has identified components of these documents to support, rather than focus on differences with current national or state practise. Although some ESAs believe they can best support progressive elements within the government through strong public challenges to ineffective policy and practise, the UNICEF style appears to have been a more diplomatic one behind the scenes. Such a style is difficult for an evaluation team to assess. (For example, would government policy have changed anyway or because UNICEF lobbied discreetly in the wings?) However, the team saw little evidence that UNICEF could have achieved its objectives more effectively through more aggressive confrontation on issues of disagreement.

UNICEF Contributions to Partners' Capacity

Has the UNICEF effort in WES made any difference in the work of its WES partners? The responses from the partner survey indicate that most (46 per cent) perceived UNICEF contributions lie in the institutional support sphere, 32 per cent in technical aspects, 17 per cent in community and health aspects, and 6 per cent in UNICEF administration and organisational culture.

All partner groups mentioned *training* and *information* as the most important contributions from the WES programme to their work. These two categories account for 40 percent of the answers relating to institutional support. *Support to project formulation and monitoring* and *widening people's horizons* were other frequent answers. Under technical support, training to technical staff and *access to new and cost-effective technologies* were the largest categories (both 25 per cent).

For community and health aspects, the answers were more diverse. Mentioned most are the focus on *children's health,* building *community awareness,* developing *operation and maintenance* and developing *sanitation,* each accounting for about 16 per cent of the answers in this group.

Ethics and moral support were mentioned as the two most valued assets of UNICEF administration and organisational culture.

Partners' Perceptions of UNICEF

The strongest UNICEF partnership has been with government departments. Partnerships with NGOs, while fruitful for both, have not been as close. At the April 1999 dissemination workshop on the present evaluation, some NGOs said they felt they were merely "hired" to do the work UNICEF wanted rather than entering into true partnership. One partner noted that "implementation of [pilot projects] was excellent. Follow up has not been so impressive. Using an NGO only for implementing a pilot project does not help. Continued [NGO] involvement in follow-up will be useful."

The questionnaire survey of partners produced a long list of areas and aspects where respondents thought the UNICEF WES programme can improve. Of the 295 suggestions given, 12 per cent deal with sanitation, 14 per cent with health and hygiene, 30 per cent with water supply and 45 per cent with institutional aspects. (See Table 9.1.) In qualitative terms, one respondent suggested that "in rural sanitation, monitoring can be more effective. Reports should be made more result oriented and evaluations should be more specific in concrete terms."

The partners also commented on the administrative strengths and weaknesses that influence the impact of UNICEF work. The 60 partners that answered this question (out of a total of 74) together mentioned 156 administrative strengths. Prompt response and feedback (23 per cent), good management (19 per cent) and timely payments (18 per cent) topped the list.

Half of the respondents (37 out of 74) together listed 62 administrative weaknesses. For example, one partner felt that planning, reporting and accounting would be more efficient on a semi-annual, rather than a quarterly, basis. Thirty others said that they had noted no weaknesses and seven gave no reply. Although no one set of weaknesses was expressed by a majority, some respondents identified staff shortages, over-dependency on the Government and other partners, and too much bureaucracy (although others felt that a UNICEF strength was its relatively low level of bureaucracy).

Table 9.1: Areas Where UNICEF Can Improve: Suggestions from Partners

Suggestions by Category	No.
SANITATION (11% of total 295 suggestions)	**32**
Include urban areas	7
Target latrine subsidies - more subsidy: 2, less subsidy:4	6
Strengthen alternative delivery system, incl. motivators	6
More attention to IEC, scope of components	6
Better monitoring and evaluation, incl. of the strategy	3
Other, not clusterable suggestions	4
HYGIENE PROMOTION (14%)	**42**
More/better support to hygiene promotion	19
A greater focus on schools, incl. Curriculum development	9
More/more specific IEC drives/demonstration projects; use electronic media	6
More publications in other languages than English and Hindi	2
More co-operation and interaction with others	2
Other, not clusterable suggestions	4
WATER SUPPLY (30%)	**87**
Increase focus on participation/community management, O&M, cost sharing, gender	27
More new technologies based on geohydrological conditions and no frequent change	20
Support to water resources management, incl. recharge, watershed management, forestation	13
Develop water quality control, incl. community-based monitoring	11
Continue support to supply of equipment and spares, incl. recycling	7
Preserve monitoring and quality control of drilling	5
Other, not clusterable suggestions	4
INSTITUTIONAL DEVELOPMENT (45%)	**134**
Better project planning and monitoring:	
- Proper selection of implementing organisations, esp. NGOs; informing and involving NGOs in planning; planning for 3 years on a local base; working longer with satisfying NGOs	24
- Improve reporting and reviews, with more regular field visits, more field staff, yearly evaluations with feedback to NGOs and periodic review meetings/fora with GOI and NGOs, half-yearly reports, and a longer follow-up of pilot projects	23
- More independent monitoring, involving NGOs and external experts rather than government	11
- Better MIS and field based data management	
More and better training:	
- More effective methods, materials, external trainers, tailored subjects	3
- More with DPHE, other departments, more levels, incl. Villagers	
- More frequent, longer, timely training, better attendance	13
Good policy context:	9
- Commitment from centre before approaching state; better interaction and co-ordination between agencies, esp. bilaterals, and continuity in policies	10
Promote sustainability aspects in sector	14
- Less implementation by government; stronger policy commitment, but with more/ balanced attention to the needy	
Improved funding:	9
- Funding to PHEDs continued and direct to NGOs; same policy for both	
Better documentation and literature:	
- Better quality literature designed for use, wider distribution and more attention to pollution control, defluoridation; access to international journals	7
Support to improve logistics	6
-Interlinked government stores, back up for community O&M	5
TOTAL	**295**

UNICEF Staff Perspectives of Partnerships

In its fieldwork, UNICEF has built long-term partnerships with only a few organisations; in most cases, the partnerships are short-lived and project-specific. As observed by some of the partners themselves, such relationships can consequently be more like those between a funder and a contractor, or a client and consultant, than between true partners. Nor is there strong co-operation between organisations that work on the same subject in different parts of the country. When questioned, UNICEF staff mentioned the proliferation of small organisations as the main weakness among NGOs, followed by differences in direction and capacities, accountability, and recognition of/from government.

Asked for suggestions about how UNICEF can improve its work with NGOs, staff most frequently mentioned developing their competence (39 per cent) and helping to build networks (30 per cent). Other suggestions included direct contracting of NGOs without requiring their government certification and using longer contracts with those that perform well (19 per cent) and better information on and streamlining of procedures (13 per cent).

As UNICEF starts to help build NGO networks and to work longer with those that perform well, it will be easier to formulate and define objectives, strategies and inputs as partners in a decentralised but common programme. Fewer partners and closer co-operation will make outsourcing more effective, and reduce the constraints upon skilled staff within UNICEF itself (although these constraints should also be reduced). A closer working relationship and a shared focus within a decentralised programme may also make it easier to define common indicators for monitoring and evaluation of results and impacts, which can be used to enhance the effectiveness of the programme.

Co-operation among Partners

Because the financial contribution of UNICEF and other ESAs to the overall WES support is relatively small, the quality of the contribution is essential. Both the GOI and ESAs – including UNICEF-believe that ESAs contribute most through developing and testing new approaches and helping to build capacity. However, the co-operation among ESAs in carrying out these activities is low. Co-operation in practise often means presenting information about each group's activities at informal and ad hoc meetings, but then ESAs going on in separate ways. Projects that test different approaches in different areas are not implemented under a broader common framework, although they may have common objectives and functions. The impact is therefore limited and localised and does not have the optimal benefits for the country as a whole. The team identified one case where an ESA supported GOI-UNICEF programmes and its own bilateral programmes without a single meeting between the two in three years, despite their common issues. In another case, an evaluation team for one ESA visited the same districts where work had been funded and evaluated by another ESA without reference to the previous work.

10 Future Directions for the UNICEF WES Programme in India

Introduction

How should UNICEF focus its WES programme in the coming years? This question lies at the heart of how UNICEF can most effectively use its resources. The directions for UNICEF's future work in India are set through institutionalised consultations between UNICEF and the GOI. They are based on the outcome of UNICEF's situation analysis of children and women and the experiences and results of its ongoing programmes.

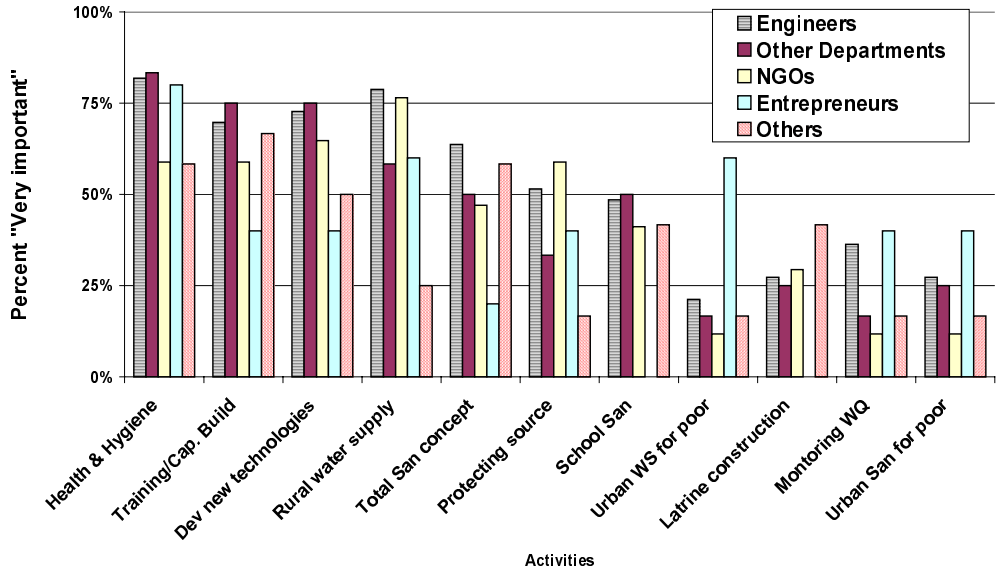
Because UNICEF works closely with partners in and outside government, learning the views of these partners, as well as WES staff, was requested in the Terms of Reference and was an important part of this evaluation. It was done through a mail survey to those partners in the GOI, NGOs, and private sector with whom the UNICEF WES programme closely co-operates, as well as with staff. The purpose was for respondents to state, anonymously if they wished, what they think about UNICEF, its present work and future directions. Staff were also asked in the questionnaire about which issues to drop if priorities had to be made.

Partners, staff and the evaluation team share many perceptions about UNICEF's future directions. All three groups generally agree, for example, that UNICEF's long history in the India WES programme has resulted in particular strengths in rural water supply coverage, sanitation and hygiene. The three groups agree, as well, that UNICEF can best use this comparative advantage by concentrating on fewer subject areas, particularly in the areas of sanitation and hygiene. In addition, the three groups generally agree that the way that UNICEF can contribute to progress in these areas is through development of new approaches and through training and other capacity-building activities.

Partners' Perceptions of Future Directions

The evaluation team asked partners-including those in government departments, NGOs, and private firms-to rank possible activities that UNICEF could undertake. Figure 10.1 summarises what these different groups of partners believe are most relevant areas for the UNICEF WES programme.

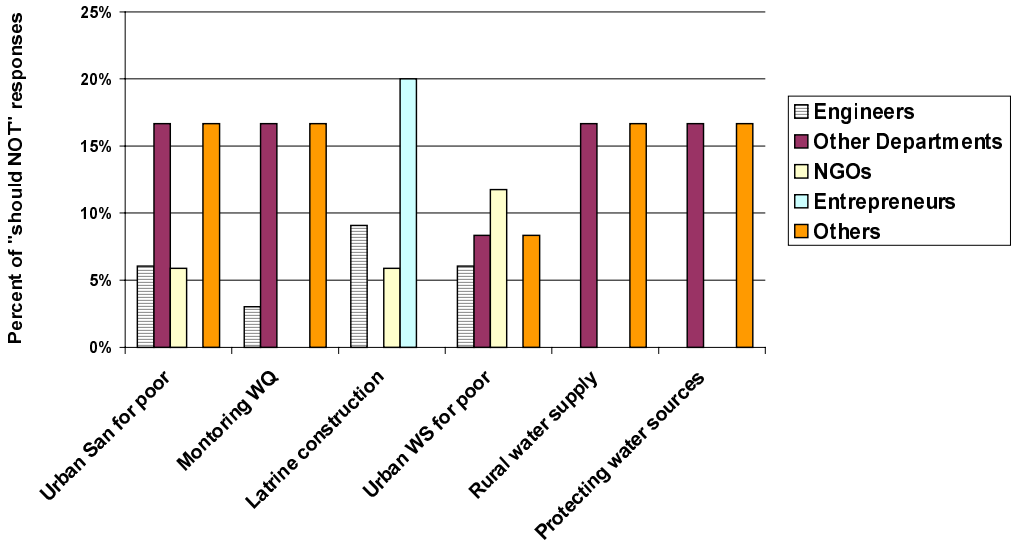
Figure 10.1: Most Relevant Areas for UNICEF by Partner



Though engineers still rate community-based water supply as very important, they see health and hygiene as the currently most important subject area for the WES programme. This opinion is even stronger in the other government departments that deal with local government, women, children and health. Sanitation in its wider sense (not only household latrines) also scores high, but generally lower than health/hygiene and water. The exceptions are the centres involved in sector studies and support, which give equal relevance to sanitation and health/hygiene. Development of new technologies is appreciated by all partners and should continue. All types of partners find training and capacity-building an area where support now and in future is very relevant.

Thinking about women and children in India and the best use of UNICEF's limited resources, partners consider subject areas such as pure latrine construction, water quality control and urban sanitation, and water supply as areas that should *not* get first priority. Except for NGOs, most say the same about the protection of water resources. A few partners even say that the programme should not deal with some of these subjects at all (see Figure 10.2).

Figure 10.2: Activities That Should Not Be Done by UNICEF, by Type of Partner and Frequency



UNICEF Staff Perceptions

UNICEF staff members have many areas of agreement with partners about the most and least relevant areas for the UNICEF WES programme, but also diverge in some aspects. All agree that water quality monitoring and water and sanitation services for the urban poor are now of lower relevance. (See Table 10.1). All give higher ranking to sanitation and to health and hygiene.

Staff differs somewhat from partners in their views of some areas. They give a higher relevance to school sanitation (60 per cent of staff rate this as "very important", compared with 43 per cent of partners) and lower relevance to water supply (31 percent of staff rate this as "very important", compared with 66 per cent of partners). In addition, staff gives lower relevance to the development of new technologies (29 per cent of staff rate this as "very important", compared with 58 percent of partners. Staff also gives a somewhat lower ranking to training of others (44 per cent of staff rank this as "very important" compared with 53 per cent of partners). Although not shown in this table, further analysis showed that male staff give lower relevance to training than female staff. Female staff score health and hygiene, school sanitation, sanitation for the urban poor, and training equally high.

Table 10.1: Relative Relevance of WES Activities by Partners and Staff

Activity	Partners (in percentages)			Staff (in percentages)		
	Very Imp.	Important	Total	Very Imp.	Important	Total
Health and Hygiene	73	22	95	67	7	73
Total Sanitation	54	38	92	58	16	73
School Sanitation	43	41	84	60	13	73
Rural Water Supply	66	19	85	31	29	60
Training and Capacity Bldg	53	27	80	44	22	67
Protection of Water Sources	44	34	78	44	24	69
Dev. of New Technologies	58	18	76	29	31	60
Latrine Construction	28	44	72	20	24	44
Monitoring Water Qual	25	41	66	40	27	67
Sanitation Urban Poor	23	41	63	40	27	67
Water Urban Poor	20	37	57	24	29	53

UNICEF has many mechanisms available to support these areas, from funding other groups' activities to its own direct implementation. The question of which mechanisms to use in the future is also important. Both groups believe that UNICEF has an important role to play in the development of new approaches and in training, and a very small role in direct implementation. Staff places more emphasis on advocacy. (Although the absolute number of partners who feel that advocacy is a key mechanism is higher than the staff figure, it is important to note that the total number of partner respondents is almost double the number of staff respondents.) Responses from partners and staff are summarised in Table 10.2.

Table 10.2: Key Mechanisms for WES by Partners and Staff

Mechanisms	Partners (in numbers)	Staff (in numbers)
Development of New Approaches	51	28
Workshops and Training	52	24
Advocacy	31	29
Direct Implementation	4	3
Funding	43	15
TOTAL # OF RESPONDENTS	**74**	**35**

Evaluation Team's Perceptions

The evaluation team concurs with partners and staff that UNICEF needs to focus on the areas in which it has a comparative advantage, such as in sanitation and hygiene, and scale back in other areas, such as water quality monitoring and urban services. Developing and testing approaches on holistic community management of water sources may be an important future direction for UNICEF, as may advocacy in collaboration with NGOs, the Go and the media. A fuller sense of the team's perceptions on future directions are presented as the recommendations in Chapter 12.

11 Conclusions

This chapter compiles the evaluation team's conclusions contained throughout this report and forms the basis for the recommendations and lessons learned presented in Chapter 12.

Water Supply

1. *UNICEF's contribution to the development and effective promotion of India Mark II handpumps and drilled wells has greatly benefited the rural population of India.* By 1999, approximately 3 million community handpumps were serving up to 500 million people, extending improved water supply to 95 per cent of the population. These achievements result from effective partnership among NGOs (who originally pioneered these technologies), UNICEF, the private sector and government. The UNICEF initiative to promote DTH drilling in hard rock areas was a sound one and has been well-justified by its widespread adoption and by the overall coverage of rural water supplies achieved.

2. *The choice of technology and the approaches promoted by UNICEF have been, as far as the evaluation team could gauge, cost effective.* Little or no evidence remains of formal cost-effectiveness analyses performed at the time of key decisions, and the effectiveness of other options not taken to scale is nearly impossible to assess to the satisfaction of both economists and engineers. Nevertheless, India provides safe water to its rural population at a life-cycle (present-value) cost of Rs. 190 per capita, which is very low compared with costs elsewhere in the world.

3. *The emphasis on targets, norms and coverage has inevitably reduced the quality of borehole construction.* There is, in effect, a balance and trade-off in which a measure of compromise in quality of workmanship can be accepted in return for the massive achievements in coverage of improved rural water supplies. The balance may have tipped too far in favour of coverage, and the quality of borehole construction for rural water supplies appears to be close to the minimum acceptable standard.

4. *While there is some evidence for success of the hydrofracturing technique of borehole rejuvenation, uptake has been slow, and further evaluation is needed.* Data suggest that hydrofracturing improves borehole yields, confirmed in the team's field visits. Nevertheless, the technique has not been widely taken up as states have purchased very few of their own units. UNICEF may still have a role to play in producing a comprehensive evaluation of the method (on which GSDA has made a good start) and encouraging and disseminating the method even more widely and actively. Also needed is a systematic evaluation of the tractor-mounted compressor, the other major rejuvenation technology that UNICEF promotes.

5. *The full potential and promise of drilling MIS have not been realised.* Monitoring systems and associated computer software for spare parts, rigs and plant for borehole rejuvenation have been developed by UNICEF and the government. Turning data into full-fledged management information systems (MIS) has not been fully realised, with significant variability in uptake and usage among states. More detailed technical and cost data are required so that UNICEF can support its advice to the government, and MIS enhancement would provide essential data for such analysis.

6. *In its work on handpump production, UNICEF succeeded in maintaining the essential focus on quality.* Thanks to this support, India achieved cost-effective mass production of handpumps while maintaining satisfactory quality standards. In recent years UNICEF has transferred the responsibility for pump quality assurance to Indian institutions. As in drilling, market forces have shifted the focus towards low cost, sometimes with a serious compromise of quality. The team found clear evidence that the quality standards are slipping.

7. *India's groundwater resources are endangered, but the most appropriate role of UNICEF in their defence is unclear.* UNICEF has rightly articulated its concern about the impact of uncontrolled irrigation abstraction on rural domestic supplies. However, UNICEF does not traditionally have experience and expertise in the complex field of groundwater resources management. It therefore needs to augment its valuable advocacy role as a trusted voice to national and state governments with soundly based technical information and advice, perhaps through new partnerships.

8. *While UNICEF has, with others, pioneered new approaches to maintenance of rural water supply, much work remains to be done.* It costs approximately Rs. 4,000 million per year to maintain 3 million handpumps and Rs. 2,000 million to maintain piped systems. The burden on the government is very high and may not be sustained for much longer. UNICEF has supported community-based management, but these efforts have not achieved real change in the field. A comprehensive system for managing and financing water supply maintenance with a clear gender and poverty focus remains to be established.

9. *Institutional arrangements for rural water supply management are, in practise, unclear.* In a number of states, handpump supplies are being increasingly replaced or supplemented by small and larger-scale piped groundwater systems with both house connections and standpipes. The mixture of pumped schemes with handpump systems can lead to conflicting or overlapping management responsibilities, and inefficient duplication of support strategies.

10. *Even with the emergence of powerpump schemes, handpumps still have a role to play, but the lower dependence on them means that less priority is given to their maintenance and timely repairs.* In a situation of intermittent electricity supply and seasonal water shortages, it is essential to maintain handpumps as one component of a mix of community systems that include several sources.

Environmental Sanitation

1. *UNICEF has been a leader in both advocacy and experimentation for rural sanitation in India.* UNICEF began its efforts in concert with the GOI as the government turned its attention to this critical area.

2. *UNICEF has worked hard to establish rural excreta management as part of a broader concept of environmental sanitation.* However, while facilities built under pilot studies have been used to greater or lesser degrees, they have not been sustainable outside a programme of heavy subsidy.

3. *UNICEF, with others, has pioneered a number of "demand-responsive" approaches to sanitation, with varied results.* RSMs, first pioneered in Uttar Pradesh, have had, at best, mixed success. In contrast, the demand mobilisation programme in Mednipore, West Bengal, has been extremely successful both in generating demand for sanitation and in tailoring the sanitation "product" to what people need and want.

4. *UNICEF's pioneering efforts in rural sanitation in India inevitably experienced some experimental disappointments.* UNICEF is to be commended for not only the courage to experiment, but also the wisdom to see the need for experimentation. It appears to the evaluation team, however, that the "success" of some of these approaches was seized too quickly both within UNICEF and the GOI, in hopes of devising a strategy that could be scaled up in the same way as rural water supply had been.

5. *UNICEF's work in rural sanitation is broadly recognised, but its work in the urban sector has been very limited.* While UNICEF has also been involved in some urban sanitation projects, these have not been on the same scale as the efforts in rural sanitation, and are inevitably more complex in terms of local government politics, issues of land tenure and interaction with municipal services.

Social Aspects of WES Services

1. *While UNICEF policy shifted from hardware to a mix of hardware, social mobilisation and hygiene promotion many years ago, the shift is far from complete in practise.* UNICEF was relatively early in making this shift in India, and the shift has been recognised and supported by its partners. However, there is no clear and comprehensive definition of user participation, which includes issues of gender and socio-economically disadvantaged groups, in the whole project cycle. To date, for example, the focus has been on the transfer of skills and responsibility for handpump maintenance and repair, without considering such issues as compensation, cost recovery, the maintenance of pumped schemes and the social and economic context into which such services must fit.

2. *Women's participation in WES may be greater, but not always fairer, than in the past.* Handpump maintenance, for example, has given women technical training and some control over the functioning of the domestic water supply. Yet, these gains are achieved at the cost of women's time to perform this voluntary work, work for which men could expect to be paid. An equitable division of contributions and benefits between women and men has yet to be achieved, both conceptually and in practise.

3. *UNICEF is well known in the Indian WES sector for the large amount and variety of its IEC materials.* The emphasis is quite rightly on better conditions and practises in sanitation and personal and domestic hygiene. However, the materials do not address motivational factors other than health. The materials also do not promote other behaviour changes that do not directly affect health, but contribute to the viability of the system, such as community management and cost-sharing. Important questions of gender are also poorly represented in the materials and methods.

4. *Promotion methods concentrate on mass media campaigns and person-to-person contacts.* While these two methods can be effective, UNICEF has not tried social marketing, community management, and other approaches that may be more cost-effective. In addition, studies on effectiveness of social approaches are of the conventional KAP type, vary in quality, seldom differentiate for gender and poverty, and have little or no information on approaches and costs. Studies that examine results vs. approaches and costs using agreed indicators and means of verification for measuring outcomes may give better guidance for programme management.

5. *Convergent Community Action is a promising approach to maximise the benefits from improved provision of related services. However, CCA needs further testing in WES.* Within UNICEF, CCA is now applied to maximise convergence between many forms of local development: health, education, economic development, and human rights. In the field, CCA appears to have progressed better in making women aware of their rights vis-à-vis government services than in increasing the capacity of villagers to manage local services. This part of the strategy is not sufficiently clearly conceptualised.

Cost-Effectiveness

1. *Although UNICEF clearly bore costs in mind over the years, methodological complexity and insufficient documentation makes rigorous retrospective cost-effectiveness appraisal impossible by this evaluation team.* In terms of methodological issues, the need to compare "like with like" means that some of the more useful comparisons cannot be made, such as between an option that has been tried and one that has not. Further, historical data on comparable costs and options are not available.

2. *There has not been explicit consideration of cost-effectiveness or cost reduction in UNICEF activities and programs.* It is therefore difficult to know how costs affect decision-making, and to reassure donors and partners of the sound economics underlying many of UNICEF's achievements. Such assessments would be valuable for strategic and programme planning. The increased use of the logical framework methodology within the WES section is a welcome step in the right direction.

3. Using the data available on the costs per capita and per cubic metre of water delivered by handpumps and powerpumps, *handpumps are more cost-effective on a per capita basis for communities with fewer than 4,500 people.*

4. In addition, more qualitative assessments generally support the contention that *fundamental decisions about water supply technology selection have been sound.*

Impact on Users

1. *UNICEF has made a start on improving the sanitation and hygiene practises of the "primary stakeholders", the villagers themselves.* Men and women in the villages assessed reported that, compared to the past, the water supply situation has improved. In particular, this has led to more water use and better personal and domestic hygiene. Other improvements they cited about the UNICEF programme include: better education; better health care facilities in some places; and a less restricted life for women in many less conservative communities. The nature of GOI-UNICEF co-operation, however, makes it hard to distinguish between original UNICEF contributions and GOI upscaling of these contributions.

2. *Many communities are shifting to piped water systems, rather than relying on handpumps.* Piped supplies may not always be a significant improvement if installed and managed under present procedures and institutional arrangements. Community participation in O&M remains low under both piped water and handpump supply systems.

3. *Small but significant differences exist between districts with and without UNICEF WES support.* CDD-WATSAN communities are slightly better in excreta disposal than communities not assisted by UNICEF and show some signs of better handwashing. Practises of women have been addressed more often and more effectively than those of children and men. Promotion of ORT has been practical and quite successful in UNICEF-assisted districts.

4. *School sanitation efforts are only successful where they are demand-based.* Necessary conditions appear to be that both schools and parents contribute, the number of facilities for both girls and boys are adequate and the school itself (through teachers and the school health club) manages facility use and maintenance. In general, the UNICEF-supported school sanitation programme has not been very successful in the areas studied.

5. *Both women and men mention improvements in rural water supply as the greatest achievement they have seen during this generation.* Better access to education, including for girls, was also prominent in their life cycle analysis. The degree to which changes in women's status over time was viewed as an achievement depended on the community, with more progressive communities seeing this an improvement.

UNICEF Organisation and Management

1. *UNICEF is strongly decentralised, with a commitment to the principle of ensuring that competent staff closest to the work are free to manage in light of the conditions and constraints that they know best.* This principle is applied in cordial relations between the Delhi-WESS and the field offices, and also between UNICEF New York and the Delhi-WESS. The trade-offs involved between strongly centralised and strongly decentralised organisations are well-known; *some* of the difficulties faced by UNICEF-WES in focusing its work stem from the staff's diverse portfolio of projects.

2. *The budget allocated to social aspects (approximately 10 per cent of the total UNICEF WES budget) does not seem sufficient.* This is especially true given UNICEF's stated goal to focus more on these aspects of WES services. In addition, the general rule that only 25 per cent of general funds be used for staff costs impedes investment in capacity, since staff facilitation and support, rather than pumps and pipes, are the primary investments to improve the social aspects of WES services.

3. *The shift from a technology-only approach to a team approach that encompasses both technical and social aspects requires high-calibre staff.* This requires the recruitment and development of professionals from different backgrounds who can understand both the language and concerns of other disciplines. The UNICEF WES policy of pairing staff in field offices has varying degrees of success. There are difficulties in filling many posts with the right combination of experience and openness to new approaches. An organisational structure that emphasises job security also can make finding the right people to take on new challenges difficult.

4. *The staff profile in the Delhi WES section is also of concern, given the increased emphasis on behavioural and organisational aspects.* The evaluation team is concerned about the practical difficulties of *effective* and *responsible* "outsourcing" for both technical and software skills, and the practical limitations of sharing in-house resources with other departments. There does not appear to be any experienced backup in Delhi for field office staff in issues of sanitation and hygiene promotion.

5. *No clear policy process guides which activities are taken up with what intensity and by which mechanisms.* Many activities are started and few are ever stopped; there is rarely an explicit "exit" strategy. The "need" to undertake activities also appears to outweigh consideration of the WES programme's capacity to perform the task well.

Partnerships

1. *UNICEF is recognised and valued by its donors for its influence with the Government of India.* ESAs value the access to senior GOI officials by UNICEF-WES staff and realise that it has been earned through a long commitment at national, state and district levels.

2. *UNICEF's programmes are closely co-ordinated with the plans and policies of the GOI, and this policy of long-standing partnership has been effective.* UNICEF views itself as a partner of the GOI, and its efforts to synchronise both the timing and the objectives of its MPOs with GOI Plans reflect this view. The evaluation team believes that UNICEF's supportive approach has on the whole been appropriate, and has contributed to success.

3. *Compared with GOI contributions, the financial support from ESAs to water and sanitation in India is tiny.* To make best use of this relatively small amount of support, the GOI and the ESAs-including UNICEF-believe that ESAs contribute most effectively through (1) developing and testing new approaches and (2) helping to build capacity for use of approaches that have been proven. However, co-operation among the ESAs in these functions is low.

Future Directions

1. *UNICEF partners and staff agree that the WES programme should focus more on sanitation and hygiene and not try to tackle all WES subject areas.* There was consensus on most of these areas, although partners saw new technologies and rural water supply as a higher priority than did staff, while UNICEF staff viewed school sanitation as a higher priority than did partners.

2. To achieve progress in these areas, *UNICEF partners and staff agree that UNICEF can make its greatest contributions through helping to develop new approaches and through training.* Partners also supported funding as important, and staff supported advocacy. Very few partners and staff felt that UNICEF should be involved in direct implementation.

12 Recommendations and Lessons Learned

Recommendations

UNICEF requested that the evaluation team suggest future directions for its WES programme in India. In this vein, the team makes the following 10 recommendations.

1. *UNICEF must focus its WES efforts on fewer subject fields.* In less-served areas, it makes sense to help build capacity to expand proven approaches, as currently planned. Elsewhere, it means consolidating the achievements in water supply and achieving the same success in sanitation and hygiene, perhaps through exploration of convergent approaches with education and health. Other areas, such as water quality monitoring, water supply and sanitation to the urban poor, and water resources management, cannot be pursued to the same depth. A remarkable consensus among partners, staff and evaluation team members emerged that all these are important, but UNICEF does not have a *comparative advantage* in them. Instead, UNICEF can *most effectively* contribute in these areas through collaboration with others. UNICEF should thus establish strategic partnerships with those organisations and jointly plan strategy, activities and intended outcomes.

2. *In rural water supply, UNICEF should complete its work in hand and free up some resources to pioneer in other fields.* UNICEF needs to define and circumscribe its job in rural water supply, and resist the temptation to accept all responsibilities.

   While scaling back, UNICEF should help develop strategies for integrated management of community-level water resources and support pilot projects on the basis of local demand, in districts and communities ready to commit their own resources. CCA should be encouraged in four closely related sectors: water supply and sanitation, health, environment, and decentralised management/ good governance. A jointly developed comprehensive strategy for community management is needed that includes a gender and poverty focus and attention to child rights. Maintaining the quality standards of borehole construction and handpump manufacture after UNICEF's withdrawal from these activities is essential to safe guard the achieved results.

3. *UNICEF should make sanitation and hygiene its new major WES focus.* Although an evident goal in the most recent MPOs, resources need to follow these ambitions more closely. UNICEF must continue to support the spread of affordable latrine options and other approaches. To some extent, UNICEF bears a special responsibility to follow through on this, as it played a significant role in the standardisation of the TPPF as part of the GOI rush to go to scale.

4. *UNICEF should strengthen its partnerships through focus on fewer, closer partners.* When UNICEF focuses on fewer issues, it becomes feasible to work with a smaller set of partners in the medium term in planning, jointly reviewing progress, sharing peer reviews and investing in capacity-building. The advantages of strengthening a smaller group of partners have to be weighed carefully against the risk of making partners too dependent on UNICEF. Agreeing on clear performance criteria and linking these to external evaluations may ensure that rigour is maintained in the partnership.

5. *UNICEF needs to change its staffing and staff development system.* More expertise is needed in the social and institutional aspects of water supply, sanitation and hygiene. This requires both new staff and training of existing staff. Staff development is needed not only in management skills, but also in the promotion of sanitation and hygiene, measurement of behavioural change, and participatory methods and techniques. UNICEF can play an important developmental role in the use of such techniques in India, but this requires a longer and more structured input and the measurement of effectiveness in terms of outcomes, not just outputs, against costs. A better balance of male and female staff is also part of the development of a gender strategy.

6. *UNICEF, together with its partners, must address the challenge of decentralised management of WES.* The Panchayati Raj system offers new opportunities for community-based management, but the potential has not yet been realised. ESAs and the GOI may arrive at a commonly agreed framework that defines general objectives, indicators and means of verification for progress in the sector without specifying uniform approaches and activities. GOI and ESAs could then meet regularly to compare progress and results in the light of the framework. UNICEF may be in a prime position to develop and facilitate such a partnership because of its field presence in the whole of India, its long and significant contribution to the water sector and its close ties with GOI.

7. *UNICEF must improve its monitoring and evaluation of projects and alternative strategies.* This can be done through tighter specification of project evaluation studies, closer partnership with those involved in the studies, and definition of clearer outcomes, objectives, and criteria for success when the projects are planned. UNICEF should also consider, as it has in the case of this evaluation, the benefits of fresh insight and experience from outside India for periodic peer review. The selection of suitable indicators for monitoring and evaluation is not always straightforward; the use of diarrhoeal disease rates in current WATSAN strategy, for example, is fraught with epidemiological difficulty. Nevertheless, a common set of indicators that lie somewhere between hardware outputs and a desired health outcome would be a high priority for realistic determination of programme effectiveness. This is a fundamental concern for the sector in India, and not just UNICEF.

8. *UNICEF should collect and use cost data.* Areas where cost data are needed but lacking include borehole drilling and rejuvenation technology, sanitation technology and promotion options, and software approaches. It may be too late to evaluate past decisions but the data collected now and in the future can greatly assist the UNICEF WES programme in India and in other countries.

9. *UNICEF should undertake focused studies to fill some information gaps and use the results to improve its programmes.* Recommended studies identified in this report include cost-effectiveness analysis of borehole rejuvenation techniques and a joint evaluation with BIS on manufacturers' qualifications to ensure handpump quality and standards. UNICEF should play a role in the pre-testing IEC materials and in testing the effectiveness of social marketing, community management and CCA approaches.

10. *UNICEF must protect and preserve its long-standing, well-deserved legacy.* WES activities have played a leading role in establishing the reputation of UNICEF in India and have greatly enhanced its reputation abroad. But reputations can be broken more quickly than they are built. UNICEF-India developed its expertise in WES over a period of more than 30 years. It can preserve this national and global legacy and reputation by developing and testing strategies with its partners in India to sustain these achievements beyond UNICEF's support. All individual activities must come to an end sometime, but *the way in which UNICEF completes them* must do justice to what has been achieved.

Lessons Learned

In addition to its sector-oriented conclusions and recommendations, the evaluation team gathered lessons that can be more generally applied to UNICEF programmes.

- *Long-term commitment and partnership produce results.* The UNICEF WES programme maintained its support for 30 years, co-ordinating its activities closely with GOI priorities. The depth of this support has been well-appreciated by UNICEF staff and partners and contributes to UNICEF's ability to get things done in WES. UNICEF staff, partners and the evaluation team concur that UNICEF has earned the trust and confidence of senior-level officials and credibility at the national, state and district levels through its 30-year-plus relationship with the GOI. This gives UNICEF a tremendous comparative advantage.
- *An external agency such as UNICEF has greater freedom to test new approaches than a government.* This relative freedom suggests an important role for UNICEF in many sectors as an organisation that can develop and test new approaches.
- *Going to scale too quickly has adverse repercussions.* It is tempting to expand on pilot projects that seem successful. However, in the long run, it is better to move slowly to ensure that a promising pilot approach is indeed replicable on a larger scale.
- *Institutional arrangements on the district and community levels can help or hinder the implementation of decisions made more centrally.* A supporting national policy framework is important to move ahead in many sectors. However, what is taking place on the ground will determine the likelihood that this policy is operationalised in a meaningful way.
- *A gender and poverty perspective must be consciously planned for and its systematic implementation monitored.* Even with the best of intentions, incorporating such a perspective in participation, education and training will not happen without ongoing and deliberate attention.
- *Programme staff and management need to be realistic about how much work they can take on and still be effective.* With many pressing social problems to be solved, committed staff often shoulder large workloads and cannot scale back or end an activity. However, with too many priorities, the programme cannot maintain high-quality work and the overall programme suffers.
- *Cost data are needed for more effective analyses.* It is difficult to collect and keep track of this information with the many other demands placed on staff. However, the lack of such data impedes cost-effectiveness analysis, which, especially in an era of limited resources and greater accountability, is necessary for effective decision-making.

In summary, ensuring quality and appropriateness of work are the central management issues for the UNICEF WES programme in India, and perhaps more broadly for its work elsewhere. UNICEF has contributed most where it has followed through on specific issues over time. The contributions in drilling and handpump manufacture resulted from commitment by high-calibre professionals over the long haul. Partners, funders and UNICEF staff all agree that UNICEF's role is to develop and test new ideas and approaches for possible broader application. Yet just as there is a "multiplier" of success when good ideas go to scale, there is a "multiplier" of failure when poorly developed ideas go to scale. A basic trade-off exists between quantity and quality of work, and this trade-off is difficult when considering needs as great as India's.

UNICEF has achieved extraordinary, world class results on specific WES issues in India when it has followed through on quality over time. The quality of work done by UNICEF as a sector "test pilot" is not, however, negotiable; it must be exceptional to ensure that approaches are sound before they are brought to scale. The evaluation team's recommendations are aimed at ensuring that UNICEF works most effectively by continuing its high quality work in a limited number of priority areas.

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