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ALL INDIA INSTITUTE OF HYGIENE
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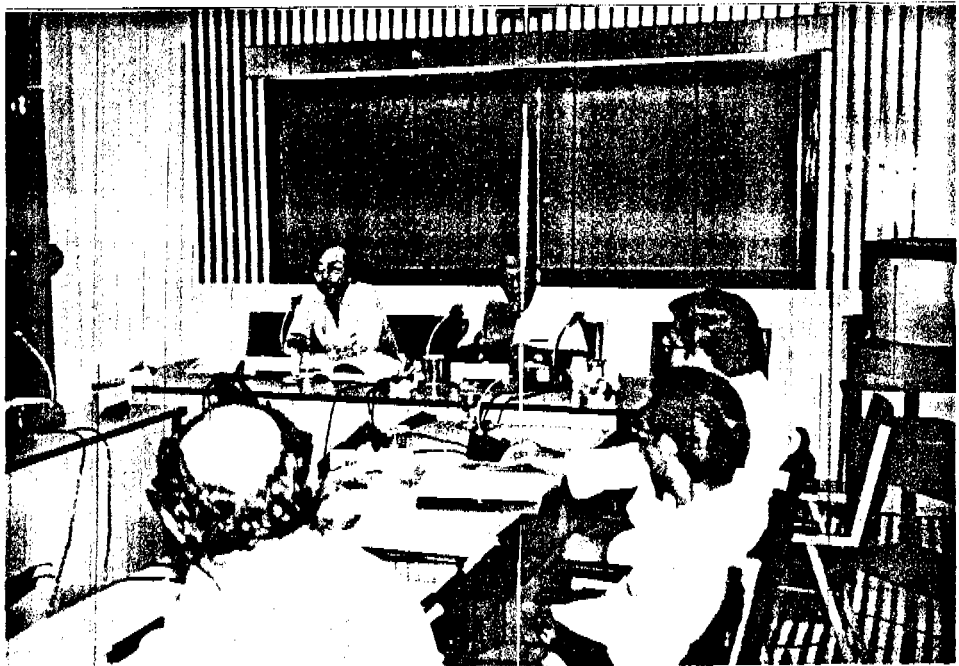
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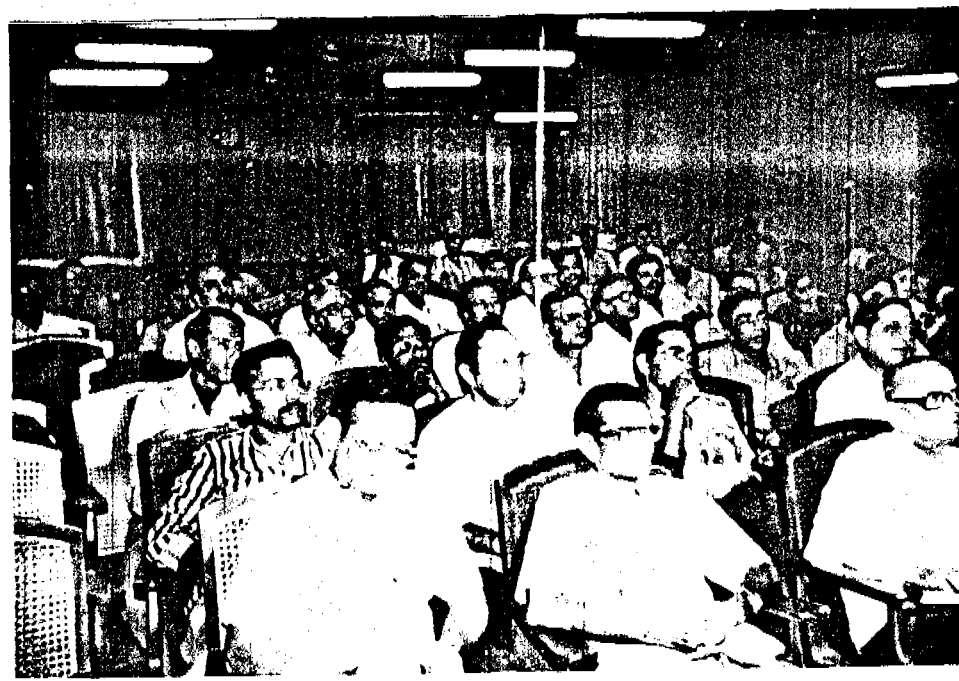
RECENT ACTIVITIES
OF
DEPARTMENT OF SANITARY ENGINEERING



I. T. N. CENTRE
W H O COLLABORATING CENTRE
REGIONAL CENTRE FOR WATER QUALITY N D W M

ALL INDIA INSTITUTE OF HYGIENE & PUBLIC HEALTH
110, CHITTARANJAN AVENUE
CALCUTTA







INTRODUCTION

Health environment and ways and means to achieve it, form the basis of the training given by the Sanitary Engineering and Environmental Sanitation Department to Engineers, Scientists, Physicians, Nurses, and other categories of students. The Department acts in an advisory capacity to various State and Central Government Organisations to solve their environmental health problems. Over two decades the department has been actively engaged in environmental management issues especially Community Water Supply and Sanitation in Rural and Peri-urban areas, Solid Waste Management and Water Pollution Control and other related problems. The department has played a leading role in identifying water pollution in major rivers and developing appropriate methods for low-cost sanitation, Solid Waste Management and Water & Waste Water treatment.

Apart from conducting regular Master of Engineering (Public Health) Course for in-service graduate engineers of States and Union Territories, this department conducts various continuing education courses related to public health and environmental engineering for senior engineers, junior engineers, scientists, chemists, analysts, technicians etc. The department also concentrates on various laboratory and field research

activities on Solid Waste Management, Low-cost Sanitation, Water Quality and Treatment, Health and Socio-economic Aspects of Water Supply and Sanitation, Health Impact Analysis etc. The department also provides consultancy services related to Water Quality and Treatment, Solid Waste Management, Waste Water and Industrial Effluent Treatment, Project evaluation and appraisal Man Power Development etc. to various local bodies and Panchayets, State and Central Organisations, Industries etc.

The faculty of Sanitary Engineering and Environmental Sanitation is well supported by the multi-disciplinary faculties - Epidemiology, Microbiology, Biochemistry & Nutrition, Statistics, Health Education, Behavioural Sciences etc.

TEACHING AND TRAINING PROGRAMME

MASTER OF ENGINEERING (PUBLIC HEALTH)

As in the past years the Sanitary Engineering Department continued to discharge the major responsibility of conducting the ME(PH) course.

The Master of Engineering (P.H.) Course initiated in the year 1948, meant for training basic Civil Engineering for the specialisation of Public Health/Environmental Engineering. The course has been primarily catering to the training of basic Civil Engineers employed by the state

Governments, Public Undertakings, Local Bodies, Educational Institutions and foreign students sponsored by International agencies such as W.H.O. Since the inception of National Water Supply and Sanitation Programme in 1951 under the Five Year Plans the Ministry of Works and Housing has recognised the Institute as a centre for man power training and has been offering assistance to States to get their basic Civil Engineers trained in Public Health Engineering.

For the past years almost all states in the country and neighbouring countries like Burma, Nepal, Iran, Afganisthan etc have availed of the training facilities and over 1000 Civil Engineering degree holders have been trained so far, who are manning the country's water supply and sanitation programme.

DOCTOR OF MEDICINE (SOCIAL AND PREVENTIVE MEDICINE)

The faculty of the department of Sanitary Engineering extend necessary support in conducting the Doctor of Medicine (SPM) course by the Institute. This course of studies leading to the Degree of Doctor of Medicine (Social and Preventive Medicine) has been instituted in 1973. The duration of the course is two academic years. The curriculam of the course includes extensive study of human being as a social being and his relationship and interaction with micro and macro

environments. It also include the programme of health and welfare services for protection and promotion of community health. The major areas of research include the development of a suitable model for health care to the urban and rural poors.

DIPLOMA IN HEALTH EDUCATION

A full time one year course of studies leading to the diploma in Health Education was instituted in 1966 to prepare health education specialists needed to provide effective leadership in promoting the objectives of public helath programmes and raising the standard of health of the nation by marshalling the people's own efforts toward that end.

DIPLOMA IN PUBLIC HEALTH

The post-graduate course was set up in 1932 to train Medical Officers for the rapidly expanding health services in the country. The Sanitary Engineering Department extends the teaching and research expertise in conducting the Diploma in Public Health Course.

DIPLOMA IN MATERNITY AND CHILD WELFARE

This one year post-graduate course leading to the diploma in Maternity and Child Welfare, equips medical graduates for administration,

clinical and teaching positions in maternity and child welfare in State Health Department, Health Centres or Teaching Hospitals.

DIPLOMA IN HEALTH STATISTICS

The one year course leading to the Diploma in Health Statistics has been designed to train statisticians in the Public Health and Medical Departments of Central and State Governments. The course was instituted in 1966.

CONTINUING EDUCATION PROGRAMME

The Sanitary Engineering Department organises various continuing education courses for senior, middle-order and junior engineers, scientists, technicians, laboratory analysts and assistants of various Government and Semi-Government Organisations. The courses are generally sponsored by the concerned Ministries of Government of India, UNICEF, WHO, ICMR, etc. The course contents are framed according to the need of the manpower development programme and requisite exposures both in theoretical and practical arena are provided to the participants of the courses. Man power development in grassroot level is essential for rational maintenance and management of Water Supply and Sanitation. The Sanitary Engineering Department accordingly organises in different N.E.

States Field Orientation Courses for Plumber/Fitters and Village Caretakers. Training courses are organised for the trainers of various State Governments in the field of rural water supply and sanitation. The department has made remarkable contribution by organising extensive training courses for manpower development in rural water supplies and sanitation sectors under International Drinking Water and Sanitation Decade Programme. The details of different short-term courses are furnished in Appendix - A.

INTERNATIONAL TRAINING NETWORK FOR WATER AND WASTE MANAGEMENT

International Training Network for Water and Waste Management (ITN) was created in 1984 to promote the establishment of a "network" of collaborating local, regional and international institutions in order to strengthen and enhance internal capacity for training, education, information dissemination and research activities on appropriate low-cost water supply and sanitation. As a component of the UNDP/World Bank Water and Sanitation Programme, ITN seeks to contribute to the improvement in the effectiveness and coverage of water supply and sanitation investments for low-income population groups particularly in the rural areas of developing

countries.

The Sanitary Engineering Department of All India Institute of Hygiene and Public Health has been designated as the only I.T.N. Centre in India. The activities of this centre are being carried out in collaboration with Biochemistry and Nutrition Department of this Institute.

The objective of the network activities in India is to assist the Government to achieve its targets for the International Drinking Water Supply and Sanitation Decade. The network effort concentrates on increasing the sectors capacity to apply low-cost water supply and sanitation technologies in a socio-culturally acceptable manner, at costs affordable to the income beneficiaries, and with their participation in the planning implementation of the projects and with the provision of related personal hygiene and environmental health measures. The network assists in human resource and institutional development.

The activities of the ITN Centre are briefly state below :

- a) A workshop on low-cost on-site sanitation in peri-urban and rural areas was organised during August 22-24, 1988 at ITN Conference Room, Calcutta. Chief Engineers and Superintending Engineers of

various State Governments/Union Territories participated in the workshop. A workshop manual with various approach papers was prepared for the participants.

- b) ITN training modules are extensively used for imparting knowledge on Rural Water Supply and Sanitation and its Impact on Community Health to the Senior and Middle-level Engineers and Doctors in Master of Engineering (Public Health) and Diploma in Public Health Courses respectively.
- c) Audio-visual aid with ITN training module for imparting training in water supply and sanitation is utilised in the continuing education programme of the department.
- d) Dissemination of information and research activities on low-cost water supply and sanitation.

W.H.O. COLLABORATING CENTRE FOR DRINKING WATER SUPPLY AND SANITATION

The Sanitary Engineering Department of All India Institute of Hygiene and Public Health has been designated as one of the W.H.O. Collaborating Centre for Drinking Water Supply and Sanitation. The primary objective of this centre is to disseminate knowledge in drinking water supply and sanitation to different State Governments and Local Bodies responsible for this sector. The

Centre organises training courses on drinking water quality monitoring and stresses on the need for Water Quality Surveillance Research Investigation on Low-cost methodologies for rural water supply and sanitation are also being carried out by the Centre.

REGIONAL CENTRE FOR SETTING UP LABORATORIES UNDER NATIONAL DRINKING WATER MISSION, DEPARTMENT OF RURAL DEVELOPMENT, GOVERNMENT OF INDIA

The objective of the water quality monitoring and surveillance programme under National Drinking Water Mission is to develop an integrated system by setting up of district level laboratories for water quality testing, reporting and generating awareness among rural masses about importance of water quality and its relation to health. In view of the importance of this subject, NDWM has set up five regional centres.

Sanitary Engineering Department of All India Institute of Hygiene and Public Health has been designated as Regional Centre for Eastern and North-Eastern region of the country. The Regional Centre provide advisory services to PHEDs/Water Boards in Setting up of water quality testing laboratories covering the following :-

- i) Identification and assessment of present facility and needs.

- ii) Scope of strengthening the existing laboratories at different levels.
- iii) Arrangement for hardware and other requirements.
- iv) Water quality surveillance
- v) Programme for training and development of human resources.

RESEARCH ACTIVITIES

The department from its inception is actively associated with research activities in the field of Public Health Engineering. Some of the Current research activities are presented below :

1. Pilot study for Solid Waste Management programme of CMDA in Greater Calcutta area (sponsored by CMDA/World Bank).

The objective of this study is to develop appropriate low-cost technique for the collection, transportation and disposal of urban solid waste in small and medium size municipal towns. Under the project, alternatives for collection, transportation, and disposal of solid wastes were tried in six municipal wards of Rajpur and South Suburban Municipality, covering a population of about 50,000. Financial and technical feasibility of different systems of storage, collection and transportation different type of domestic and community containers Primary collection and transport Vehicles, transfer stations etc. were

studied. Various operational aspects of Sanitary land filling and composting (windrow type) were also evaluated.

2. The execution of Solid Waste Management Programme of CMDA for the Municipal areas outside Calcutta and Howrah (sponsored by CMDA/World Bank).

Under this Project, this department is assisting CMDA and municipalities in implementing improved method of collection, transportation and disposal of solid waste under CUDF-III. The perspective plans for S.W.M. in municipalities are being drawn by this department on the basis of study conducted by this department under pilot study in Rajpur and South Suburban Municipalities.

3. Evaluation of risk due to contamination of drinking water from on-site sanitation facilities in urban areas and developing guidelines for preventive sand envelopes around latrine pits (sponsored by W.H.O.) (in collaboration with the department of Biochemistry and Nutrition and Microbiology, A.I.I.H. & P.H.).

The objective of this study is to evaluate health risk associated with different type of sanitation system like sewerage, on-site sanitation (septic tank, pit latrines) and service privies through water quality monitoring and epidemiological survey. The socio-economic survey

in the proposed towns have been completed and areas for conducting water quality monitoring, epidemiological survey have been identified.

4. Performance of low volume flushing cystems (sponsored by the Ministry of Works and Housing, G.O.I./Swedish Building Research Institute/TAG (World Bank). Under the study, low volume flushing cystems developed by the Swedish Building Research Institute were installed and their performance in toilets connected seepage pit under Indian local conditions were evaluated. Preliminary findings indicate that this could be useful for low-cost on-site sanitation.

5. Study on accumulation of sludge in night-soil pits (sponsored TAG (UNDP/IRCWD)).

Under the study the filling rate of pit with the sludge and supernatant liquid is being observed with collected amount of night-soil changing.

6. Evaluation of the performance of leach pits used for on-site sanitation having solid walls (sponsored by TAG (UNDP)IRCWD/Sulabh International).

Under the study, a number of latrine pits having solid walls were examined in Patna and other places. It was found that leaching of water was much more effective in pits with honey-comb brick lining compared to solid lining.

7. Ground water pollution from on-site sanitation (sponsored by BARC/Trombay, in collaboration with the Department of Biochemistry and Nutrition, A.I.I.H. & P.H., Calcutta).

Under the project, exact nature of pollution travel would be studied with the help of radio isotope tracers.

8. Feasibility study on Rural Sanitation (sponsored by UNICEF/UNDP).

Under the study, 100 household latrines and 50 institutional latrines are being constructed in a number of villages. The objective of the study is to monitor and evaluate the social acceptance of these latrines in the rural areas and technical and financial feasibility of the same.

9. Socio-economic and health aspect of recycling of urban solid waste by the scavengers (sponsored by W.H.O.).

The study aims at evaluating the socio-economic and health status of scavengers engaged in recycling and reuse of refuse in the urban areas.

10. Evaluation of the impact of community health and environment of the river valley project, Kangsabati (sponsored by Ministry of Water Resources G.O.I. in collaboration with the Departments of Biochemistry and Nutrition,

Epidemiology and Microbiology, A.I.I.H. & P.H., Calcutta).

The objective of the project is to monitor and evaluate the impact of the project on community health in the vicinity of the project, to evaluate the effect on Water Quality, Bio-monitoring of the impact of the aquatic ecosystem.

11. Impact assessment of Ganga Action Plan on Public Health (sponsored by G.P.D. and I.C.M.R. in collaboration with the Department of B & N, A.I.I.H. & P.H., Calcutta).

The efficacy of the projects implemented under Ganga Action Plan needs to be evaluated so that the objective of the project could be assessed and any corrective / supplementary measures, if deemed necessary, could be identified and undertaken. The overall objectives of this study, accordingly, relates to the qualification of costs and benefits of GAP with special reference to engineering costs and health benefits to the community. This will also result in the preparation of guidelines for similiar active plans to be undertaken at a future date.

12. Conservation and Utilisation of traditional surface water sources in rural Bengal (sponsored by D.R.D., Government of India and UNICEF, in collaboration with Department of Biochemistry and Nutrition, A.I.I.H. & P.H., Calcutta).

Performances of different types of low cost field water treatment units for traditional surface water sources are being investigated.

13. Bacteriological quality and performance monitoring of rural water supply system of Purulia District is being investigated.

14. Project on Sub-mission on Arsenic Pollution on Ground Water in West Bengal (sponsored by National Drinking Water Mission, Government of India).

Under this project, source of Arsenic contamination in Ground Water in the districts of North 24-Parganas, Nadia, Murshidabad of West Bengal is being investigated.

15. Monitoring and evaluation of the performance of sewerage treatment plant (sponsored by C.M.W.& S.A.).

CONSULTANCY AND TECHNICAL ADVISORY SERVICES

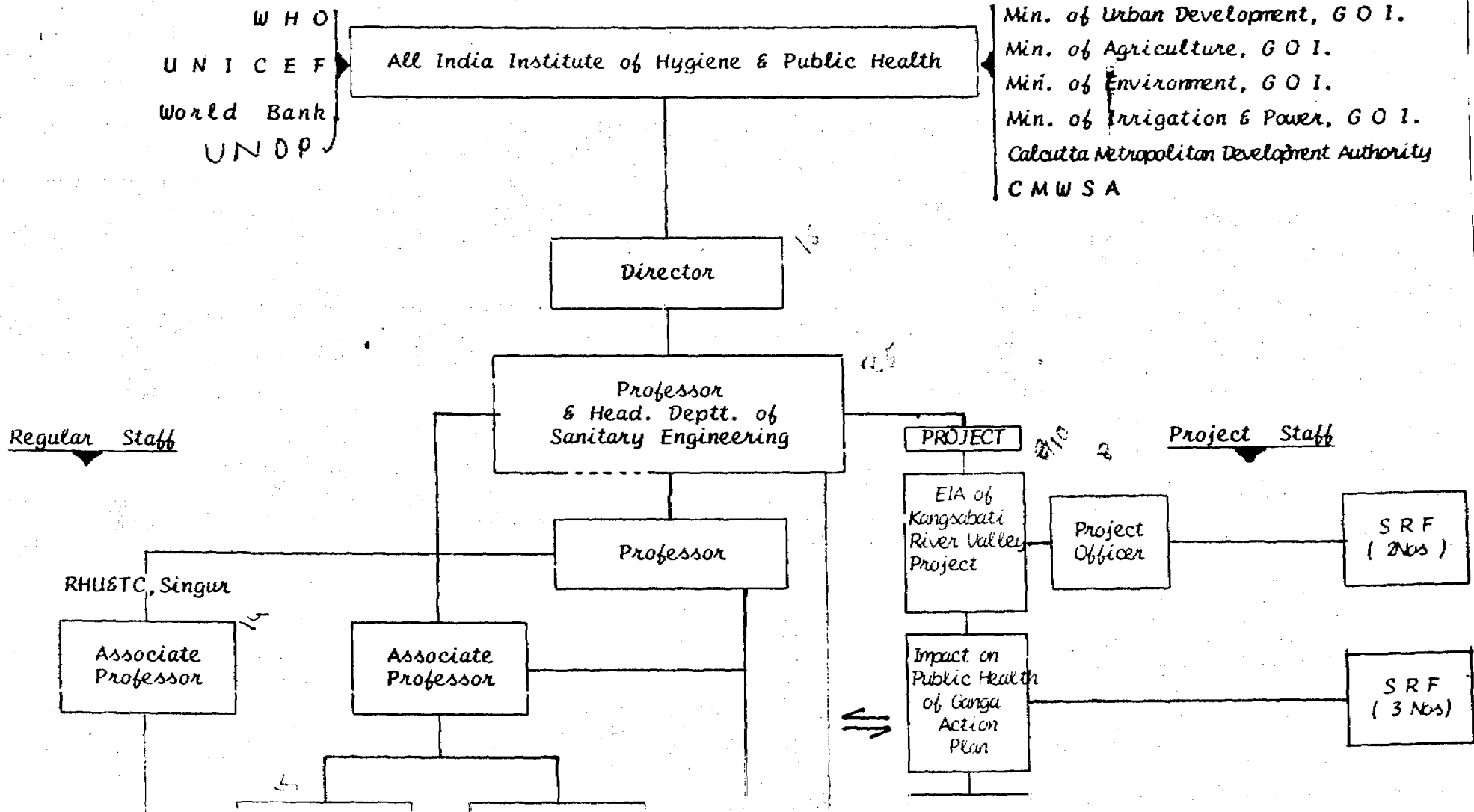
The department offers consultancy and technical advisory services to various leading organisations of the country. For instance Solid Waste Management Programmes of CMDA, Augmentation schemes for some sewerage treatment systems under Calcutta Metropolitan Water and Sanitation Authority in industrial treatment areas etc.

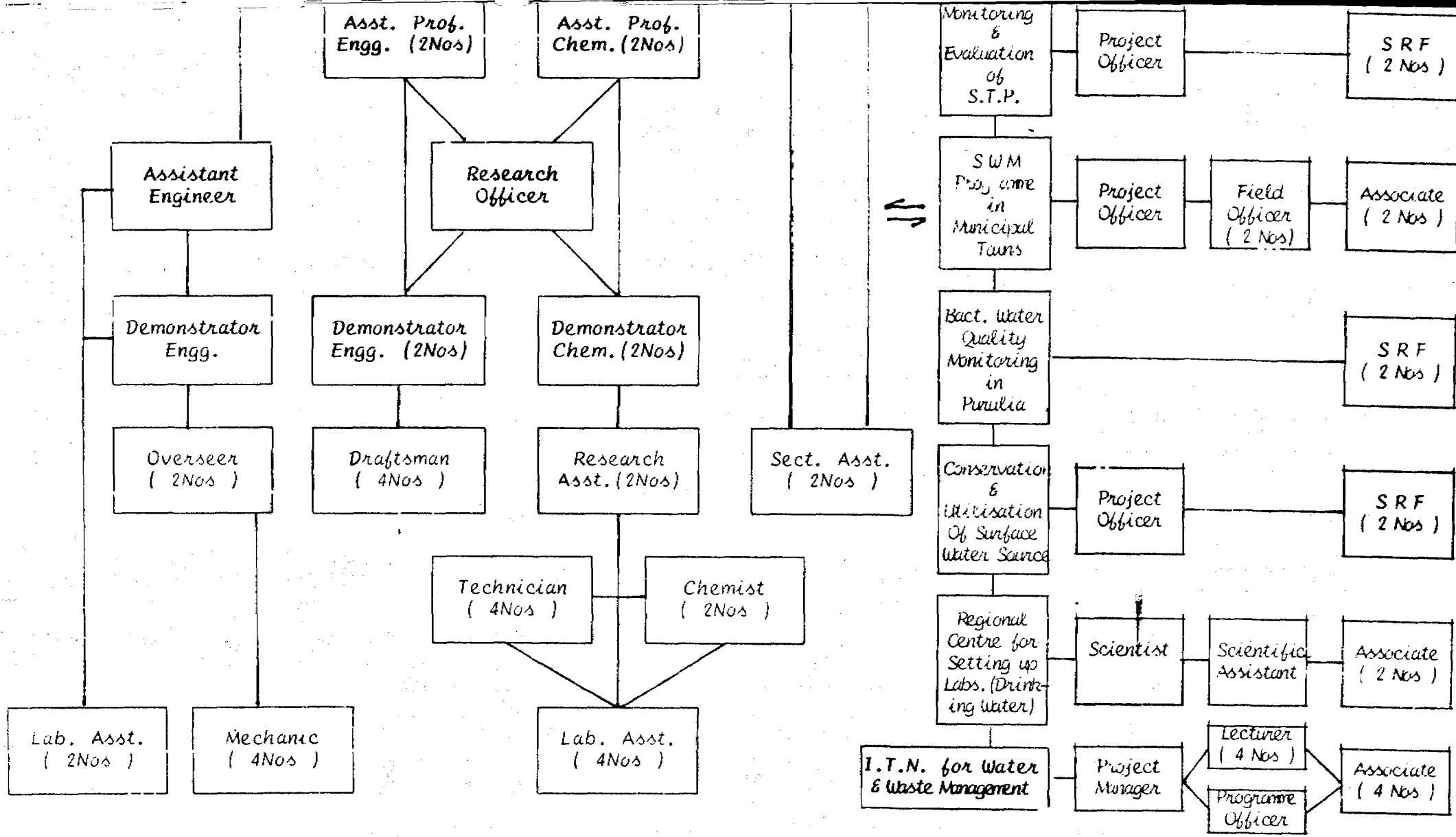
The department undertakes routine analysis of water and waste water samples sent by various

Local Government, State Government and Central
Government and Government Undertaking
Organisations.

ORGANISATIONAL CHART

DEPARTMENT OF SANITARY ENGINEERING





DETAILS OF SHORT COURSES & WORKSHOPS
 CONDUCTED BY
 DEPARTMENT OF SANITARY ENGINEERING, A.I.I.H. & P.H., CALCUTTA

NAME OF THE COURSE/WORKSHOP	TOTAL NUMBER CONDUCTED	DURATION	LEVEL OF PARTICIPANTS	SPONSORED BY	HELD AT	DATE	NUMBER OF PARTICIPANTS
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Courses (Contd.)

15) Orientation Course for Fitters/Plumbers /Village Caretakers	6	3 Days	Fitters/	U N I C E F	Sikkim	14/11/88 - 10/12/88	177
	3		Plumbers/		Manipur	13/12/88 - 21/12/88	124
	2		Village Caretakers		Meghalaya	01/12/88 - 08/12/88	88
	2	5 Days	Do	U N I C E F	Mizoram	16/10/89 - 27/10/89	55
	2		Meghalaya		11/09/89 - 22/09/89	46	
	2		Manipur		02/05/89 - 12/05/89	98	
2	Manipur		18/06/90 - 22/06/90		58		

Workshops

1) Workshop on Planning, Implementation & Management of Rural Water Supply	1	6 Days	CEs of N.E. States	U N I C E F	A.I.I.H. & P.H. Calcutta	09/06/88 - 14/06/88	12
					A.I.I.H. & P.H.	22/08/88 - 24/08/88	18

2)	Workshop on Low Cost Sanitation in Peri-Urban & Rural Areas	1	3 Days	CEs & SEs of State Govts/ U.T.	State Govts/ U.T.	Calcutta			
3)	Workshop on Use of Plastics in Rural Water Supply	1	3 Days	CEs & SEs of State Govts /NGOs/Industries	D.R.D. Govt. of India & UNICEF	Great Eastern Hotel Calcutta	07/11/89 - 09/11/89		49
4)	Workshop on Communication Strategy Development of Rural Water Supply and Environmental Sanitation	1	3 Days	CEs & SEs of State Govts	U N I C E F	A.I.I.H. & P.H. Calcutta	17/01/90 - 19/01/90		31
5)	Workshop on Engineering Aspects of Prevention and Control of Mosquitogenic Condition at Calcutta	1	3 Days	CEs & SEs of Different Development Agencies of Calcutta	M.R.C (ICMR)	A.I.I.H. & P.H. Calcutta	19/03/90 - 21/03/90		22
6)	Faculty Orientation Workshop on Water Quality Surveillance	1	6 Days	Senior Engineers, Scientists	N.D.W.M., D.R.D. Govt. of India	A.I.I.H. & P.H. Calcutta	18/06/90 - 23/06/90		15

APPENDIX - A

DETAILS OF SHORT COURSES & WORKSHOPS
CONDUCTED BY

DEPARTMENT OF SANITARY ENGINEERING, A.I.I.H. & P.H., CALCUTTA

NAME OF THE COURSE/WORKSHOP	TOTAL NUMBER CONDUCTED	DURATION	LEVEL OF PARTICIPANTS	SPONSORED BY	HELD AT	DATE	NUMBER OF PARTICIPANTS
<u>Courses</u>							
1) Analyst's Course on Drinking Water Quality	1	3 Weeks	Analysts/ Chemist/Lab. Assitant	D.R.D. Govt. of India/W H O	A.I.I.H. & P.H. Calcutta	06/12/89 - 26/12/89	5
2) Water Quality Testing	4	2 Weeks	Do	U N I C E F	Do	22/06/88 - 05/07/88	21
						19/07/88 - 30/07/88	22
						19/06/89 - 02/07/89	14
						17/07/90 - 31/07/90	12
3) Field Survey, Design, Implementation & Maintenance of Gravity Feed Schemes	6	4 Weeks	JEs	U N I C E F	Gangtak, Sikkim	17/04/86 - 09/05/86	26
						19/10/87 - 17/11/87	22
						05/06/89 - 01/07/89	22
					Imphal, Manipur	15/04/87 - 13/05/87	24
						03/04/89 - 30/04/89	18
						01/11/88 - 28/11/88	19
4) Theoretical & Field Training of Levelling Survey for Gravity Feed Schemes	2	3 Weeks	JEs	U N I C E F	Langtlai, Mizoram	23/02/88 - 15/03/88	19
						W'lammagar, Meghalaya	27/09/88 - 17/10/88

5) Planning, Design & Management of Rural Water Supply Schemes	3	4 Weeks	EEs/AEs	U N I C E F	A.I.I.H. & P.H. Calcutta	17/08/87 - 24/09/87 03/08/88 - 27/08/88 31/07/89 - 26/08/89 21/08/90 - 10/09/90	14 10 8
6) Training for Trainers :							
a) Rural Sanitation	1	2 Weeks	EEs/AEs	U N I C E F	RHIJ&TC, Singur	15/05/89 - 28/05/89	6
b) Rural Water Supply	1	2 Weeks	Do	U N I C E F	Do	30/05/89 - 12/06/89	3
7) Low Cost Sanitation	6	1 Week	Do	W H O/M U D Govt. of India	Do	18/08/87 - 25/08/87 14/09/87 - 21/09/87 12/10/87 - 19/10/87 14/11/87 - 21/11/87 14/12/87 - 21/12/87 21/06/88 - 28/06/88	17 11 16 4 10 5
8) Pipes and Conduits	5	1 Week	Do	CPHEEO, MUD Govt. of India	A.I.I.H. & P.H. Calcutta	28/01/85 - 04/02/85 25/02/85 - 04/03/85 03/02/86 - 09/02/86 10/03/86 - 16/03/86 02/03/87 - 08/03/87	15 11 13 6 17
9) Sewage Treatment Plant Design	1	10 Days	Do	CPHEEO, MUD Govt. of India	Do	17/03/87 - 27/03/87	12
10) New Development in Water Treatment	3	10 Days	Do	CPHEEO, MUD Govt. of India	Do	30/03/87 - 09/04/87 13/12/88 - 23/12/88 09/01/90 - 19/01/90	12 16 17
11) Course for Water Analyst	1	1 Month	Chemist/Biologist/Water Analyst	CPHEEO, MUD Govt. of India	Do	01/11/89 - 30/11/89	10
12) Course for Sewage Analyst	1	1 Month	Do	CPHEEO, MUD Govt. of India	Do	01/02/90 - 28/02/90	6
13) Solid Waste Management for Conservancy Personnel	5	2 Days	Conservancy Personnel of Corporations /Municipalities	World Bank/CMDA	Calcutta	04/05/85 - 05/05/85 13/07/85 - 14/07/85 10/08/85 - 11/08/85 12/05/86 - 13/05/86 28/07/86 - 29/07/86	15 14 17 10 11
14) Solid Waste Management for Managers & Policy Makers of Govt. of Sri Lanka	1	2 Weeks	Managers & Policy Makers of Govt. of Sri Lanka	World Bank	A.I.I.H. & P.H. Calcutta	08/08/89 - 22/08/89	4

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DETAILS OF SHORT COURSES & WORKSHOPS

CONDUCTED BY

DEPARTMENT OF SANITARY ENGINEERING, A.I.I.H. & P.H., CALCUTTA

NAME OF THE COURSE/WORKSHOP	TOTAL NUMBER CONDUCTED	DURATION	LEVEL OF PARTICIPANTS	SPONSORED BY	HELD AT	DATE	NUMBER OF PARTICIPANTS
1) Low Cost Sanitation	2	1 Week	EEs/AEs	M.R.D. Govt. of India (ITN)	A.I.I.H. & P.H. Calcutta	17/04/91 - 24/04/91 24/04/91 - 01/05/91	20 22
2) Water Quality Surveillance	1	1 Week	Analysts/Chemists/ Lab. Assistant	- do -	- do -	29/05/91 - 04/06/91	13
3) Mass Awareness Camp	2	5 Days	School Teacher/ Social Worker/ Field Worker	- do -	- do -	14/05/91 - 18/05/91 31/05/91 - 05/06/91	30 30
4) New Development in Water Treatment	1	10 Days	EEs/AEs	CPHEED, M.U.D. Govt. of India	- do -	15/01/91 - 25/01/91	20
5) Course for Water Analyst	1	1 Month	Chemist/Biologist/ Water Analyst	- do -	- do -	01/11/90 - 30/11/90	9
6) Course for Sewage Analyst	1	1 Month	- do -	- do -	- do -	01/02/91 - 28/02/91	9
7) Water Quality Testing	1	2 Weeks	Analyst/Chemist/ Lab. Assistant	U N I C E F	- do -	17/07/90 - 31/07/90	12
8) Field Survey, Design,	1	4 Weeks	JEs	- do -	Port Blair A & N Island	17/08/90 - 03/09/90	25

Maintenance of Gravity Feed Schemes

9) Planning, Design & Management of Rural Water Supply Schemes	1	4 Weeks	EEs/AEs	- do -	A.I.I.H. & P.H. Calcutta	21/08/90 - 10/09/90	8
10) Orientation Course for Fitters/Plumbers/Village Caretakers	1	3 Days	Fitters/Plumbers/ Village Caretakers	- do -	Imphal, Manipur	18/06/90 - 22/06/90	58
