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WATER AND SANITATION FOR HEALTH PROJECT

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TARGETS OF OPPORTUNITY FOR WASH

Report of a Reconnaissance Visit to India and Bangladesh

WASH Field Report No. 14

20 February - March, 1981

In fulfillment of requirements of
Order of Technical Direction No. 28

Submitted to:

Office of Health/DS Agency for International Development

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Submitted by:

Raymond B. Isely Associate Project Director

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INTRODUCTION: PURPOSE OF TRIP

When it appeared that it would be possible for a WASH staff member to participate in the Congress of the World Federation of Public Health Associations at Calcutta, without incurring travel expenses to the WASH contract, it was decided to take advantage of the situation as an opportunity for marketing WASH services. Accordingly, in addition to attendance at the conference, clearances were requested to visit USAID Missions, and other establishments in Nepal, Bangladesh, and Thailand. Ultimately only a clearance for Bangladesh was obtained. (See Appendix A.)

Throughout the trip, then, targets of opportunity were sought to explain the objectives and range of services of the WASH Project and to describe the various channels for obtaining these services. That the conference itself provided such opportunities is demonstrated by the number of significant contacts achieved and the proportion of these that resulted in a definite indication of a forthcoming request for services. In addition, solid relations were established with the National Environmental Engineering Research Institute at Nagpur and the International Center for Diarrheal Disease Research at Dacca. The implications of all these contacts will be explained below.

OVERVIEW

India

I was in India for a total of eight days. Of that time, five days were spent attending the Congress of the World Federation of Public Health Associations at Calcutta and three visiting the National Environmental Engineering Research Institute at Nagpur.

The Conference

At the Conference (see attached program) activities included attending plenary and workshop sessions, presenting a paper, setting up and manning a WASH exhibit and display table and participating in a field trip to a Rural Health Center. It was through the medium of these activities that most of the contacts listed above were achieved.

Plenary Sessions

Plenary sessions were used in general to introduce the theme and subthemes of the conference. The overall theme was "Primary Health Care: Developing a Worldwide Strategy for Action." Subthemes addressed componets of any national strategy:

(1) Developing national plans of action
(2) Implementation of field programs
(3) Manpower planning and training
(4) Special demonstration and research projects
(5) Community participation

Those subthemes served also as the foci of workshops. Of the several plenary presentations, only a few bear relating in this report:

Sounding the theme that overrode all others in the conference, Dr. Y. L. Vasudeva of India, delivered a stirring address on the state-of-the-art of community participation in India. As a general rule, community participation has not advanced very far in primary health services. Except for spotty occurences, planning is still centralized even though the health needs of the people are finding their way into the planning process. With the exception of the panchayats of West Bengal, communities have not taken the initiative to organize health services, either alone or in collaboration with government. Even where such local planning occurs one has the impression of imposition. Very little true self-determination is in evidence. Much needs to be done, Dr. Vasudeva urged. Community organization should be the approach with a focus on mothers as primary health workers, functional literacy, education and availability of drinking water. Only thus will breakthroughs occur in nutrition, maternal and child health, and fertility.

Dr. Carl Taylor, Professor of the International Health at Johns Hopkins University, and a long time observer of India, outlined seven necessary steps toward achieving primary health care coverage in India:

(1) Open commitment by decision-makers.

(2) Establishment of planning and evaluation units in each state and at the national level.

(3) Application of principles of straightforward management of health services especially of drugs, where the volume entering the population via private purchase exceeds that distributed through public services.

(4) Something practical to be done about intersectoral cooperation (education, population, nutrition, health and water and sanitation). Policy must be separated from implementation.

(5) Intensive health services research applied to questions of community participation, equity and social justice.

(6) An overall move from "projects" to general implementa-

tion. A feedback system so as to facilitate local adaptation, cost effectiveness studies, and evaluation of potential harm before measures are generalized. Every university should have a field area.

(7) At every level, improvement in the quality of care.

Dr. Pien Chiowanich of the Lampang Project in Thailand brought out several salient points from the Lampang experience:

(1) Curative Services frequently provide credibility and a leading edge for other developmental work.

(2) In the training of primary village level health workers, the selection of who is to be trained is the crucial step. Here community participation plays an important role.

(3) Community health volunteers are of necessity all part-time workers.

(4) In considering the question of coverage one must deal with geographic and population coverage. For instance one trained traditional birth attendant per village of 200-600 does not make for an efficient cost/effectiveness ratio, but when villages are 20km apart, does make for effective geographic coverage.

(5) In calculating costs, those attached to training and supervision (petrol) should not be overlooked.

(6) The nature of the linkage between village health volunteers and the health services structure needs to be carefully defined. Here the question of who should supervise whom must be addressed.

(7) The use of non-formal education methodology is more suitable for village volunteers.

In his keynote address, James Grant, Executive Director of UNICEF and the son of Dr. John B. Grant, in whose honor the conference was being held, laid emphasis on the propitiousness of the present era for achieving real progress in primary health care coverage . To do so he said, we must conceive of progress as people oriented, do research on alternative strategies for reaching the poor, and develop better yardsticks for measuring progress. If we are to make progress, certain changes of a broader economic nature must also be brought about:

(1) Increased concessional resource transfer from rich to poor nations - $20,000,000,000/year.

(2) Greater access to the markets of industrialized countries by LDCs.

(3) Convincing high-income countries that their progress is inevitably bound up with that of the low-income countries.

If no progress in primary health care coverage is made in the next few years, an opportunity will have been lost.

Workshops

I attended the Community Participation workshop on the first day, and the National Planning and a Special Workshop on the second day. With the exception of the last workshop, very little interactive discussion took place. The workshops served rather as a forum for presenting additional papers. Even scheduled discussants took the opportunity to present another paper rather than to comment upon those presented earlier. Among the papers presented, four are of note:

Vimala Charles of the Department of Community Medicine at the Vellore Christian Medical College presented her findings on the effects of a community development approach to primary health care on health status of an urban slum population. Analysis of the felt needs of the population showed that employment, self-reliance, economic development, and social uplift were the primary felt needs. Community development initiatives included training for self-employment, facilities for rehabilitating handicapped persons, re-enforcing local schools, child feeding, programs and organization of women's and youth clubs. Populations affected by these community development strategies had significantly better health status as expressed in several parameters. The approach was thought to have served as an entry point for the community to participate in meeting the health needs.

Susan B. Rifkin, health policy analyst from Hong Kong, compared three health programs in south East Asia, each having as its objective the community taking charge of its own health. The comparison concerned the attitudes of program participants (medical professionals social workers, and community health workers) toward several facets of community participation. Attitudes were found to be held more in common by those who do the same work than by those who work in the same program. Differences, between professionals and community health workers were most pronounced as regards community responsibility in health programs and the ideals attached to community participation. The professionals are more willing to have the community take responsibility. Agreement or disagreement tended to be more consistent in programs where (1) community health workers had participated initially in the health work and, (2) where joint planning

had taken place.

H. N. Mathur studied the attitudes of local leaders toward aspects of Primary Health Care. Those whose positive (or negative) attitudes tended to influence most profoudly the success of Primary Health Care services were the elderly (especially grandmothers), traditional birth attendants, and healers.

O. Ransome-Kuti and A. Bamisaiye of the Univeristy of Lagos presented a plan for the progressive participation of the community served with MCH services, designed to take four years of effort. Successive stages indlude health consciousness raising in the wider community, recruitment of community volunteers for primary health care tasks, and eventually the reconstruction of the present management committee as a Community Health Committee.

The last paper was the only one discussed interactively in the workshop sessions I attended. It was decidely criticized by several for demonstrating a somewhat naive reverse approach to community participation. It was generally agreed that the Health committee ought to come first, lest the community volunteers become such a firm part of the health services establishment as to preclude effective community control.

Presentation

It was in the context of the Community Participation Workshop that I presented my paper, "Targeting Sanitation Programs Where it Counts: Mothers of Small Children" (see Appendix B). The paper was very well recieved by the group and the demand for copies exceeded the supply. David Morley of the Institute of Child Health in London dropped by to congratulate me on the approach taken in the paper and encouraged me to develop it further.

Exhibits

The WASH exhibit and display were also a great success, even if set up for only one day (25 February). Unfortunately, my baggage which was left in Paris because of a short connection did not come to Calcutta until noon on 24 February. Because it took nearly three hours to clear it through customs, I was nearly late

for the presentation of my paper, and I couldn't set up the display until early the next morning.

The poster panels were difficult to set up, there being no place to attach them. Finally, I leaned them against the wall, balancing them on tables. The brochures, reports of Robovalves, Roboscreens, and hand pumps and demonstration models of Roboscreens and valves were displayed on the table in front of the panels.

The display received great attention from everyone and generated several contacts. All the brochures disappeared as did the reports, even though the latter were clearly marked as demonstration copies.

Field Trip

I went on the field trip to Singhur, a Health Center northwest of Calcutta in rural West Bengal. This center had been in existence since 1939 and was in fact the brainchild of Dr. John B. Grant. Several aspects of the Center were quite impressive (see Appendix C):

1. Its use as a field training site by several categories of students at the All India Institute of Hygiene and Public Health.

2. The active practice of truly integrated maternal and child health services: services to mother and child, to well and sick, curative, preventive, and promotive, all given together by the same body of personnel.

3. Students learning by doing not just observing.

4. A well developed rural environmental health demonstration center.

5. In the villages functioning multipurpose health workers who do primary health care: immunizations, environmental health, health and nutrition education, registration of vital events, medical triage and malaria control.

6. Statistics which demonstrate the impact of the center on health status priority to 1965! (See Tables 1 and 2.)

7. The virtual eradication of malaria since 1979.

8. A steady drop in the population growth rate since 1957 until 1978 (Table 3).

TABLE 1

20,000 population in 18 villages:
Crude Birthrate, IMR, MMR, and Average Birthweights for males and females by five year intervals 1965-79. Comparison with national rates in 1979.

	Crude Birth Rate	Infant Mortality Rate	Maternal Mortality Rate	Average BW (lbs) Male	Female
1965	25.47	89	0	5.46	5.28
1970	28.21	96	0	5.74	5.66
1975	24.32	103	0	5.84	5.68
1979	20.52	55	0	6.01	5.79
All India 1979	35.00	130			

TABLE 2

Entire District (165 villages, 192,289 population)
Annual Births, Stillbirths, Total Births, Infant deaths, and IMR 1977-80.

	Births	Stillbirths	Total Births	Infant Births	Infant Mortality Rate
1977	916	25	941	83	90.0
1978	975	33	1008	82	84.1
1979	1029	24	1053	55	53.0
1980	1083	14	1097	61	56.3

TABLE 3

Year	PGR
1957	2.04
1967	2.34
1975	1.96
1976	1.86
1977	1.78
1978	1.74
1979	1.84

All in all the visit to Singhur and environs was a most worthwhile experience demonstrating in some aspects a model for replication throughout India. Unfortunately, the one tube well with a hand pump I saw revealed breaking up of the concrete around the base of the pump, an obvious maintenance problem.

Nagpur

At Nagpur I visited the National Environmental Engineering Institute (NEERI). Unfortunately, my cable did not reach Mr. Raman until 26 February. He had been away for five days and it had come during his absence. Although there was a seminar in progress he graciously gave me an hour of his time and introduced me to some of his staff.

Several programs, of NEERI are of potential interest to WASH. What must be borne in mind is that the purpose of these programs is to provide information to governments and to private corporation on the feasibility of various approaches to water supply and sanitation in both rural and urban areas. This work takes the form of pilot testing, program monitoring and evaluation studies. Four separate programs were reviewed.

Urban Water Supply

1. Survey of water distrubtion system in towns and cities (200,000 to 1,000,000). System was house connections, some communal taps. Epidemiologic survey revealed prevalence of gastroenteritis and infectious hepatitis. The water quality survey turned up abundant coliforms fecal coliforms and salmonella group organisms, with low chlorine residuals. The engineering survey determined that 25% of the flow was being lost through leaks, which caused, in turn, low pressure, backup of sewage, and fecal contamination. After intervention, water wasted

was reduced to 5%.

Rural Sanitation

Ten villages have been chosen for the experimental installation of self-cleansing pour flush pit latrines (see Appendix D). Villages were selected in order to give a wide variation in industrial vs. non-industrial economics, nearness to Nagpur, and perceived receptivity to the program. Chief features of the program are:

- Community participation
- Partial subsidy of squat plate, pipes, and the cement slab over pit
- Villages furnish labor and superstructure
- Total cost about Rs.400 or $50.00
- A baseline health survey composed of
  - Intestinal parasitic exam
  - Blood for hemoglobin and eosinophiles (66% were found to be parasitized overall. Hemoglobins were low, eosinophilia high.)
  - Use of vermifuges as an incentive
  - Intensive health education

Installation of latrines is complete in two villages. Utilisation rates are 50-100%. All but two have been surveyed. Cement is in short supply, retarding progress. Purchase of cement is subsidized by the State and the panchayat.

Rural Water Supply

The program consists of installing either tubewells or slow filters for surface sources, and evaluating the results in terms of water quality, function of the installation, and health status. Major problems include maintenance and operation, overdependence on outside sources for repairs, and wastage of water. Funds are supplied by IRC/WHO and the State government.

Urban Sanitation

As a part of his reponsibilities for urban sewage, Dr. Raman is promoting the installation of pour flush latrines in urban slum areas through a program similar to that in the villages.

A field trip was to have been arranged to one of the rural sanitation villages, but had to be called off because 25 February was an official bank holiday.

Bangladesh

The four days in Bangladesh were utilized to the fullest. Dr. Greenough, Director of the International Center for Diarrheal Disease Research, had asked Mr. S.I. Khan, Chief of Library and Inforamtion Services, to arrange my program. Accordingly, I made him my first point of contact and he served as a guide throughout the visit. We spent the first few hours putting the program together (see Appendix E).

Most of the time was spent in meetings with ICDDRB staff and in visting facilities both in Dacca at the field station in Matlab. (I could not go to the station at Teknaf because the journey is three days' duration.) In addition, I was able to arrange meetings with the AID Mission, UNICEF, and CARE Bangladesh. Thus the main external participants in water and sanitation programs in the country were contacted. The following is a summary of those contacts.

UNICEF

First, I shall discuss the government program assisted by UNICEF. This program deserves mentioning first because it represents the only comprehensive nationwide approach to water and sanitation in the country. Thus far, the program has concerned mainly water. Sanitation and health education while receiving some emphasis, are slated for increased activity in the future.

Over 450,000 hand pumps have been installed, atop tubewells varying in depth from 20 to 200 or more feet. The latest estimate is that of these 300,000-350,000 are operational. The chief problems are the plugging of the pipes with sand and silt and the lack of proper maintenance. Because of the soft almost colloidal nature of the soil, sand and mud settle into the pipes despite the use of screens and strainers. Efforts are currently underway to unplug the more than 60,000 wells so affected. Unplugging those more than 100 feet deep is easier.

Maintenance problems are being addressed through training "caretakers." More than 200,000 of these caretakers are to be trained by June, 1982 as a means of dealing with the more than 25% breakdown rate estimated in 1977. The Department of Public Health Engineering of the Ministry of Local Government, Rural Development and Cooperatives, which is UNICEF's chief collaborator, is responsible for the training. Over 750,000 will be needed by 1990 and eventually over 1,200,000 with each one being recycled 2-3 times.

This entire program has been set up through lengthy joint discussions and planning sessions between UNICEF

staff and the Department of Public Health Engineering. This planning process continues as new challenges are uncovered:

- The need for continued research and development to deal with the problem of plugged tubewells.

- The gradual lowering of the aquifer due to widespread use of deep tubewells with motorized pumps for irrigation and the erection of barrages that prevent recharging. As a result, there is a need for deeper wells and a more powerful hand pump. UNICEF has opted for an adaptation of the India "Mark II" pump.

- Salt pollution in coastal areas.

- Need for research into the problems of continued use of surface water by large proportion of the population (see below as well).

- Development of an iron removal plant attached to the hand pump.

- Use of bamboo pins so as to conserve handles.

UNICEF has drawn some tentative conclusions from its several years of work in Bangladesh. One is a definite preference for a volume consideration over that of water quality. High quality water supply seems out of reach for a majority of the population who live where surface sources, frequently polluted, are the preferred sites for washing, bathing and even drinking. The high iron sulfide content of the water in many areas makes it unpalatable to the populations. In the remainder of the country, where surface water is scarce and relatively inaccessible concerns for quantity must predominate even in the planning for tubewell installation.

UNICEF and the DPHE seem, in fact, intent on installing tubewells throughout Bangladesh and urging populations to eschew all surface sources. An objective of one tubewell with hand pump for every 75 persons, or a total of 1,200,000 hand pumps (750,000 by 1990) has been set. Each one will have a trained caretaker.

Sanitation programs have been in operation since 1973. From 1973-76 despite the goal of installing 100,000, only 13,000 latrines were installed. all of these latrines were 100% subsidized. since 1976, the latrines have been sold with a subsidy of only 65-70%. Forty-thousand latrines are now in place. All of the

latrines are of the water-seal type. A goal of 110,000 by 1982 has been set.

Problems associated with latrine installation are multiple. Broken goosenecks from using too little water or in one area of the country from using mudballs for anal cleansing, have been a persistent problem. There seems little alternative to this type of latrine, however, because the use of water for ritual anal cleansing makes the use of dry latrines (simple pit, VIP, ROEC, or Vietnamese double vault) problematical.

The sheer size of the population and the consequent potential number of pits dotting the landscape (an estimated 20,000,000 by 1990) may pose a pollution problem. The nature of the soil, however, probably limits the pollution radius to 3 ft. from any pit. Pollution downward is also unlikely since the average depth of a pit is 5 ft. whereas that of a tubewell is 150 ft.

In addition to supplying materials and equipment for tubewells and water-seal latrines, UNICEF has also been providing management training to DPHE at every level and logistical support to DPHE operations (bikes, trucks, boats, and materials for constructing storage facilities).

In the future, increased emphasis will be given to Health Education. DPHE has created its own Health Education division, which will be the main vehicle of this effort. Some cooperation with the Health Education Bureau of the Department of Public Health Services is forseen, but this unit is perenially rather weak. Although the Bureau has nominal charge of Family Welfare workers in the field, their essential supervision is carried on by local Public Health Officers. In any case, these workers have some 47 items in their repertoire of duties.

It is estimated that the DPHE will need considerable assistance in implementing the health education program. Some help has been forthcoming from local offices of other UN organizations. UNICEF is joining forces with ICDDRB in this regard in the Teknaf Project (see below). A mutually acceptable health education plan for that project has been worked out.

Other future directions will depend to a large degree on the generation of sufficient political will to make the purchases of hand pumps, latrines and health education services. UNICEF for its part intends to increase contributions of latrines, but to diminish markedly hand pump contributions. Government priorities are (cor-

rectly) on population control and education (literacy). Water and sanitation and food production take third or fourth place depending on one's perspective.

ICDDRB

If the contributions of UNICEF are making a major impact on goverment planning and program execution in water supply and sanitation, then who is dealing with the hard unanswered questions raised in the last section? Who is evaluating the benefits of various approaches? It is indeed fortunate that Bangladesh has so capable an institution for the task as the International Center for Diarrhoeal Disease Research. In the paragraphs to follow will be summarized the evolution of ICDDRB research in this area.

The ICDDRB was established in 1963 under the Southeast Asia Treaty Organization as the East Pakistan Cholera Laboratory. In 1974 it became the Cholera Research Laboratory in an agreement between the United States and the Peoples Republic of Bangladesh, but in 1978 the Center was internationalized and took on its present title. Twenty-eight countries and international agencies participate.

Research on WS&S Disease Relationships

Initial research into water and sanitation - disease relationships was concerned with the search for the source(s) of endemic cholera. Working out of the Matlab field station and hospital, ICDDRB staff have initiated several investigations highly relevant to today's quest for a clearer understanding of the potential impact of improved water and sanitation on health status. Most of these research efforts have been led by Dr. M.U. Khan.

The first mentioned here was carried out from 1970-1974 (Kahn, M.U. et al., 1978). It is significant in that it demonstrated a differential relationship of canal and river water as opposed to tank (pond) water when groups experiencing low, medium and high hospitalized attack rates of cholera are compared. The differences were significant (at the $p<.01$ level or less) in most cases for drinking, washing and bathing, although more consistently for washing and bathing. The point that bathing is a particularly risky water related activity, more so than drinking, was made consistently throughout my visit to ICDDRB. Likewise, most of those interviewed emphasized the relative advantage of populations who use mostly tank water, not only in terms of cholera incidence but also that of other enteric infections. The

observation that many latrines empty directly into the canals and rivers makes this finding not surprising.

A second study, completed in 1967 concerned the search for the source of a repeated small outbreaks of cholera in villages of the Matlab area. Again, washing and bathing were found to be more dangerous than drinking. It seems that while bathing most people continually gargle quantities of water in order to cleanse the mouth and throat. In the study in question no cholera carriers were found among the villagers themselves, but almost uniformly among the boatmen. This subset of the population are fishers and traders who travel form bazaar to bazaar (Khan, M.U. et al., 1967).

At least two attempts to isolate the effect of using tubewell water have been made. In one (Hughes, J., et al., 1977), where tubewell and canal users were compared for cholera attack rates no significant differences were found. Likewise, Curlin, et al. (1977) comparing twelve villages with tubewells with twelve villages with no tubewell found no difference in the cholera attack rate.

These findings are explained by the observation that washing and bathing continue to be carried out in the canals, rivers, or tanks, whereas, tubewell water, when available, may be used only for drinking and food preparation. we have seen in the study reported above how washing and bathing contribute relatively more to an increased cholera attack rate than mere drinking water from a particular source. When working in the fields, of course, the peasant drink whatever water is most available.

During the political crisis of 1971 many refugee camps were set up outside dacca. a comparative study (Khan, Mu.U. , et al., 1979) of three camps shed further light on cholera transmission. Zeneba, a camp with tubewells and latrines was compared with two others having neither. Although the cholera attack rate was less, Zeneba was not free of cases. Poor maintenance of the hand pumps, non-use of latrines by children, and the practice of bringing food in from outside were all found to influcence the occurrence of cholera attacks.

The need for health education to accompany improved water supply and latrine installation was underlined in a comparison of four classes of government workers. In Class I, the highest group, no cholera was found in the 1974 outbreak, whereas in Class IV, the lowest, cholera cases were numerous. Classes II and III had intermediate rates. The chief differences among classes were found in the economic and education levels and levels of

"health awareness."

A study of the intrafamilial transmission of shigellosis in Dacca (Khan, M.U., 1980) determined that the simple introduction of soap and water for washing hands before eating and after defecation was sufficient to reduce the attack rate by 70-80%. For other diarrheas the reduction was 40%. Water alone was insufficient to achieve the effect. S. shiga was an exception. No dimunition in the rate for this species was possible. The importance of these findings cannot be underestimated. Shigellosis while usually accounting for only 2-3% of the total infant diarrhea may reach higher proportions, as during the monsoon season of 1974. It has also been observed that an attack of shigellosis is freqently followed by the appearance of signs of frank malnutrition (kwashiorkor), all the more likely if measles has preceded the shigellosis.

The Teknaf Study

A further clarification of water/sanitation/health status relationship is expected to emanate from the Teknaf study now getting underway with an IDRC grant. Dr. Mujibur Khan and Mr. K.M.A. Aziz are the chief investigators in this project.

In the study three villages will be compared over five years, two intervention villages and the third a control. The second will serve as a control to the first for the first two years, after which the interventions will be initiated there. Interventions will consist of a baseline KAP and health survey in all three villages; and tubewells, water-seal latrines, and health education in the test villages only. Diarrheal morbidity and mortality, nutritional status, ad diarrheal attack rates will be used as health indicators. The functioning of the facilities, and water use and defecation patterns will also be monitored. The health education intervention will consist of the organization of Bari (hamlet) communities with one health promoter designated for each Bari. This promoter will be responsible for the monitoring of water use behavior. In most cases in the health promotors will be women.

Support Services

Demographic Surveillance

Studies at both the Matlab and Teknaf field stations are facilitated by the existence of field Hospital laboratories and demographic survey units. I visited the field station at Matlab on March 5, 1981. The following is a

summary of the function of that station. The same conditions probably prevail as well at Teknaf although that station has not existed so long as that at Matlab.

Survey operations began at Matlab in 1963 and data collection has been continuous since 1966. From an initial 27,000 the study population was steadily built up until in 1968 there were 230,000 persons in 230 villages. (A village is made up of 10-30 Baris. Each Bari is a patrilineal unit consisting of 5-6 households. Several villages make up a Union, several Unions a Thana, and several Thana a District. The District is the largest subdivision in Bangladesh, the Bari the Basic Unit.) The family defined as a cooking unit (same as household above) has been the unit of study. Information is collected on each family and each individual in the family. In 1978, 84 villages were eliminated and the study population reduced to 160,000.

This study area has formed the continuing baseline for most of the studies cited above. Because Matlab is the only hospital in the area, provides speedboat and jeep ambulance services to six points, and actively promotes the use of its services, it is a fair assumption that the hospital cholera attack rates quoted above reflect rather accurately the true incidence of cholera. Thus the numerator in the prime outcome indicator used is fairly precise. The denominator, always the crucial factor in any epidemiologic surveillance, is assured by the continuing demographic survey.

This survey activity rests on the shoulders of Senior Health Assistants, each assigned to one of six zones in the study area. Each zone is divided in turn into 2 units surpervised by a Health Assistant. Each unit finally is subdivided into may subunits with a community health worker responsible for each. Since 1978 there have been two types of subunits:

- those with a population of approximately 1000 persons where maternal and child health/family planning services are delivered in addition to the deomographic surveillance
- those with about 3000 population, where only demographic surveillance is performed.

Services delivered under the rubric of MCH/FP include administration of pills, injectable Deprovera and condoms by the Community Health Worker, referral to the subcenter for IUD insertion and to Matlab for tubal ligations, tetanus toxoid X2 to pregnant women after the

fifth month, iron and polycaseate supplements, nutrition education, personal hygiene education regarding delivery and care of the umbilical cord, and instruction of Bari mothers in the preparation of oral rehydration solutions. An ORT field trial comparing WHO/UNICEF packages with packages containing common salt and brown sugar is underway. Community Health Workers have a minimum of a seventh grade education. All are females.

Results thus far include a diminished hospitalization rate for diarrhea, a diminished diarrheal case mortality rare, a decreased infant mortality rate, the virtual disappearance of neonatal tetanus, and a 33% overall contraception acceptance rate. The average age at marriage for women has risen from 13 in 1963 to 17 in 1980.

Other support services include the library and information service, the laboratory services, training services, and the statistical services.

Library and Information Services

Before 1979, the Center had only an internal information service, but since 1980 has been working to develop a service to the rest of the world. This service includes free photocopying, and a bibliographic reference service presently manual but soon to be computerized. The aim is to develop a worldwide diarrheal disease information network including a roster of everyone actively engaged in research in the field. Equipment includes, at present, a small IBM 34 computer, a microfilm reader/printer, and a microfiche reader/printer. IDRC will finance the information network development.

Publications include a monthly update on relevant articles and books circulated internally, and several external publications:

1. Glimpse a montly scientific newsletter
2. Working papers
3. Monographs
4. Scientific reports
5. Theses and dissertations

Laboratory Services

Field and hospital studies are serviced by quite sophisticated laboratories in bacteriology, virology, parasitology, biochemistry (including water chemistry) and pathology.

Statistical Services

A staff of 5-6 statisticians provides analytic, research design, sampling, hypothesis testing, and computer application services. The ongoing demographic records are maintained by this group.

Training Services

Three separate aspects of training are included:

1. Training of grass-roots workers involving the development of curricula, materials, methods, and training of trainers.

2. International training of key individuals from both Bangladesh and other countries in various aspects of the diagnosis, treatment, and prevention of diarrheal diseases.

3. Individualized training of persons in research methods, laboratory methods, or other aspects of diarrheal disease research.

Others Contacted While in Bangladesh

CARE Bangladesh

I met very briefly with Mr. Rudy von Barnuth to whom I explained the nature and function of the WASH Project, and the content of our contacts thus far with the CARE organization, and with Dr. Lawrence Marum.

OXFAM

I met for an hour with Mr. David Williams a Civil Engineer overseeing OXFAM disbursements in Bangladesh. Funding has gone principally to two organizations in the water and sanitation sector: Concern, and the Mennonite Central Committee. All financing has been of experimental sanitation work among refugee populations. In each case, an effort has been made to extend the work from the use of the OXFAM plastic communal latrine bag digesters to more permanent sanitary facilities. Four types of latrines have been tried, the Vietnamese double vault, the aqua privy, the VIP, and the water-seal latrine. Each has advantages and disadvantages but the water seal latrine appears to be the most satisfacory. Field studies are not yet complete, but Mr. Williams promised to send me the results when they are ready.

Other field testing (all by the MCC) includes a Chinese Bioga plant, the use of waste stabilization ponds, the construction of communal aquaprivies with attached washing and shower facilities, and the conversion of bucket latrines to aquaprivies.

HEED

This organization combines the efforts of a dozen private religious voluntary agencies in basically refugee development work in 2 Thana, with a third to be added in the near future (see attached brochures). I met with Mr. J. Howard Teel a social worker with that organization who expressed an interest in WASH assistance.

Swedish Save the Children Federation

I was approached by two gentlemen from this organization who requested information on WASH. It will be sent to them.

Targets of Opportunity for WASH

Angola

Contact was made with Dr. Neto Antonio Ferreira, Vice Minister of Health and Dr. Nimi Divengele Ambrosio, Director of MCH Services. Contact came about at the request of Dr. Nimi who asked how his government could obtain the services of the WASH Project in terms of setting up a rural network of water and sanitation services linked to the existing MCH network which depends on village aides. Water source protection has begun in some areas with women serving as those primarily responsible for maintenance of hand pumps.

Since Angola and the U.S. do not have diplomatic relations I explained that a request for services would have to await the opening of a U.S. Embassy in Luanda, but that I would send some information in the meantime.

Bangladesh

Discussions with Dr. Charles Gurney and Ms. Joan LaRosa of the USAID Mission in Dacca provided an important insight into possible ways for WASH to work in Bangladesh. I indicated to them that UNICEF and ICDDRB and other organizations were interested in collaboration with WASH. There seem to be two mechanisms. For ICDDRB a request should go directly from Dr. Greenough to Dr. Clifford

Pease of DS/HEA who moderates ICDDRB affairs for USAID. This mechanism is appropriate because ICDDRB is an international and not a Bangladeshi institution. For UNICEF a similar mechanism may obtain since the request could be forwarded to Paul Biron at the New York office and thence to DS/HEA. For all the others the request should pass through either Joan LaRosa or Charles Gurney at USAID/Dacca.

The Mission is generally quite supportive of those possibilities. Dr. Gurney expressed his willingness to provide whatever support necessary and appropriate to facilitate the working out of arrangements for WASH to work in the WS&S sector in Bangladesh. Joan LaRosa, who has had considerable experience in WS&S field projects in Central America, is also quite interested in any of these developments.

In fact, the planning and implementation of all health programs by the Mission is hampered by the necessity to justify each project on a population basis. Population control quite rightly is the nation's first priority, but the Mission policy makes difficult the launching of any efforts peripheral to this central concern. Thus, one cannont expect requests for WASH involvement in AID funded projects in the near future.

With these factors as background it is well to view the entire Bangladesh WS&S sector broadly but succintly in order to identify potential WASH contributions.

The Department of Public Health Engineering, with UNICEF support, seems determined to carry through to its goal of 1,300,000 tubewells and hand pump caretakers, at least 10 times as many water seal latrines and a health education program emphasizing total avoidance of surface waters. While these objectives are laudable and necessary, there are many problems that need to be addressed. These problems suggest, in turn, ways for WASH to assist. There are three main groups of problems.

1. The problems of continued used of surface water even where a tubewell is accessible.

2. The problems of finding a a solution for latrine construction among populations whose habitat floods over every year.

3. The problem of adapting health education approaches to both the objectives of the water and sanitation

program and the realities of variable human behavior across Bangladesh.

Problem c e suggests the need for some attention to be paid to the protection of surface waters. One possibility would be to revive ancient methods for conserving water in the tanks, perhaps in combination with the installation of distribution and storage systems. Additional effort would be needed to work out the problems of removal of sediment. A large community organization component would be necessary in each case. Various approaches and techniques need to be tried in the field until recommendations can be made to policy makers and planners. These ideas were discussed with several ICDDRB Senior staff who expressed great interest.

Problem two is even more difficult and lends itself even less well to solution. Explorations need to be made into siting of latrines, types of latrine, and possibilities of composting and Bioga gas production. Again, community organization must play a vital role. ICDDRB/WASH collaboration here was discussed with great interest.

Problem three implies the possibility of collaboration with both UNICEF and ICDDRB, with the former in both planning and implementing the training of field staff. The recently developed synthesis paper for the Cameroon provides an excellent format for such collaboration. The latter collaboration would involve the conceptualizing and field testing of several approaches to bringing about WS&S - related behaviour change in respect of several problem areas, i.e.

- Use of canals/rivers for bathing and washing
- Protection of surface waters
- Maintenance of tubewells particularly the problem of supervision of caretakers
- Latrine maintenance and use
- Water transport and storage
- Food storage

Again, ICDDRB expressed great interest in working together. UNICEF was somewhat indefinite as to the possibility of a request.

With regard to other aspects of ICDDRB/WASH collaboration, several possiblities were agreed on:

1. Information collaboration

    a. Sharing bibliographies
    b. Sharing access to sources of references
    c. Sharing lists of consultants

2. Training collaboration

    a. Development of a WS&S component of the training program for community health workers
    b. Putting on a joint international workshop on WS&S for trainers from other countries.

Other organizations also expressed interest in assistance from WASH.

1. HEED - in developing the technical WS&S component of its community development programs.

2. Swedish Save the Children - in developing a WS&S component of their community development programs.

3. CARE - in supplying technical expertise to their community health and water and sanitation programs.

4. OXFAM - in supplying evaluation expertise for their sanitation programs.

As an overall strategy copies of the Bangladesh portions of this report should be sent to Joan LaRosa at USAID/Dacca for her information. I promised Dr. Greenough to provide him with an outline of suggested ways to collaborate which he will then develop into a request. All contacts need to be sent Project brochues and a covering letter.

The Gambia

Rural water and sanitation services are currently in the hands of the Deparment of Health but a new Department of Water Resources has been created that will have responsibility for both rural and urban water supply. There is an inter-departmental committee, however, that includes health, water resources, agriculture, social welfare, and community development. Peace Corps volunteers are involved in establishing new rural water and sanitation projects. The greatest need is for training health inspectors and other supervisors to train village workers in operation and maintenance, including community organization. A request will be forthcoming from Mr.

Sanneh via the Director of Health, Dr. Fred Oldfield, and the Mission Director, Mr. Tom Moser. I know all these people as well as the Peace Corps Director, Mr. George Scharftenberger.

India

Dr. Le Sar indicated that WASH would probably be called on to perform the water and sanitation portion of a health sector analysis due to come up in the next few months. Meanwhile, innumerable Indian requests for assistance may be coming into the Mission in New Delhi, in particular from those listed earlier in this report. Just briefly the problems which may be presented include:

Problem	Individual Presenting
Industrial pollution of groundwater.	Prof. J. B. Khot and others
High fluoride content of of drinking water.	Dr. Chandra Shiv
Integration of WS&S into rural community health programs.	Dr. Virendra Mohan Dr. Vashist Ram Paul Dr. Harish Narain Mathur

In addition, NEERI and the All India Institute of Hygiene and Public Health may prove to be important collaborators with respect to project design and evaluation on the one hand and trianing on the other. Also, Dr. Rajendra N. Srivastava of the Department of Social and Preventive Medicine at M.L.B. Medical College at Jhansi has developed a comprehensive protocol for measuring the health and social benefits of improved water and sanitation. This protocol has been developed with the help of Drs. Branko Cvjetanovic, Michael McGarry, and others. We should stay in close touch with this investigator.

Nepal

Dr. Gerold van der Vlugt indicated that it would be about a year before a request for WASH services would be forthcoming. He is just in the process of consolidating his staff, attempting to coordinate a heavy load of centrally funded projects and repair some of the damage done by previous U.S. interventions, as well as to prepare for the very large Integrated Rural Health Project which has not yet been contracted and which will probably not be operational until next fall. Then, and only then, will he be able to carve out a role for WASH. He basically likes the WASH concept, however, and hopes he

can use the project. I made it plain that our purpose is to serve his needs when and if he requests services.

Niger

Dr. Moussa Jatou Idi is the Chief Medical Officer of the Tahoua region of the country. he is a close friend of John McEneny an expects to request our services through regular channels.

The Sahel

I had a brief encounter with Dr. Peter Knebel of the Sahel Development Porgram Office in Bamako, explained WASH and how it works and especially that we need an invitation in order to send teams anywhere. He indicated he would request our services for several Sahelian countries.

Sudan

Dr. Mary Ann Micka introduced me to Dr. Kabbashi, the Director of Health. They both agreed that WASH would be an appropriate mechanism for doing an analysis of water and sanitation needs and resources in the Darfor district, particularly as regards the allocation of water between agricultural and livestock and human consumption. Dr. Micka indicated that we may received a request in 2-3 months.

Tunisia

Jerry Norris enquired as to how WASH might help URC in carrying out a Health Sector Analysis funded by the African Development Bank (AID monies). I explained that we are equipped to do WS&S subsectoral analyses and would welcome the opportunity to work with them.

West and Central Africa

In talking with Mr. Saul Helfenbein of the SHDS Project, I determined that WASH may be called on by this Project in two ways: (1) providing substantive inputs in water and sanitation to training programs and (2) providing expertise to review research proposals in the water and sanitation sector and to guide African researches in the design and execution of their projects. I explained that requests should be made through the Mission in the country where the assistance is needed.

CONCLUSIONS

This trip was quite productive in an overall sense. Contacts on two continents were made, several potential requests, for services were stimulated, a large amount of material was gathered, and a fairly complete analysis of the WS&S sector in one country (Bangladesh) obtained.

REFERENCES

Hughes, J.M.; Boyce, J.M.; Levin R.J.; Khan, M.U.; and Curlin, G.T.

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Curlin, G.T.; Aziz, K.M.A.; and Khan, M.R.

1977 The Influence of Drinking Tubewell Water on Diarrhea Rates in Matlab Thana, Bangladesh, ICDDRB Working Paper No. 1 (18 p).

Khan, M.U.

1980 unpublished report

Khan, M.U.; Haque, I.; and Curlin, G.T.

1977 Urban Cholera Epidemic in Bangladesh, ICDDRB Technical Report No. 7.

Khan, M.U. and Mosely, W.H.

1967 The Role of Boatmen in the Transmission of Cholera, 13th Annual Conference of the Pakistan Medical Association (East Zone), Dacca, January 26-29, 1967.

Khan, M.U.; W.H. Mosely; Chakraborty, J.; Sardar, A. Majid; and Khan, M.R.

1978 Water Sources and the Incidence of Cholera in Rural Bangladesh, CRL Scientific Report No. 16 (15 p).

APPENDIX A

MEMORANDUM February 19, 1981

Water And Sanitation for Health Project
Order of Technical Direction (OTD) Number 28

TO: Mr. James Arbuthnot, P.E.
WASH Contract Project Director

FROM: DS/HEA, Victor W.R. Wehman, Jr., P.E., R.S. VWW
AID WASH Project Manager

SUBJECT: Provision of Technical Assistance Under WASH Project Scope of Work for DS/HEA

Refs:
A) Conference of World Federation of Public Health Associations, Calcutta, India, 23-26 Feb. 81 brochures and agendas
B) WASH cables 3 Feb. 81 to USAID/Bangladesh, USAID/Nepal and USAID/Thailand
C) Follow-up WASH cables to B above 17 Feb. 81
D) Dacca 00953

1. WASH contractor requested to provide technical assistance to DS/HEA to attend and represent WASH at Ref. A conference 23-26 Feb 81, in Calcutta, India and to make catalytic, investigatory, visits to ICDDRB and USAID in Dacca, to AIT and USAID in Bangkok and to USAID/Nepal, during period 23 Feb. to o/a 7 March 81.

2. Contractor's Associate Director Isely authorized to expend up to 22 person days of effort over a two month period to prepare for and accomplish this technical assistance effort.

3. Dr. Isely to set up and man an AID WASH display/exhibit at Calcutta conference during appropriate times and to participate in conference activities as an international health expert, as appropriate and requested. Contractor to take 300 WASH brochures and display materials for exhibit, as well as prototype examples of Robovalve (both types) plus Roboscreen (broached and extruded) plus at least 10 copies each of Robovalve, Robometer and Roboscreen and AID handpump reports (these are for use and reference not for giving away at conference).

4. Contractor's Associate Director's salary during the entire trip will be paid by WASH.

5. Contractor authorized to charge WASH project for difference in international travel between APHA round trip ticket from Washington to Calcutta to Washington, and that of actual international ticket needed to move Dr. Isely from Washington to Calcutta, to Nepal, to Dacca, to Bangkok, to Washington, as appropriate.

6. Dr. Isely will keep and develop a detailed debriefing document identifying activities, personal contacts, topics of discussions, and recommendations for follow-up for each of the 4 distinct country locations.

NB

7. A final trip report will be due within 30 days of arrival back in the U.S.

8. Contractor shall only travel to those locations where travel concurrence has been received by phone or cable from responsible AID officials in those respective USAIDs.

9. Up to 15 international per diem days is hereby authorized for the trip.

10. Contractor should take WASH 35 mm camera, plus film to take appropriate slides of various exhibits, conference proceedings, ICDDRB and AIT facilities as appropriate for debriefing purposes.

11. Contractor authorized miscellaneous local travel and in-country expenses as necessary to carry out mission.

12. Technical assistance should be initiated as soon as possible. Contractor should notify and inform AID desk officers of Isely ETA's as soon as they are known for sure. Isely should send cables from field to AID WASH to let them know exact itinerary during trip.

13. Appreciate your prompt attention to this matter.

DS/HEA:V.Wehman:ja:2/19/81

2/12/81 Two copies sent to Vic Weberman

C7

OUR CABLE 040

FR
DR. GERALD VAN DER VLUGT
USAID MISSION
KATHMANDU, NEPAL

FOLLOW UP OF CABLE OF FEB 3, 1981.

WILL BE IN CALCUTTA FEB 23-26. FEEL ADVANTAGEOUS TO VISIT YOU DISCUSS WATER AND SANITATION FOR HEALTH PROJECT IN ORDER DETERMINE POTENTIAL USEFULNESS PROJECT MISSION PROGRAMMES HEALTH, NUTRITION, POPULATION, RURAL DEVELOPMENT. PROJECT IS PRE-PAID, CENTRALLY FUNDED, NO COST TO MISSION.

PROPOSE VISIT FEB 27-MARCH 2. IF YOU CONCUR, PLEASE CABLE CLEARANCE AS SOON AS POSSIBLE.

DR. RAYMOND B. ISELY
ASSOCIATE PROJECT DIRECTOR

WASHAID 64552
NNNN*
ACCEPTED TMH062 BEING PROCESSED

2-18-81 Item copied sent to Sec Weinberger

C74

WUI GA
111Z
WASHAID 64552

TELUS 001 1405 02/17

OUR CABLE 041

FR
MR. HANK MERRILL
USAID MISSION
BANGKOK, THAILAND

FOLLOW UP OF CABLE FEB 3, 1981. DESIRE KNOW YOUR REACTION PROPOSED VISIT ASIAN INSTITUTE TECHNOLOGY DISCUSS COLLABORATION INFORMATION SHARING. WATER AND SANITATION FOR HEALTH IS CENTRALLY FUNDED PRE-PAID PROJECT, NO COST TO MISSION. AIT HAS INFORMED ME MOST WELCOME. WILL BE IN CALCUTTA FEB 23-26. FEEL ADVANTAGEOUS STOP AIT EN ROUTE BACK. IF YOU CONCUR VISIT, PLEASE CABLE CLEARANCE AS SOON AS POSSIBLE.

RAYMOND B. ISELY, M.D.
ASSOCIATE PROJECT DIRECTOR

western union

Telegram

'98 FEB -9 PM 5:21

2438200 addressed mail

135 947A

C+C No. 74

CAMP DRESSER & MCKEE INC
1611 N. KENT ST STE 1002
VA 22209

W.U. 1201-SF (R5-69)

C74

WUI GA
*
WASHAID 64552
1117
TELUS 003 1515 02/23

OUR CABLE 044

FR
DR. RAYMOND B. ISELY
OBEROI GRAND HOTEL
15 JAWAHAR LAL
NEHRU 700013
CALCUTTA, (INDIA)

RECEIVED FOLLOWING CABLE FROM AMEMBASSY BANGKOK REGARDING YOUR TRIP BANGKOK:

''DO NOT CONCUR AS USAID FEELS DISCUSSION OF COLLABORATION AND INFORMATION SHARING NOT SUFFICIENT JUSTIFICATION. LEVIN''

PLSE ACKNOWLEDGE RECEIPT.

J. ARBUTHNOT

WASHAID 64552

NNNN*
ACCEPTED TMJ542 BEING PROCESSED

ACTION COPY

Department of State

INCOMING TELEGRAM

T-283

PAGE 01 BANGKO 10613 201128Z 004916 AID9612

ACTION AID-35

ACTION OFFICE DSHE-01

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CH8-01 RELO-01 MAST-01 /015 A4 820

INFO OCT-01 /036 W

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P 201121Z FEB 81
FM AMEMBASSY BANGKOK
TO SECSTATE WASHDC PRIORITY 2131

UNCLAS BANGKOK 10613

ADM AID

FOR DS/HEA

EO 12065: NA
SUBJ: WATER AND SANITATION: PROPOSED VISIT OF RAYMOND ISLEY, ASSOCIATE DIRECTOR OF WASH PROJECT

REF A. COMMERCIAL CABLE FROM ISLEY/USAID,
B. BANGKOK 08663

DO NOT CONCUR AS USAID FEELS DISCUSSION OF COLLABORATION AND INFORMATION SHARING NOT SUFFICIENT JUSTIFICATION..
LEVIN

T24

WUI GA
111Z
WASHAID 64552

TELUS 002 0916 02/20

OUR CABLE 042

FR
V. RAMAN
NATIONAL ENVIRONMENTAL ENGINEERING
RESEARCH INSTITUTE
NAGPUR 440020
INDIA

WILL BE IN CALCUTTA FEB 23-26. IF FREE FEB 27-MAR 2 WOULD LIKE TO VISIT YOU. PLEASE CONTACT C/O OBEROI GRAND HOTEL.

DR. RAYMOND B. ISELY
ASSOCIATE DIRECTOR
WATER AND SANITATION FOR HEALTH PROJECT

WASHAID 64552
NNNN
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07128

WUI GA
111Z*
WASHAID 64552

TELUS 016 0927 02/24
OUR CABLE 045

FR
DR. RAYMOND B. ISELY
OBEROI GRAND HOTEL
15 JAWAHAR LAL
NEHRU 700013
CALCUTTA, (INDIA)

AA: RECEIVED YOUR TLX OF 2/24/81.

BB: ASSUME YOU ARE HANDLING MODIFIED TRAVEL AND ACCOMMODATION ARRANGEMENTS. PLSE SEND NEW ITINERARY WITH DATES AND HOW YOU CAN BE REACHED, INCLUDING NAGPUR STOP.

CC: VW ASKS THAT YOU CHECK INTO THE AMERICAN EMBASSY, IDENTIFY YOURSELF AS A WASH CONTRACTOR, AND STOP IN PERIODICALLY FOR MESSAGES.

DD: REGARDS, KOLSKY

NNNN*
ACCEPTED TND177 BEING PROCESSED

western union Telegram

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1981 MAR -3 AM 7:13

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ICS IPMWJOO

1-062533G062 03/03/81 165 825A mail

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PMS ARLINGTON VA

AWC051 VIA ITT GRC0118 RGA928 VIA ITT CNY122 CDS225/2

UIJX HL INCA 046

CALCUTTA AIR PORT 46/40 2 1530 OCS0025

LT WASHAIL Camp Dresser + McKee Inc

PETER KOLBY WACKID ARLINGTON

VIRGINIA 1611 North Kent ST Suite 1002 22209

FOUND TELEX TODAY THANKS ARRIVE DACCA TONIGHT INTER CONTINENTAL

DACCA LONDON B605 7/3 1.30/10.00 LONDON MY WASH PA 101/128 9/3

W.U. 1201-SF (R5-69)

western union Telegram

1981 MAR -3 AM 7:13

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WASHAID 64552

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701 24/2/81 0830 HRS IST

TELEX 64552 WUI - ARLINGTON VA- USA
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TO JAMES ARBUTHNOT

CLEARANCE NEPAL NOT OBTAINED ITINERARY CALCUTTA,

NAGPUR, CALCUTTA, DACCA, LONDON. RETURN MARCH 9.

PLEASE AMEND DTD ACCORDINGLY.

ISELY

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21 7248 OBCL IN

*
WASHAID 64552

MMM

Seen
No other
JA

REPLY CABLE
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Department of State

TELEGRAM

PAGE 01 DACCA 00953 170556Z

ACTION AID-35 WASH — ISLEY

ACTION OFFICE DSHE-01

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TO SECSTATE WASHDC 0362

UNCLAS DACCA 0953

AIDAC

E.O. 12065: N/A
SUBJ: PROPOSED VISIT DR. R. ISELY TO ICDDRB

REF: STATE 36177

1. USAID HAS NO OBJECTION. DR. GREENOUGH SAYS THE VISIT IS WELCOME ON 2 TO 6 MARCH IF AT NO REPEAT NO EXPENSE TO ICDDRB MR. S.I. KHAN, CHIEF OF ICDDRB LIBRARY AND INFORMATION SERVICE, WILL BE RESPONSIBLE FOR DR. ISLEY'S PROGRAM.

2. SUGGEST ISLEY TALK WITH USAID'S MS. JOAN LA ROSA DURING CALCUTTA CONFERENCE.
SCHNEIDER

UNCLASSIFIED

ACTION COPY

Department of State

TELEGRAM

PAGE 01 DACCA 0953 1705562

ACTION AID-35

ACTION OFFICE DSHE-01

INFO AAAS-01 ASEM-01 ASDI-02 ASDP-02 STA-10 ASPC-03 ASTR-01
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INFO OCT-01 /036 W

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FM AMEMBASSY DACCA
TO SECSTATE WASHDC 0362

UNCLAS DACCA 0953

AIDAC

E.O. 12065: N/A
SUBJ: PROPOSED VISIT DR. R. ISELY TO ICDDRB

REF: STATE 36177

1. USAID HAS NO OBJECTION. DR. GREENOUGH SAYS THE VISIT IS WELCOME ON 2 TO 6 MARCH IF AT NO REPEAT NO EXPENSE TO ICDDRB. MR. S.I. KHAN, CHIEF OF ICDDRB LIBRARY AND INFORMATION SERVICE, WILL BE RESPONSIBLE FOR DR. ISLEY'S PROGRAM.

2. SUGGEST ISLEY TALK WITH USAID'S MS. JOAN LA ROSA DURING CALCUTTA CONFERENCE.
SCHNEIDER

UNCLASSIFIED

40

UNCLASSIFIED

AID/DS/HEA:C.A.PEASE
02/11/1981:EXT.59649
AID/DS/HEA:J.ALDEN

AID/DS/HEA:F.E.MCJUNKIN
AID/ASIA/BI:N. TUMAVICK (PHONE)

AID/ASIA/BI:J.GAYOSO (PHONE)
AID/ASIA/TR: G. CURLIN

PRIORITY DACCA

AIDAC: PASS TO DR. GREENOUGH AT ICDDRB

E.O. 12065: N/A

TAGS:

SUBJECT: PROPOSED VISIT DR. RAYMOND B. ISELY TO ICDDRB

REF: A) STATE 278993 DATED 19 OCT 80; B) DACCA 0829

1. WATER AND SANITATION FOR HEALTH (WASH) PROJECT IS CENTRALLY FUNDED MECHANISM FOR PROVIDING TECHNICAL SERVICES AND INFORMATION TO MISSIONS AND BUREAUS AT NO COST TO MISSION AND OPERATED BY CAMP, DRESSER AND MCKEE (BOSTON) FOR DS/HEA. SEE REF TEL A).

2. RAYMOND B. ISELY, M.D. IS ASSOCIATE DIRECTOR OF PROJECT AND WILL BE IN CALCUTTA 23-26 FEBRUARY. ISELY PROPOSES VISIT TO ICDDRB DURING MARCH 2 TO 6 TO DISCUSS: A. INFORMATION EXCHANGE RE ONGOING ICDDRB RESEARCH; B. POSSIBLE NEED FOR WASH PROJECT SERVICES; C. POSSIBLE CONTRIBUTIONS ICDDRB TO WASH RESOURCES IN TECHNICAL ASSISTANCE, INFORMATION, EVALUATION.

3. DRS. LINCOLN CHEN AND CLIFFORD PEASE RECOMMEND VISIT BE MADE.

INITIALS
JA
CAP
FEMCJ
GC

4. REQUEST CONCURRENCE BY USAID/DACCA AND BY ICDDRB. PLEASE REPLY TO C. PEASE, DS/HEA. YY

NNNN
ZCZC BCA787 DDA669 NYW464 TND177
INCA CO UWNY 074
WUI TLX WASHINGTON DC 74/70 24 0929A EST PAGE01/63

DR. RAYMOND B. ISELY
OBEROI GRAND HOTEL

15 JAWAHAR LAL NEHRU
700013
CALCUTTA,

CR 183

40150

AA: RECEIVED YOUR TLX OF 2/24/81.

BB: ASSUME YOU ARE HANDLING MODIFIED TRAVEL AND ACCOMMODATION ARRANGEMENTS. PLSE SEND NEW ITINERARY WITH DATES AND HOW YOU CAN BE REACHED, INCLUDING NAGPUR STOP.

CC: VW ASKS THAT YOU CHECK INTO THE AMERICAN EMBASSY, IDENTIFY YOURSELF AS A WASH CONTRACTOR, AND STOP

COLL 15 700013 2/24/81.

TND177 RAYMOND PAGE02/7

IN PERIODICALLY
FOR MESSAGES.

DD: REGARDS, KOLSKY

UNCLASSIFIED

Department of State

INCOMING
TELEGRAM

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ACTION AID-35

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FM AMEMBASSY DACCA
TO SECSTATE WASHDC PRIORITY 0800

D/HE

UNCLAS DACCA 0829

AIDAC

FOR PEASE DSB/HEALTH

E.O. 12065: N/A
SUBJ: INTERNATIONAL CENTRE FOR DIARRHOEAL RESEARCH, BANGLADESH (ICDDRB)

1. DR. GREENOUGH HAS RECEIVED COMMRRCIAL CABLE QUOTE PROPOSE VISIT TO DISCUSS POSSIBLE COLLABORATION DURING PERIOD 2 TO 5 MARCH. PLEASE CABLE RESPONSE WASHAI AT EARLIEST, RAYMOND ISLEY, ASSOVIATE PROGRAM DIRECTOR UNQUOTE. ASSUME QUOTE WASHAI UNQUOTE IS A GARBEL. CAN'T TELL WHETHER VISIT OR COLLABROATION IS PROPOSED ON INDICATED DATES.

2. NEITHER ICDDRB NOR USAID ABLE TO FIND ANY INFORMATON UNDER NAME ISLEY. CAN YOU IDENTIFY.

3. GREENOUGH SAYS THAT IN ORDER FOR ICDDRB TO CONCUR IT WOULD REQUIRE SUMMARY OF TOPIC TO BE DISCUSSED AND/OR COLLABORATED.
SCHNEIDER

Received by WEHMAN 2/11/81
Passed to WHS (ISELY)

UNCLASSIFIED

APPENDIX B

Targeting Sanitation Programmes Where it Counts: Mothers of Small Children

by

Raymond B. Isely, M.D., M.P.H., D.T.M.
Associate Director
Water and Sanitation for Health Project

Research Public Health Physician
Research Triangle Institute,
North Carolina, U.S.A., and

Adjunct Assistant Professor of Health Education,
University of North Carolina at
Chapel Hill

Targeting Sanitation Programs Where it Counts: Mothers of Small Children

Sanitation programs in rural areas of developing countries overlook frequently segments of the population that are most vulnerable to the ill effects of inadequate sanitation and at the same time in the past position to serve as agents of change. Unlikely as it may seem, infants, small children and their mothers form the population group to which sanitation programs should most be addressed. In the following sections the rationale, methods, and expected results of such targeting are examined.

Rationale for targeting sanitation programs to mothers of small children.

Although usually considered to be innocent, the stools of infants and small children have in fact greater numbers of micro-organisms per unit of weight than do those of older children and adults (Feachem, R. et. al, 1981). For this reason alone small children deserve special consideration in the planning and execution of sanitation programs. Means must be found to protect the environment against this highly infectious source of contamination.

From the stools of infants and small children contamination spreads to the environment through multiple routes (see Fig. 1). Via contaminated fingers of the child or his mother, microorganisms are transmitted (Academy for Educational Development, 1980):

- to household objects: especially cups, spoons, and other utensils associated with food and drink;
- to food itself;
- to water transported or stored;
- to the hands of other children;
- ultimately to the mouths of other susceptible individuals.

Under any circumstances there is a certain attrition in the number of bacteria as they are spread from the source into the environment. It stands to reason then that if the source (an infant or child's stool) has an initially high concentration of microorganisms, the natural attrition will have less of an impact and the ultimate dose delivered to the mouth of a susceptible individual will be greater. Special efforts must therefore be taken to protect the environment from the stools of infants and small children.

Fortunately, the habits of infants and small children are relatively malleable. Their general dependence on their mothers and older siblings, their strong tendency to imitate adult behavior, and their love of routine games and procedures frequently make the introduction of new habits a simple matter. If mothers and older siblings can be trained to dispose of the stools of infants and children in an adequate way, these little ones will usually respond. The payoff from focusing sanitation programs on mothers therefore is likely to be great.

The results may also be permanent. Hygienic stool habits once established in young children are likely to remain and may even be transmitted to future generations. When one considers that many young women become mothers at age fifteen or earlier, it becomes apparent that stool habits if reinforced through the first five years of life might stand a good chance of survival into emergent motherhood. Jelliffe (1968) has demonstrated that when mothers of malnourished infants learn that they can contribute to their infants' recovery by feeding them nutritious local foods, they tend to transmit improved weaning foods and practices to their daughters. Could not the same phenomenon occur in the case of stool habits?

The final advantage of focusing sanitation programmes on this group of the population is the opportunity afforded to conserve scarce human resources: sanitarians, health inspectors, health educators, and community health workers. Rather than diluting these resources by spreading them across an entire population, one can apply them where the impact is likely to be the greatest and the most permanent. We shall see in the next section just how these resources can be applied.

Methods for bringing sanitation programs to bear on the mothers of infants and small children.

Child-sized latrines.

The first requirement of an effective sanitation programme aimed at infants and small children is a child-sized latrine conveniently located. Features of importance include: the proportions of the plate, the size of the hole, the proximity to the house, and the availability of soap and water.

Typical adult-sized latrines (simple pit latrines or improved latrines and aquaprivies) present to the small child a fearsome combination of a dark interior, a large, dark, deep hole, a plate too large to accommodate the feet, and a long walk back to the house...scarcely an encouragement to their use. In Sri Lanka, reportedly, (Elmendorf, 1980) a child's latrine has been developed which is located conveniently in the patio just behind the house. The design is such that even a toddler can confidently go out through the back door, squat on the child-sized plate, with no fear of falling into the small hole. A table with a basin of water and soap permits the mother or older child to clean the child after defecation. The small size of the structure and the hole, and the relatively small volume of fecal matter should make it possible to maintain this latrine without risk to the environment for 1 - 1½ years before digging a new pit.

An alternative technique, used in several countries has been to place a child-sized plate over the normal adult plate, but this approach while reducing the fear of falling into the hole, still obligates the youngster to walk several hundred feet from the house.

For children under 18-24 months (that is before the time when most become interested in imitating adult defecation habits) the problem is different. Although there is considerable variation from culture to culture, the usual defecation practice consists of either fitting the infant with a diaper, trying to catch the infant's stool in a cloth or a piece of the mother's wrap-around dress, simply holding the defecating infant extended over the ground or the floor of the house, or in the case of toddlers, allowing them to wander about nude below the waist. Effective approaches to this age group must therefore focus on altering maternal behavior regarding disposal of diapers and soiled pieces of cloth and holding the defecating infant over a receptacle rather than over the ground or floor. The mobile toddler who defecates here and there in the environment poses the greatest problem. The only feasible approach seems to be for these children to wear a protective pair of shorts to be disposed of hygienically when soiled.

It should seem obvious that none of the above measures is possible without the cooperation of the mothers of infants and young children, older siblings, and other caretakers, such as grandmothers and other older relatives. Sanitation programmes, if properly focused, will carry with them a heavy input of health education. The objectives, messages, methods and possible settings for effective health education in relation to sanitation are discussed in the next section.

Health education of mothers and older siblings.

The objectives of health education in this case are behavioral and attitudinal. Methods used should aim at mobilizing mothers and others who care for children: (1) to insist on the design and installation of child-sized latrines or child-sized adaptations of adult latrines, (2) to provide soap and water for cleaning the child afterward, (3) to use diapers or an adequate wrap of another type on infants and young toddlers, and (4) most importantly to work with the child over 18-24 months in developing continuous latrine-use habits. Closely associated with the latter is the imperative of providing a role model for the small child to follow.

The message central to the health education component is that the stools of infants and children are dangerous and therefore to be avoided by every means possible so as to prevent diarrhea and dehydration. The purpose is to create in mothers and others who care for children an attitude supportive of those actions to be undertaken. The message can be transmitted by whatever means available: radiodiffusion, posters, talks at the health center, in the schools, in political meetings, at meetings of the village health committee, the credit cooperative, the women's association, and in the market place, i.e., wherever groups of mothers and young girls can be found.

Primary attention should be given to the methods used for mobilizing the target group. Ogionwo (1972) has shown that behavioral attitudes are more likely to change in the context of a community support structure than when an individualistic approach is used. Others (Isely and Martin, 1977; Isely, 1978, Fountain, 1973) have demonstrated the advantages of concerted effort for achieving concrete results in water and sanitation. A first requisite of health education methods applied to those

who care for young children then, is to obtain the support of community leaders, various types opinion-shapers, and persons of status. In this way a positively reinforcing context for expected changes in behavior can be created.

Key members of the leadership group are leading women of various families, particularly if these women are respected for their skills in midwifery, healing, or herbalism. Satgé and co-workers (1964) have emphasized the importance of village midwives in influencing the weaning behavior of younger women in Senegalese (Wolof) villages.

Within the context of the community support structure one should address the problems to smaller mutually-supportive groups of women. Women leaders identified earlier might be the primary catalyzers of these meetings. The accent should be on group identity of solutions to problems:

- Technical problems of constructing and locating child-sized latrines.
- Personal problems of training toddlers to use them.
- Practical problems of keeping track of toddlers too young to use the latrine and keeping them clothed.
- Economic problems of having soap and water in constant supply.
- Other problems related to disposal of pieces of cloth soiled by infants' stools, care of the child's stools when traveling, when at the market, or when the child is in care of a grandmother who "thinks differently".

The essence of the approach is to use the means already available in most communities for women to help each other with their child care problems.

In most cases the setting for health education efforts associated with a sanitation program should be a community itself. A community may encompass an entire village or urban neighborhood or only a part thereof. It is frequently necessary to identify the true "community" within what is only assumed to be a community, for example a village composed of many clans. In many societies these communities defined by kinship relations are the only viable contexts for effective community organization work.

Work in other settings should serve to supplement that taking place in a community. The schools represent particularly useful context because of the availability of a skilled teacher and the presence of pubertal and late pre-pubertal girls, many of whom are already thinking of motherhood and who generally respond quite positively to the teaching of child care methods.

Some advantage should also be taken of health centers and hospitals where women whose infants are suffering from episodes of diarrhea and dehydration may be more open to teaching about prevention. The Health Belief Model (Becker and Maiman, 1975) holds that if the threat of the condition to be prevented is greater than the inconvenience of the preventive measure, the individual will exercise the preventive option, assuming that sufficient information is available and the surrounding socio-cultural conditions supportive.

Expected results of targeting sanitation programs to mothers of small children.

If some or all of the changes mentioned earlier can be achieved, then certain beneficial results can be expected. Three probably results are supposed:

- o After 2-3 years of consistent training, children at age five should be habituated to latrine use, and thus hopefully able to continue the practice into older childhood and adulthood.
- o As young mothers and other young persons engage in changing the defecation patterns of infants and small children, they themselves develop new habits of child care which they can pass on to subsequent children and subsequent generations of children. Likewise, children who learn to use a latrine when they are very young, may train their own children.
- o Child-size latrines, use of diapers or other coverings for young toddlers and infants, and proper use of soap and water for anal cleansing and hand washing should lead to diminished contamination of the environment by fecal pathogens.

Conclusions

Infants and small children, whose stools have the greatest potential for contaminating the environment deserve special targeting in sanitation programmes. Despite the relative ease of introducing behavioral change in these small children, however, such change is necessarily dependent upon the

availability of a child-sized latrine, and on the cooperation of mothers and others who care for them. The latter can be achieved only through a participatory approach to health education. If these approaches are effective, beneficial results can be expected: children who know how to use a latrine, young mothers ready to teach latrine use to subsequent children and subsequent generations, and fewer intestinal pathogens in the environment.

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APPENDIX C

Dr. H. C. MOOKERJEE MEMORIAL HEALTH SCHOOL

1925 – 1980

SINGUR • HOOGHLY

Government of West Bengal

Dr. H. C. MOOKERJEE MEMORIAL HEALTH SCHOOL

SINGUR : HOOGHLY

BRIEF BACK GROUND

Introduction :

The Health School has ever been a pioneering Institution

IN 1925 when doctors and nurses were concerned only with healing the sick, the Health School started its work of *Prevention* of morbidity and mortality amongst mothers and children, from the very beginning of life.

If we want to improve the quality of man and his health status, this is where we must start—at the beginning and not wait till he has succumbed to disease, then spend large amounts of money on doctors, hospitals, equipment and medicines, to bring him back to normal.

History

1925 :

This school was opened by the Indian Red Cross Society in 1925.

Some lady members of the Indian Red Cross Society were appalled at the alarming death rate of mothers and children in Calcutta. So they decided to recruit Matriculate Midwives and train them as health visitors to look after these mothers and children.

The School was named Bengal Health Visitors Training School and started training workers for taking up M.C.H. work in urban slums and rural areas.

This School functioned till 1934 then was closed down due to paucity of funds.

1937 :

It was re-started as the Sir John Anderson Health School mainly due to the interest of Sir John Anderson, the then Governor of Bengal and Patron of Bengal Branch of Indian Red Cross Society this training school was recognized by the Bengal Nursing Council.

The minimum educational qualification required for this training was Matriculation, and the duration was for 3 years.

1947 :

A decade later the School started training non-matriculate women as DAIS (Birth attendants) to do domiciliary Midwifery. This was a one year course and was sponsored by the Victoria Memorial Scholarship Fund. The sucessful candidates were given V.M.S.F. certificates from Delhi.

1958 :

This school was taken over by the State Government on April 1st 1958 and moved from Calcutta to Singur. It was named after Dr. H. C. Mookerjee the then Governor of West Bengal. So the school was called *Dr. H. C. Mookerjee Memorial Health School*

The training of Health Visitors was stopped and the training Programmes expanded to several categories of Personnel.

The objective of the School was to give an entirely RURAL BIAS to its teaching.

1964 :

The Applied Nutrition Programme adopted Health School as one of its training centres.

1970 :

Voluntary Organizations began to send their students of whom Ram Krishna Mission, Narendrapur was the first.

1975 :

We received our first batch of W. H. O. Fellows. They were from Burma, Afganistan and Zambia. This was welcome recognition in our GOLDEN JUBILEE year—1975.

Over 8,000 students have passed through this school in the last 22 years. (Excluding Visiting students).

FUNCTIONS

The school has three functions :—

(1) TRAINING.

(2) SERVICE.

(3) RESEARCH / EVALUATION.

Sl. No.	
1.	Hea
2.	Ori Nur Ger Mi
3.	Au Mi Mi He co
4.	Fi Nu (fo pa
5.	Bl (N M E
6.	F (f o
7.	A P
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12.	

TRAINING PROGRAMMES

Orientation Training in Public Health including Nutrition and F.W.P.

Sl. No.	Courses	Duration	Year of starting	Year of completion or stopping	Total Trained
1.	Health Visitors Course	3 Yrs	1925	1960	from 1958 only 59
2.	Orientation in Public Health Nursing (for qualified General trained Nurse Midwive)	3 months	1958	Continuing	696
3.	Auxiliary Nurse-cum Midwives (Domiciliary Midwifery and community Health Portion of the main course)	3 months	1961	1980	1751
4.	First year students general Nurse Midwifery Course, (for rural Health experience part of the main course	1 week	1961	Continuing	4186
5.	Block Level Health Team (M. O., P. H. N., L. H. V., Midwive and Extention Educators)	10 days	1961	1962	9
6.	Family Welfare Planning (for Rural experience part of the main course)	1-2 Weeks	1963	1973	490
7.	Applied Nutrition Programme	3 days to 1 month	1964	Continuing	578
8.	Ward Sisters (community health portion of the main course)	2 weeks	1969	1970	60
9.	D. H. E. Student (Post Academic supervised Field work)	2 months	1970	1977	7
10.	Training of Teaching staff of A. N. M. Training Schools of Eastern States of India under Multipurpose Workers Scheme	3 months	1976	1978	49
11.	B.Sc (Nursing) Hons. Course students 1st and 4th year. (for domiciliary Midwifery and community Health Portion of the main course	2·6 weeks	1978	Continuing	79
12.	Revised A. N. M. Course (F. H. W) under Multipurpose Workers Scheme, (for community health Nursing part of the main course)	5 months	1980	Continuing	47

Contd.

Sl. No.	Courses	Duration	Year of Starting	Year of completion or stopping	Total Trained
13.	Training of Teachers of Schools of Nursing of Eastern States of India, under Multipurpose Workers Scheme.	10 Months	Will start shortly	—	—
14	Students from Voluntary Organization 1. Ramkrishna Mission 2. Gandhi peace Foundation 3. Calcutta Urban Service 4. Calcutta Urban Service consortium. 5. Bashirhat Health Centre 6. Cathedral Relief Service 7. Socio Economic Development project 8. Bengal Social Service League 9. SOS Village Mothers 10. Mandra Unnayan Samsad	1 week to 2 months	1973	Continuing Stopped	148
15.	*Visiting Students* : As this Health School has a well organised Practice Field, Students from various institutions are being sent for gaining knowledge and experience in community Health time to time				
	These are : 1. W. H. O. Fellows from other countries (Through the Govt.) programme varies from one week to one month				29
	2. D. P. H., D. M. C. W., D. P. H. N., D C. H., P. H. N., Supervisors, DIP Diet, D. I. H., D. T. M. H., M. D etc Programme varies from 1 (one) day to 1 (one) Week	From All India Institute of Hygiene and Public Health, (During their Field work)			1795
	3. Lady Extension Officers from Eastern States of India Duration—1 to 5 days				76
	4. Balsevika and Anganwadi Trainees Duration—1 (one) day to 1 (one) week				947

PRACTICE FIELD

Area ..... 6 Square Miles

Villages Covered 18

Population ..... 20,000 (approx)

No. of Families ..... 309[1]

No. of Elegible Couples 2119

f comple- stopping	Total Trained
	—
uing	148
ious institu- ealth time	
	29
e and	1795
	76
	947

A practice field is essential for the training of Public Health Students just as Hospital beds are in the training of medical and nursing students.

It is a must for imparting Practical instructions to the Public Health students for gaining practical knowledge and experience in a controlled community.

The practice Field has 3 fold utility.

A. It provides facilities required for teaching the students and helps them to put theoretical knowledge into practice in the live situation in the community under guidance and supervision of the teachers.

It serves as an experimental Laboratory.

B. Renders sustained and continuous Health Service to the Community.

C. Research & Evaluation on various aspects of the service rendered and the students programmes and impact of these which ultimately enrich the knowledge of students, and can be a source of inspiration and encouragement. It can also be used as a model elsewhere.

Objectives of the Practice Field :

To help the students to develop attitude, ideas and thinking.

To provide facilities for gaining knowledge and experience by the students in the areas of teaching, organization and administration as the situation demands.

To provide opportunities for the students to gain confidence, understanding of the people, their problems, attitude, ideas etc.

To help the students to identify the health need and learn to plan to meet the need.

The practice Field of the Health School provides required facilities to the students of various disciplines.

It helps them to develop clear conception of the community and their problems and the methodology used for implementation of the various health Programmes.

For better teaching, guidance and supervision of the students practical training the Practice Field area has been devided into 10 sectors.

The staff-in-charge of each sector is made responsible for the practical field training and also for the service to that area. Each staff member has 4-6 students under her care for teaching in her area.

The Staff includes fully qualified P.H.N., Instructors and Teachers.

SERVICE :

PUBLIC HEALTH.

1. Health Education.

2. Maternal and Child Health and Family Welfare Planning.
   (a) Antenatal Care
   (b) Intranatal Care
   (c) Postnatal Care
   (d) Family welfare Planning
   (e) Child Care

3. Family Health Service.

4. Immunization.

5. Nutrition Service
   (a) Nutrition Education. } i. In the community-once a Month.
   (b) Cooking Demonstration. } ii. In the Clinics-4 Times a Week.

Feeding Programme
   (c) BULGAR WHEAT DISTRIBUTION, Nutro Biscuit, Cerelac of Nestum distribution. } Source Voluntary Agencies.

   (d) Malnutrition Clinic.

   Aim of the Nutrition Service into teach People to buy or produce, cook and eat more of the locally available cheaper but more nutritious foods.

6. Minor Treatments.
7. Laboratory Service.
8. Referral Service.

RESEARCH : Base line Studies ;

1. Birth Weight.
2. Growth and Development.
3. Family welfare Planning.

The following services were given till 1978.

1. Malnutrition Creche.
2. Nursery School for campus and village children.
3. Needle work class for village women and Girls.

(It is hoped that these will be re-started when facilities will be available).

IMPACT OF SERVICE :

A few of the changes that are noticed in the health Status and health practice of the Community.

A minimum of 50% of our mothers and children under five visit our clinics for health care.

The rise in antenatal status has not been commensurate with the rise of population, but has been less. This means that the women are conceiving later and at longer intervals.

The lower Pregnancy order i.e. P.O. 's 1-3 comprise about 50% of the total antenatals in the area. All this points to the successful acceptance of Family walfare Planning.

Nearly half of our Eligible Couples are using F. P. or are operated.

The maximum number accepting F.P. is after 1st Pregnancy. (This can be seen in our F.P. acceptance Charts).

The result of the above is that mothers are keeping better health during Pregnancy and babies are being born heavier than they used to be 10 or more years ago. (Shown in the Birth Weight Bar diagram).

This gives them a better chance of survival and better potential to develop intellectually.

People are getting more health concious e.g. about 80% infants are Vaccinated before they are 6 months of age.

More and more mothers and children are coming for Tetanus, Diptheria and Whooping cough immunizations.

The population which was 14,000 approx in 1961 was 18,000 approx in the middle of 1974 showing an increase rate of 2.2% as compared to Indias 2.5%. P.A.

F. P. acceptance over the years :

Year of starting development of Health Service in practice Field area—1959.

Year of starting F. P. work integrated with M.C.H. and other service—1962.

Acceptance here does not include operations. The aim is to make F. P. a health habit. It will be seen that by constant teaching starting from 1st. contact with the mothers from the begining of pregnancy, how a consciousness and a sense of responsibility has grown as evidenced by earlier and earlier acceptance of F.P.

nity-once a Month.
-4 Times a Week.

ıtary Agencies.

roduce, cook and eat
s.

F. P. ACCEPTANCE

YEAR	AGE						TOTAL	PARITY							TOTA
	15-19	20-24	25-29	30-34	35-39	40-45		1	2	3	4	5	6	7+	
1959	4	24	36	30	13	5	112	0	6	11	13	16	21	45	112
1970	30	68	58	16	17	6	195	33	42	33	22	26	13	26	195
1977	44	70	23	11	6	1	155	54	50	22	11	4	4	10	155
1980	47	59	37	18	5	2	168	70	43	26	10	10	3	6	168

M. C. H. Clinic Attendance.

These Include visiting relatives (AN, PN, INF. ETC)

Year	1st visit to the clinic					Other members of the Family and School age children.
	A N.	P N.	Infant	TODD	1—5 Yr	
1959	296	221	307	233		1389
1965	353	251	274	363		4537
1975	384	248	307	344		4088
1980	403	231	304	249		2624

Mean Birth Weight of the babies of Health School Practice Field area.

MEAN BIRTH WEIGHT IN POUNDS

Year	Nos.	Male	Nos.	Femal
1963	75	5.46	85	5.28
1967	84	5.75	83	5 66
1973	96	5.87	76	5.75
1977	99	5.89	79	5.68
1980	75	6.01	92	5.79

RITY				TOTA
4	5	6	7+	
13	16	21	45	112
12	26	13	26	195
1	4	4	10	155
	10	3	6	168

ers of the Family
ge children.

Femal
5.28
5.66
5.75
5.68
5.79

BIRTH RATE

1970—28.21

1975—24.32

1979—20.52

DEATH RATE

INFANT MORTALITY

1970—96

1975—103

1979—55

MATERNAL MORTALITY

1970—Nil

1975—Nil

1979—Nil

WHAT OUR PRIZE DISTRIBUTION IS ABOUT

Most centres have Baby Shows on Children Day. Ours however is not a Baby Show. Our function is help to teach, encourage and reward mothers in their efforts to have and ~~nature~~ healthier babies. Our care of the child starts as soon after conception as possible with care of the mother during pregnancy, when we also shepherd her towards a safe delivery, then we look after both her and her child.

We give prizes to women who have visited the Antenatal Clinic at least once in each trimester have had their 3 T.T. injections and with either or both these have had a safe confinement i.e. have had a qualified attendent (Trained Dai, Midwife, Nurse, Doctor or Hospital confinement). The infant gets a certificate and prize along with mother.

We judge the 1—5 years age group on the following points :—
Safe delivery ; Birth Weight ; Immunization ; Clinic visits ; Diet and Weight at the last Scheduled visit.

This means, that the staff has to make a laborious review of their work and the mothers response. As routine work must not suffer, this takes over a month to complete. But for every body it is a satisfying exercise, and we all come to know where we stand, and where our strength and weakness lie. It is a learning process for us and our mothers.

Only the prize winners are called to the function, so nobody goes away disappointed. Each mother when invited is told why she or her child has won a prize.

This creates a poignant teaching situation in the village. When neighbours and relatives come to know that a woman has been specially invited, many come to her to find out why only she, and not they too. She is in a position to tell them.

The situation is repeated when she goes home after the function with her prizes and certificates. The information spreads through the various gossip centres (with embellishments and detractions) and the discerning take note.

There is another reason for arranging this function in the way we do.

We are actualy conscious of the fact, that along with the physique, 50% of the intellect is also developed before the age of 4 years.

We feel it our bounden duty to develop this quality to its fullest potential hoping that later the home, schools and social environment will provide the right stimuli to develop personalities and positive attitudes.

APPENDIX D

RURAL LATRINES

Nearly 80 percent of population in India lives in villages Protected drinking water and proper collection and disposal of human excreta are the primary requirements of healthy environment for these villages. It is however observed that these necessities are very much lacking in our Rural areas with the result that a very large percentage of rural population is found to have been affected by water borne illnesses and worm infestation, causing both mortality and debility which cannot be estimated in terms of tangible resources. All these sicknesses can be controlled through good sanitation, especially through sanitary collection and disposal of human faeces which can form the reservoir of disease germs and worms.

Various types of latrines have been developed in the country by different agencies to suit different conditions. However, the handflush water seal pit type latrine is found suitable in most of the Rural India. Its advantages over the other types of Rural Latrines are as under:

1. Large storage capacity for excremental matter as compared to bored hole type latrines.
2. Possibility of providing permanent location thereby avoiding the need to shift super-structure at intervals.
3. Freedom from smell and fly nuisance.
4. Low initial cost as compared to septic tanks and acqua-privy systems.
5. Possibility of construction, employing semi-skilled labour which is usually available in rural areas.
6. No need to have special equipment as in the case of bored hole type latrines.

Rural Latrines of National Environmental Engineering Research Institute's (NEERI'S) Design.

NEERI has evolved the following type of (fig.1) Hand flushed water seal latrine for use in Rural areas and has also undertaken pilot projects to popularise the same. It consist of a small enclosure (about one meter square) and a covered pit for collection and stabilization of excremental matter. A cement concrete

mosaic-finish W.C. Pan with a cement concrete trap of 15 mm deep water seal (fig.2) is installed in this enclosure and is connected to the pit with 100 mm diameter (S.W.G.) glazed stoneware pipe. Faeces along with ablution water and flushing water are passed on to the pit from the pan through this pipe. Water gets soaked into the soil around while the faeces are digested anaerobically to produce a humus which contains good amount of fertilising elements like Nitrogen, Phosphorus, and Potash. The quantity of humus so formed and accumulated has been estimated to be between 50 to 60 liters per capita per year, so that it takes over 5 years for a pit of 1 meter diameter and 1.7 meters (usable) depth to get filled up when used by a family of 5 persons regularly.

The digested material and humus from the pit which is rich in N, P, and K can be used as an excellent manure and can pay back the full cost of latrine construction (eg. about Rs. 500/-).

NEERI and others have experienced that except in special circumstances, community latrines are not properly used and maintained by rural communities and it is difficult to fix up responsibility for the same, with an agency working in villages/Rural areas. Hence NEERI is advocating for separate family type latrines as described above for every household in the rural areas.

The liquid which is soaked by the soil around the pit may reach the ground water table and transport bacteria and chemical contaminants into the ground water. The safe distance between a pit-latrine and any well depends upon the type and texture of soil. The recommended safe distance for different soils is as under:

(i) Fine textured soil such as clay (effective particle size 2 mm or less) and velocity of ground water less than 1 meter per day - 6 meters.

(ii) Coarse soil (effective particle size 0.2 to 0.3 mm) - 15 meters.

(iii) If the soil is still coarse, a site study will have to be carried out to decide up the safe distance.

After a few months of the use of the latrine the interspaces of soil around the pit get clogged with the organic matter in the decomposing faeces and that goes on reducing the area of contamination.

W.C. Pan and Trap of NEERI Design

The Pans are casted in special Cement Concrete moulds using 1.4 Kilograms of grey Cement, and 4 Kilograms of Sand. These are finished from inside using one Kilogram of white Cement and 1.5 kilogram of Marble Chips, and then polishing it by hand with an emery stone. The Trap is casted in two pieces in wooden moulds using 2.5 kilograms of grey cement and 4 kilogram of sand, then jointed using rich (1:1) cement mortor. The cost of these articles including the cost of labour (eg. mason, helper) breakages and depreciation on moulds is about Rs. 30/- (at 1981 price level at Nagpur). The connecting S.W.G. Pipe 10 cm diameter 60 cm long can be purchased in the open market at a price of about Rs. 7/-. NEERI has got a workshop for making these W.C. Pans and Traps, and can demonstrate its manufacture to those who are interested. It can also train masons and teach them the art of casting Pans and Traps and the construction of the Rural Latrines described earlier and shown in figure No.1.

Construction Notes and specifications (Ref. fig.1)

1	C C foundation	: 1:5:8
2	Brick Masonry	: Plinth 23cm, C.M. 1:6 Superstructure 11.5cm, C.M. 1:6 Soakage Pit 11.5cm, C.M. 1:6 30cm from top and rest honey comb. Ventilators 11.5cm.honey comb
3	Soakage Pit	: 90cm diameter and 200 cm deep with 5cm thick R C C cover in two halves.
4	Door	: 75cm x 185 cm Frame 7.5cm x 6cm hard wood Shutter 180cm x 70cm single shutter in hard wood.
5	Roof	: A.C. Sheet or any low cost material like kay or country tiles, wall plate and rafters 7.5cm x 5 cm in hard wood.

6	Plaster	: 12mm thick in C.M. 1:6 over murum and brickbats filling on plinth.
7	Plaster	: 12mm thick in C.M. 1:6 over walls.
8	White washing	: Two coats
9	Approximate cost of construction.	: Rs.470/- at Nagpur 1981 price level (without roof and door). Rs. 740/- (with A.C. sheet roof and country wood door)

Materials required for construction of one Latrine

(A) Upto Plinth level:

S.No.	Item	Quantity
1	II Class bricks	400 Nos.
2	Sand from local nulla beds	25 cft.
3	Metal/Shingle	6 cft.
4	Cement	1 bag.
5	Steel for (Pit cover)	5 Kgs.
6	Pan and Trap set	1 set.
7	100 mm dia S.W.G. pipe 2'. long.	1 No.

(B) Above Plinth level:

S.No.	Item	Quantity
1	II class bricks	400 Nos.
2	Sand from local nalla beds	25 cft.
3	Cement	1 bag.
4	Country local wood for door and roof	3 cft.
5	Corrugated A.C. roof cover sheet	16 sft.
6	Fixtures for door	Lumpsum.
7	Oil paint for door	Lumpsum.

Fertilizing elements given by a Pit Latrine

The pantrap pit latrine developed and propogated by NEERI can pay back to the villagers substantial amount spent by them for its construction.

The pit of this latrine gets filled up within about 5 years while being used by a family of 5 persons and will give about 1.00 M^3 of manure containing 50 percent of solids material. This humus contains valuable fertilizing elements such as Nitrogen, Phosphorus and Potash.

The quantities of these contributed by a person per year are estimated as under:

1) Nitrogen as N : 2.5 to 3 Kgs.
2) Phosphorus as P_2O_5 : 0.8 to 1 Kg.
3) Potash as K_2O : 1.3 to 1.6 Kg.

Thus the manure in the pit is therefore likely to contain atleast 62.5 Kgs N, 20 Kgs P_2O_5 and 32.5 Kgs. of K_2O at the end of five years when the contents are to be taken out and used as manure on the fields.

The prices of inorganic fertilizers in the market in our country at present (1981) are as follows:

1) Ammonium sulphate containing 20.5 percent N : Rs.100 per quintal
2) Superphosphate containing 16 percent P_2O_5 : Rs. 88 per quintal
3) Muriatic of potash containing 60 percent K_2O : Rs. 88 per quintal

Thus the cost of N, P_2O_5 and K_2O per Kg. in these inorganic fertilizers works out to about Rs.5/- for N, Rs.5/- for P_2O_5, and Rs. 1,40 for K_2O.

The present day (1981) value of the fertilizing elements obtained from the humus accumulated in the pit of a Rural Latrine would be therefore about Rs.518/- as given below:

Element	Quantity(kg)	Rate Rs/Kg	Amount Rs.
N	62.5	5.00	312.50
P	20.0	5.50	110.00
K	32.5	1.40	45.50
Humus (dry)	500.0	0.10	50.00
		Total Rs.	518.00

The latrine once constructed can last for 20-25 years when properly maintained and the valuable fertilizing elements will be available to the user families every five years. These will therefore pay more than the cost of the latrine itself within 10 years of its usage.

School Latrines

Government or private schools have been established in almost all medium and large size villages in the country. There is an urgent need to educate the young generation about sanitation and personal hygiene. NEERI has therefore designed a latrine block for schools in Rural Areas as shown in figure No .2. . . It consists of two hand flushed water seal latrines, one for boys and another for girls and a urinal block for boys. The faeces alongwith urine fall in a common soakage pit where these are digested anaerobically. A small water tank has been provided in the urinal block such that it serves both latrines, and the urinals. The cost of construction of such a block will be about Rs. 3000/- (at 1981 price level). A set of cement mosaic finish, urinal pot and a connecting 5 cm diameter cement pipe used in the above baock and , as casted in NEERI's workshop at Nagpur costs about Rs. 25/-.

Instructions for the use of Sanitary Latrines of NEERI's Design

(1) Leaves, Papers and such other solid articles should not be used as annal cleaning materia; only water should be used.

(2) The pan should be wetted by pouring some (eg. half liter of) water before every use. (This would act as a lubricant and would prevent sticking of excremental matter to it).

(3) The pan should be flushed clean properly by pouring necessary quantity (eg. 2 1/2 liters) of water after every use.

(4) The pan and the trap should be cleaned using a brush with handle and by pouring sufficient quantity of water once a week to remove any sticky substance and to prevent accumulation which would attract further depositions.

(5) The latrine enclosure should not be used for bathing or for washing of clothes. The excess water may cause heavy load on the leaching pit which may overflow.

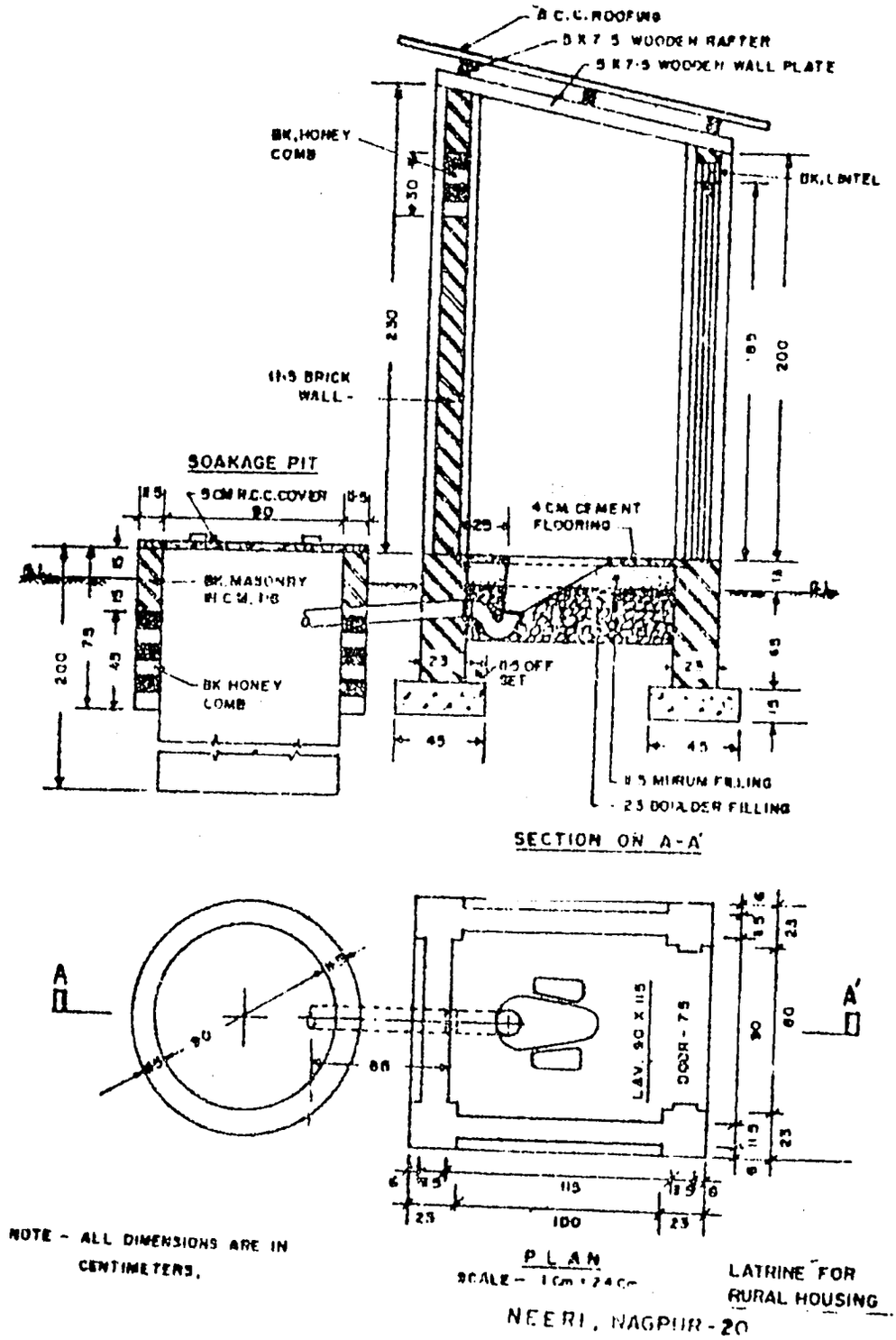
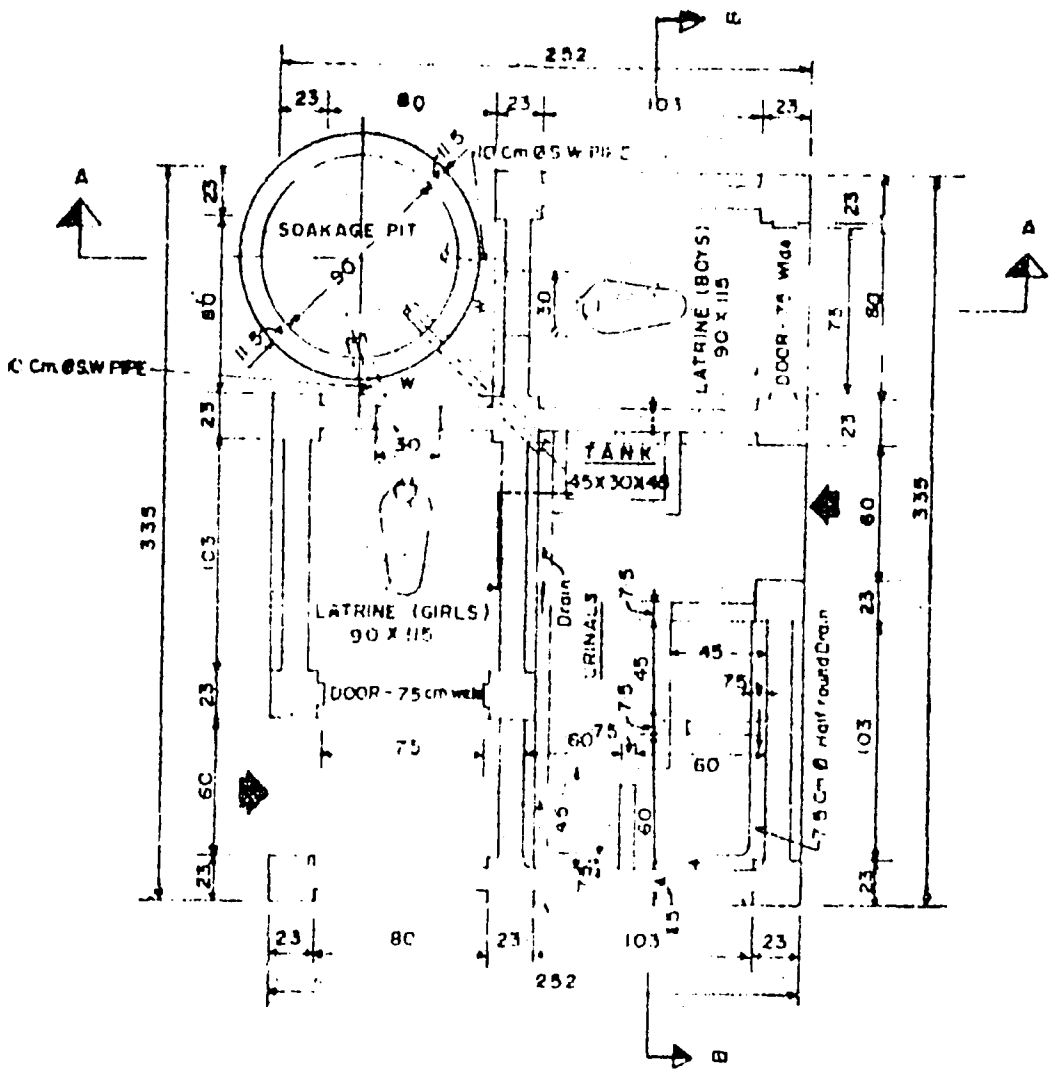


FIG. 1—A Typical Hand Flushed Water Seal Latrine for Rural Housing

Fig. 2—A Typical Latrine Block for Rural Schools (Plan)



PLAN

SCALE – 1 Cm = 24 Cms.

ALL DIMENSIONS ARE IN CENTIMETERS

APPENDIX E

→ Dr. Isely

International Centre for Diarrhoeal Disease Research, Bangladesh

Memorandum

TO : Director/Deputy Director/Programme Heads/Associate Directors/ Financial Consultant/General Manager/Physical Plant Manager/ Controller/Branch Heads.

FROM : Public Relations & Information Officer

DATE : 3 March 1981

SUBJECT : VISIT OF DR. R.B. ISELY

Dr. Raymond B. Isely, Associate Project Director, Water and Sanitation for Health Project, Arlington, Virginia, U.S.A. is currently visiting our Centre from 3rd to 6th March 1981 and will meet members of the scientific staff. Dr. Isely will visit Matlab Station on 5th March 1981. He will be taken around the Centre's facilities for about an hour on 4th March beginning from 9:00 a.m. A tentative schedule for the visit of Dr. Isely is attached herewith.

Dr. Isely's interest is on water, sanitation, community participation and ways to measure health and social outcomes.

All are requested to cooperate to make the visit fruitful.

Thanks.

AKA/mmh.

Encl: a/a.

TENTATIVE SCHEDULE FOR THE VISIT OF
DR. R.B.ISELY - 3RD TO 6TH MAR 1981

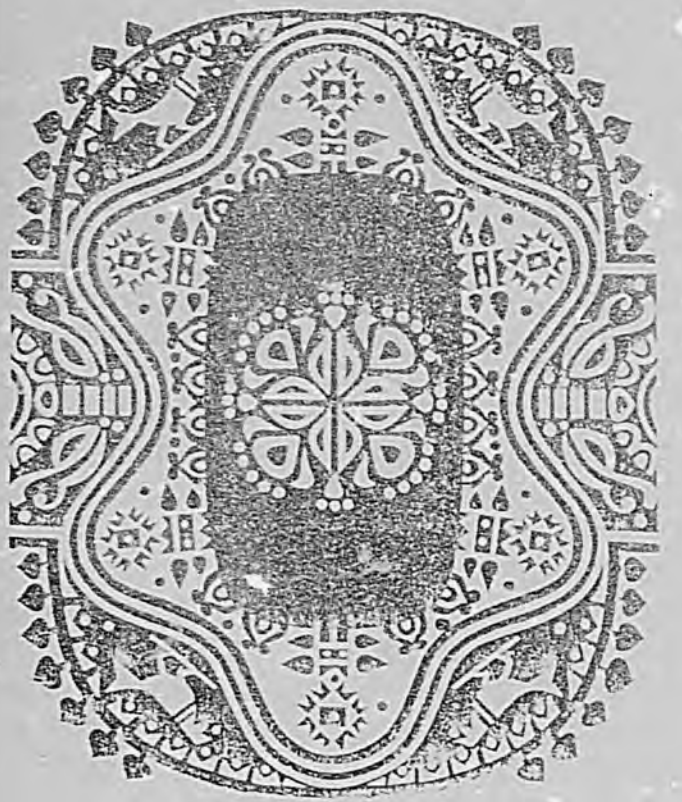
3rd March 1981	Time
Mr. S.I. Khan	9:30
Ms. Susan Zimicki	11:00
Dr. W.B. Greenough III	15:30
4th March 1981	
Tour Centre's facilities	9:00
Dr. M.M. Rahaman	10:00
Dr. A.R. Samadi	10:45
Dr. K.M.S. Aziz	11:15
Dr. M.U. Khan	11:45
Mr. K.M.A. Aziz	14:00 / 14:45 / 15:30
5th March 1981	
Trip to Matlab Station and back on the same day.	7:00
6th March 1981	
Dr. Stan D'Souza	9:30

Dr. A Majid Molla

AKA/mmh.
3.3.81

APPENDIX F

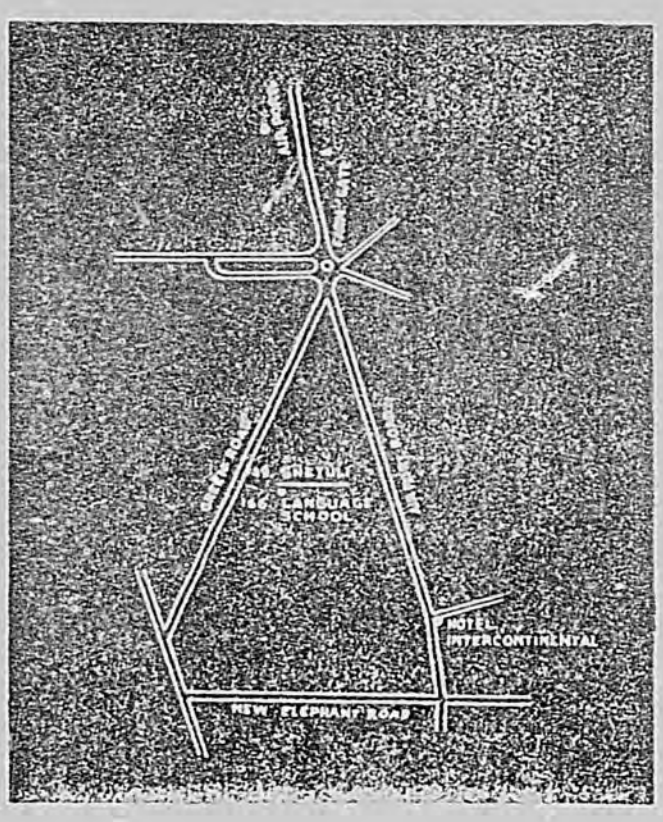
WOOL CARPET



Training for this involves women to spin the wool and men to dye it and to knot, trim and finish the carpets. Designs are mainly from our own art department.

The finished product is a good quality long-lasting hand woven carpet at a price as attractive as the carpet itself. One of our best selling products the demand sometimes restricts us to offering our standard range. However, when labour is available we accept special orders to our customers size and colour choice.

DACCA MAP



Heed Handicrafts is an organisation engaged in training men and women, boys and girls in both new and traditional crafts to better their standard of living and give them hope for the future.

Air conditioning.
Car parking behind shop.

SHETULI
HANDICRAFTS
SALES EMPORIUM
49. GREEN ROAD
DACCA-5 PHONE-319123

STRAW ART

This is one of our most successful activities. By the end of 1980 we hope to have 200 girls in training and 180 producing. These girls are mainly from the Bihari refugee camps and it provides an important opportunity for working with these and other under-privileged people. Wheat straw-craft is a simple yet time-consuming activity, involving a lot of patience.

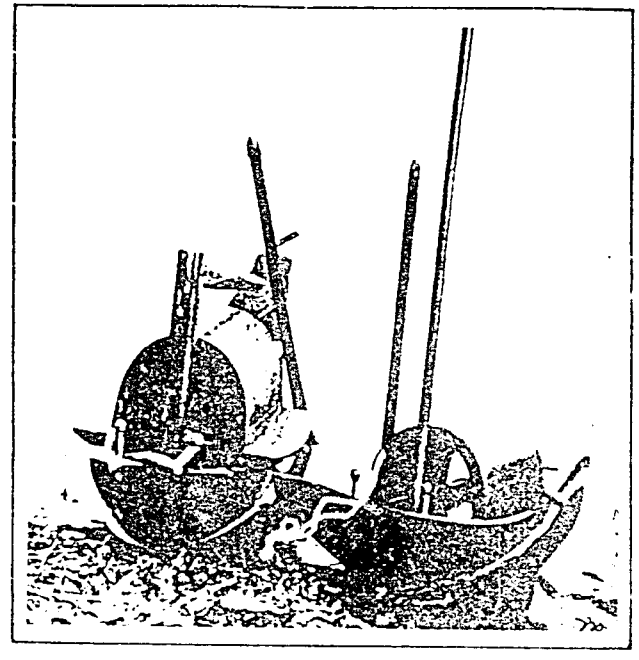
One card sometimes taking one to two hours to produce. We sell plaques, cards, bookmarks in a variety of traditional designs.

MANIPURI WEAVING

The Manipuris are a tribal group, 30,000 of whom live in Sylhet district. Weaving on back strap looms is a traditional craft among the women. It is slow and physically demanding but the finished material is beautifully fine and durable with a wide range of colours and usage. HEED began working with just one village in 1978. Now we work with four villages involving 99 weavers producing Tablecloths, Napkins, Bedspreads, Table mats and Shawls to name but a few items.

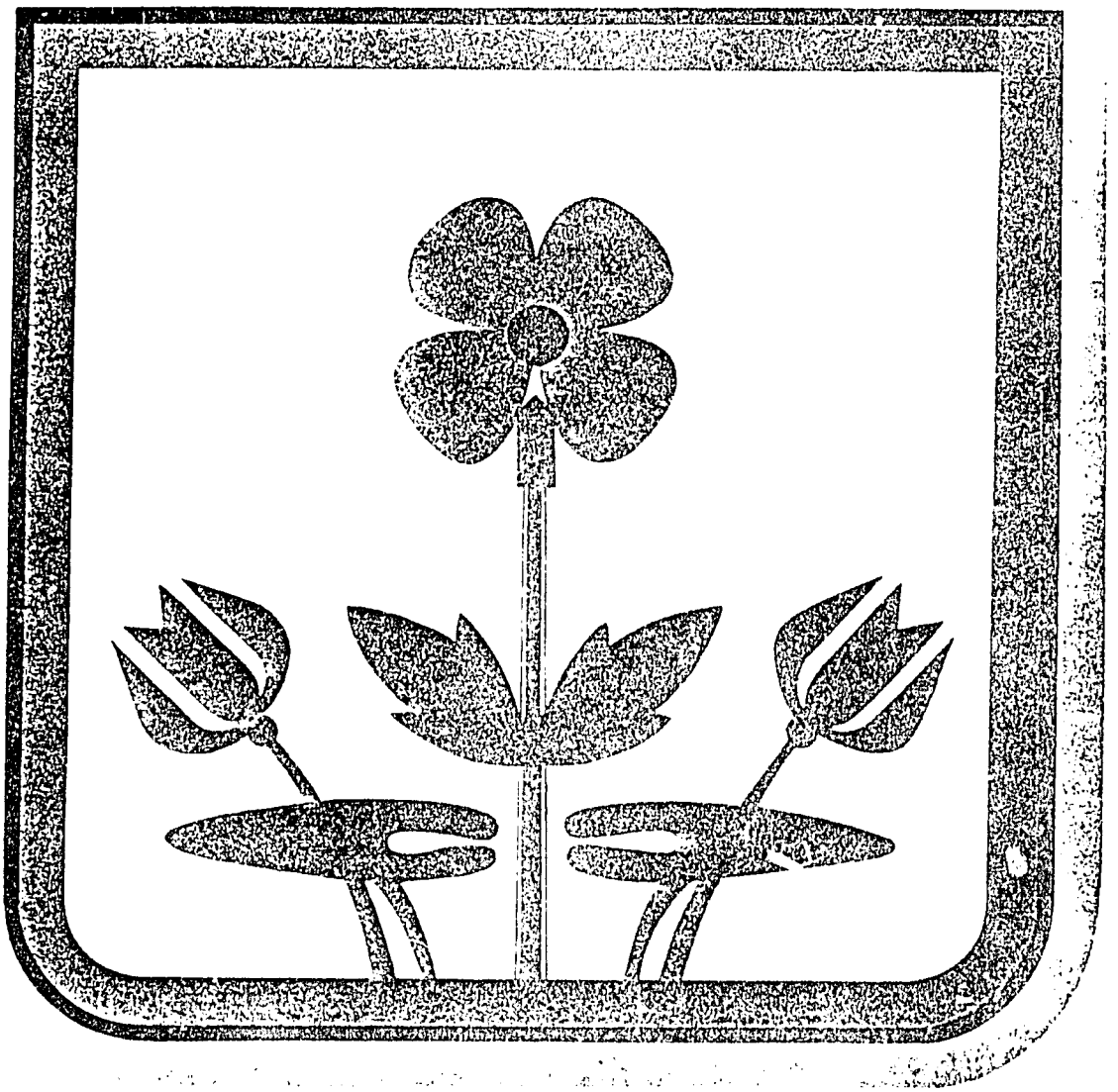
New designs are being developed with a wider choice of colours.

WOOD CARVING



Our handicrafts Programme in Dacope is based at Bajua where we have opened a training centre. The programme began in 1979 with the selection of six trainees (all local boys) and is growing steadily.

The Bajua district is very poor economically and this programme will provide an opportunity to sell the crafts outside the district, giving a new source of income to the people. The wood, obtained locally is used to produce beautiful miniature versions of the boats which serve the Delta community.



HEED BANGLADESH

ANNUAL REPORT

1978-79

HEED BANGLADESH
ANNUAL REPORT 1978-79

CONTENTS

HEED Bangladesh is a Christian Voluntary Agency with its Headquarters in Dacca, Bangladesh. HEED is registered in Bangladesh as a non-profit making charitable organisation and its development programmes have the approval of concerned ministries of the Government of the People's Republic of Bangladesh.

HEED's support comes from a range of Funding and Co-operating Agencies in fourteen different countries. These supply personnel, funding and expert advice to back-up the work in HEED's projects.

Thirteen agencies have become Co-operating Agencies of HEED and send representives to HEED's Annual Board Meeting. These are as follows :

Canada : The Fellowship Association for International Relief
Compassion of Canada

Finland : Finnish Lutheran Overseas Mission

Norway : Norwegian Pentecostal Mission

U. K. : BMMF International
The Leprosy Mission
TEAR Fund (U. K.)
Regions Beyond Missionary Union

U.S.A. : MAP International
World Concern

W. Germany : Christoffel Blinden Mission
Liebenzeller Mission
Deutsche Mission Gemeinschaft

This report is produced by HEED Bangladesh, House No. 8, Road 6, D.R.A., P.O. Box 5052, Dacca, 5, Bangladesh

Chairman : Rev. Arthur Beals of World Concern

Acting Executive Director : Mr Bruce T. Boswell

INTRODUCTION TO HEED

by Bruce T. Boswell
Acting Executive Director

All in HEED salute you.

It is my pleasant duty on behalf of our Chairman, Board of Directors and HEED personnel to introduce our Annual Report for 1978/79

It was Christopher Robin who said "when I was five I was just alive". We are five we hope we are more than "just alive"—but five is a very good age for us to assess progress so far and try and plan realistically for the future. This is what our Board has instructed us to do for a special February Meeting and it is our major current involvement.

The initial brief for HEED was to minister to the needs of the people of Bangladesh in the name and spirit of Jesus Christ and to make Him known by word and life.

Where have we got to in these five years? The Leprosy Hospital at Kamalganj and the Thana Health Centre at Chalna are completed and commissioned. They are supported by clinics and health workers in the villages and are commended by local and central Government.

The Agricultural programme is growing at an exciting rate and having a real impact on the farming community.

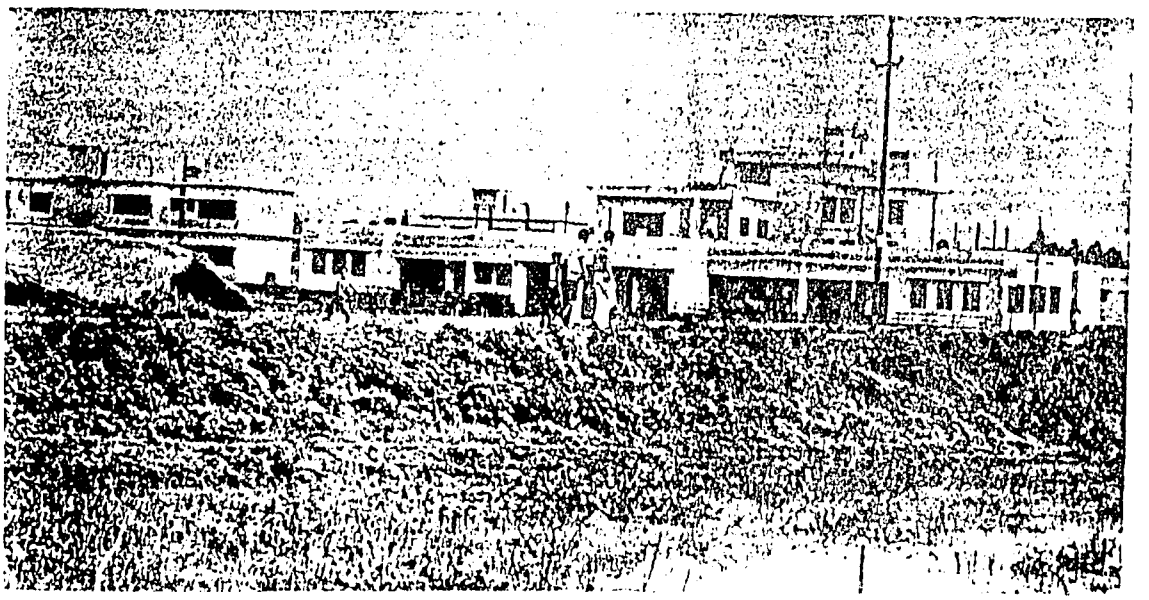
The Community Development work, by its nature slower moving, is getting to the poor people where they live.

Dacca Camps inhabitants have a tolerable instead of a sub-human existence.

Handicrafts is emerging from the training to the production stage at a dramatic rate, and Shetuli, our Sales Centre, and our Service and Training Centre are real interest focal points for our visitors.

We are immensely grateful to God, to our loyal supporters and to our workers for all this and I wish to take this opportunity to pay a sincere tribute to the hard work and commitment to HEED of my predecessor, Dr. Howard Searle. Your continued strong prayer support is vital. We have faced and continue to face great problems and are deeply conscious that it is only the wisdom from above which can enable us to effectively work to meet the needs of the people of Bangladesh.

Bruce T. Boswell
Acting Executive Director
December 1979



Completed Stage II construction of Dacope Thana Health Complex, Khulna District

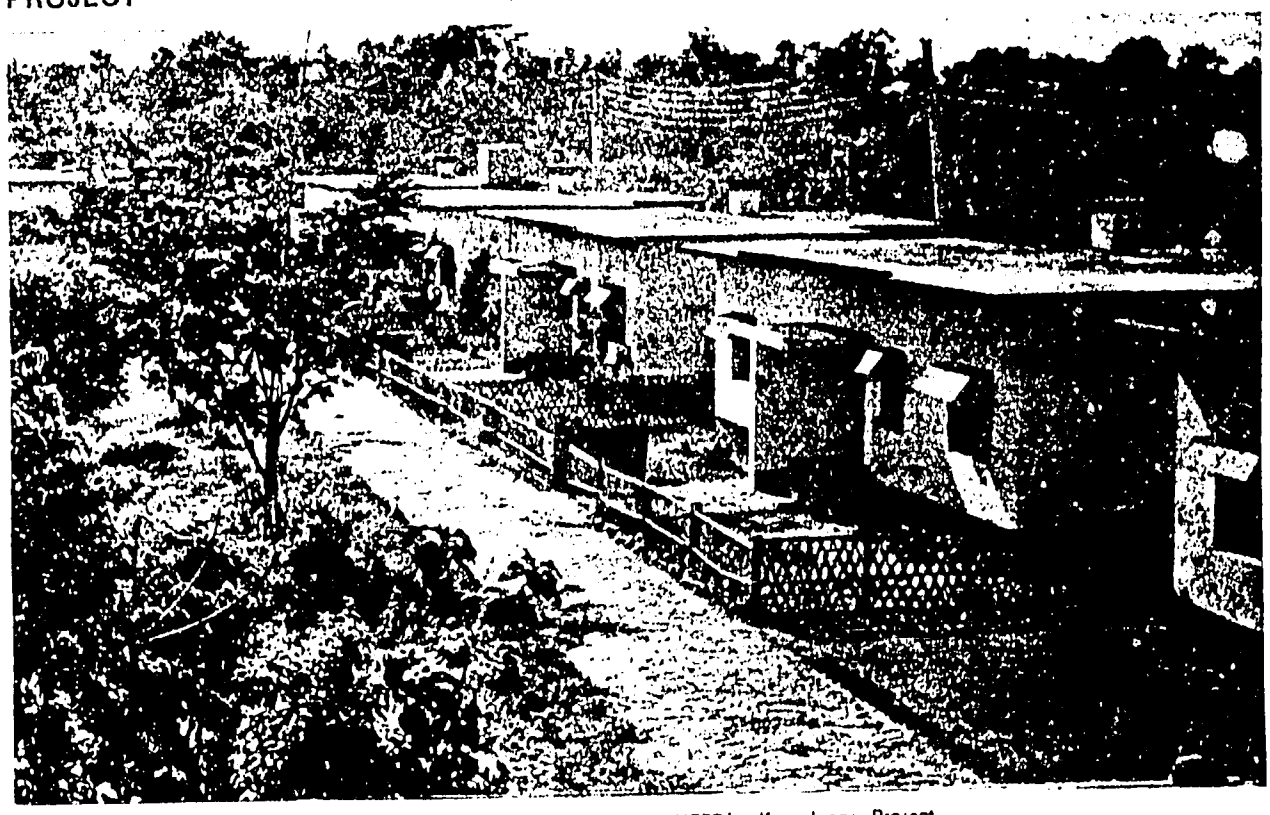
KAMALGANJ RURAL DEVELOPMENT PROJECT

The HEED Kamalganj Project is situated in the low hills of the Sylhet District in northeast Bangladesh. It began in 1976 when, in response to a request from the Government of Bangladesh, HEED took over 190 acres of government land and numerous buildings which had been intended to function as a leprosy treatment and residential centre but had never been put into operation.

With a capital grant from ICCO, the Inter-Church Co-ordination Committee for Development Projects from Holland, HEED has refurnished all the present buildings and constructed facilities for a training centre, a workshop and stores. With additional help from the Leprosy Mission a twenty bed leprosy hospital designed for reconstructive surgery has also becomea reality.

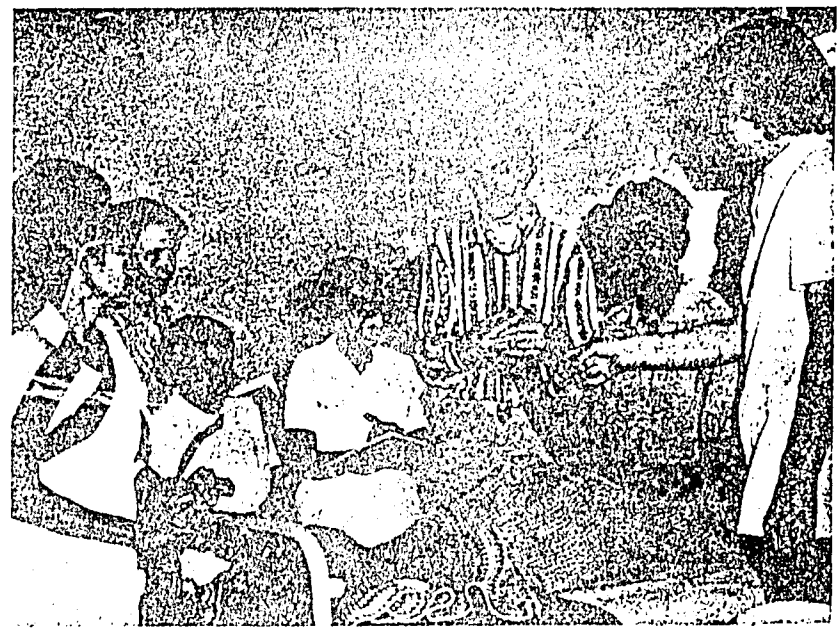
The project site now serves as a base not only for the leprosy work but also for general health, agriculture, community organisation and handicrafts activities amongst the 1,45,000 people of Kamalganj Than .

The third year of the Kamalganj Project has seen the emphasis of the work move emphatically to the villages. Whilst HEED staff are involved in increasing teaching work it is also recognised that they themselves have much to learn about Kamalganj and what can and can not be done in the area. Only as HEED staff and villagers together engage in discussion, learn from each other and co-operate in different activities will HEED's presence in the area bear the desired fruits in a healthy community.



Some of the buildings at HEED's Kamalganj Project

LEPROSY HOSPITAL AND CONTROL PROGRAMME



Dr. Urban Pachlatko leads a bedside session with Staff of the Leprosy Hospital

Early in March 1979 it became possible to move the first patients into the newly constructed leprosy hospital. Some fifteen patients suffering from plantar ulcers were moved from temporary accommodation into the hospital and there has been a regular flow of patients since that time. Daily care is given to each patient with particular emphasis on training in the care of the feet. Some minor surgery has been undertaken, but a regular reconstructive surgery programme is postponed until a surgeon can be arranged, probably early in 1980.

The hospital was officially opened on 27th May by the Honorable Minister for Women's Affairs, Dr. Mrs Amina Rahman.

The leprosy control programme has continued with survey and case finding along with the back-up of health education and an extended clinic programme.

In August and September 1979 a team of six paramedical workers was trained. Each worker now has responsibility for one union of the thana and undertakes further survey work, school visits etc. 1980 will see the further development of this field work.

Field survey work in Kamalganj

HEALTH SECTOR

The Kamalganj Project is a Government recognised centre for the field training of its Family Welfare Visitors (FWVs). These are female workers whose eventual work responsibilities include running Family Planning and Mother and Child Health (MCH) clinics and participating in motivation and support work in the field. Under HEED's guidance the trainees participate in a three month programme of field work, clinic work and lectures. They make house visits, learn to give health education and motivate for Family Planning. Shorter introductory courses have also been held. The whole programme is linked in closely with the eighteen month training at the Sylhet Family Welfare Visitor's Training Institute and HEED staff co-operate closely with those responsible for the training. Final examination results of the Kamalganj trainees have been highly encouraging.

Two batches of Village Health Workers (VHW) have undergone training and their work has been well accepted in the villages. However, village support in the matter of paying wages has been poor and the problems have resulted in some of the VHWs stopping work while others have continued to work voluntarily.

The Government of Bangladesh has announced its intention to undertake a programme of training for village dais, the traditional birth attendants (TBA). HEED anticipates future involvement in this work and merging the VHW and TBA programmes. The trained TBA will ultimately be able to do useful health work in the villages

Checking weights of babies is an important part of the Village Health worker's work.

MCH work is carried on at Shamshernagar and Adampur clinics and at the thana hospital, which is Government run. Government FWV staff function in each of these centres, HEED fulfilling a primarily supervisory role. A strong emphasis in the work is on health education.

TB clinics have continued along with the BCG programme. A more active approach to case finding and follow-up is being considered.

Health Education work is seen as of primary importance in the health programme. Encouraging seminars have been held for villagers, for farmer's co-operatives and for womens' groups, and this work is to be extended to schools and other union-based groups.

Mother and children clinics function in three centres in Kamalganj.

The Agriculture Sector comprises four sections—Agronomy, Engineering, Fisheries and Livestock. These have a coordinated approach to village extension work, the majority of resources going into training and demonstrations in the villages. Some basic experimental work, again primarily village based, provides essential backup for the programme.

Because rice is the main crop in Kamalganj thana HEED has its strongest programme on cropping systems based on rice production. Twenty-three rice demonstration plots in three unions were used to introduce to farmers the more promising of several new varieties available in Bangladesh. Proper fertilizer usage was also demonstrated. Under stressful cropping conditions, the Purbachi variety yielded on average 55 mds (4,400 lbs) per acre, thus outyielding the popular BR-3 and BR-1. The farmers were impressed and carried heads from the demonstration plots into the bazaar to show other farmers.

Wheat may be an appropriate crop to fit into an improved cropping pattern. Its requirement for less irrigation than rice during the dry winter season make it an attractive proposition. Several village plots were planted in the 1978/79 season and the Sonalika variety yielded as high as 43 maunds (2,365 lbs) per acre. Some 50 acres of land is being planted with wheat in the season 79/80.

Vegetable programmes were conducted to promote good cultivation methods and the production of more nutritious crops from both winter and summer gardens. A number of training sessions were held and over 1,000 seed kits sold to farmers. Although the more common vegetables produced well some of the newer varieties were disappointing. It is clear that in future efforts more emphasis needs to be given to cultivation methods and preparation for eating.

A successful vegetable extension programme.

The Fisheries Section has been working intensively on forty fish ponds in two Unions. Many of the earlier stocked ponds are now producing their own fry and contain good populations of Nilotica. Other pond owners are purchasing fish from these ponds.

The sale of more than seven thousand Napier grass seedlings by the Livestock Section in the monsoon season indicates strong local interest in grass cultivation for cattle feed. An artificial insemination programme is now at an early stage.

Thirteen people received training in cattle and poultry vaccination and approximately 6,000 cattle and 6,000 poultry have been vaccinated.

For improvement of village poultry two cockerel exchanges have been carried out with thirty-two cocks of improved breed being sold after training sessions.

The Engineering Section is at an early stages in its development. Investigations have been made into a range of agriculture-related equipment but the major future input of the section is likely to be in the area of irrigation.

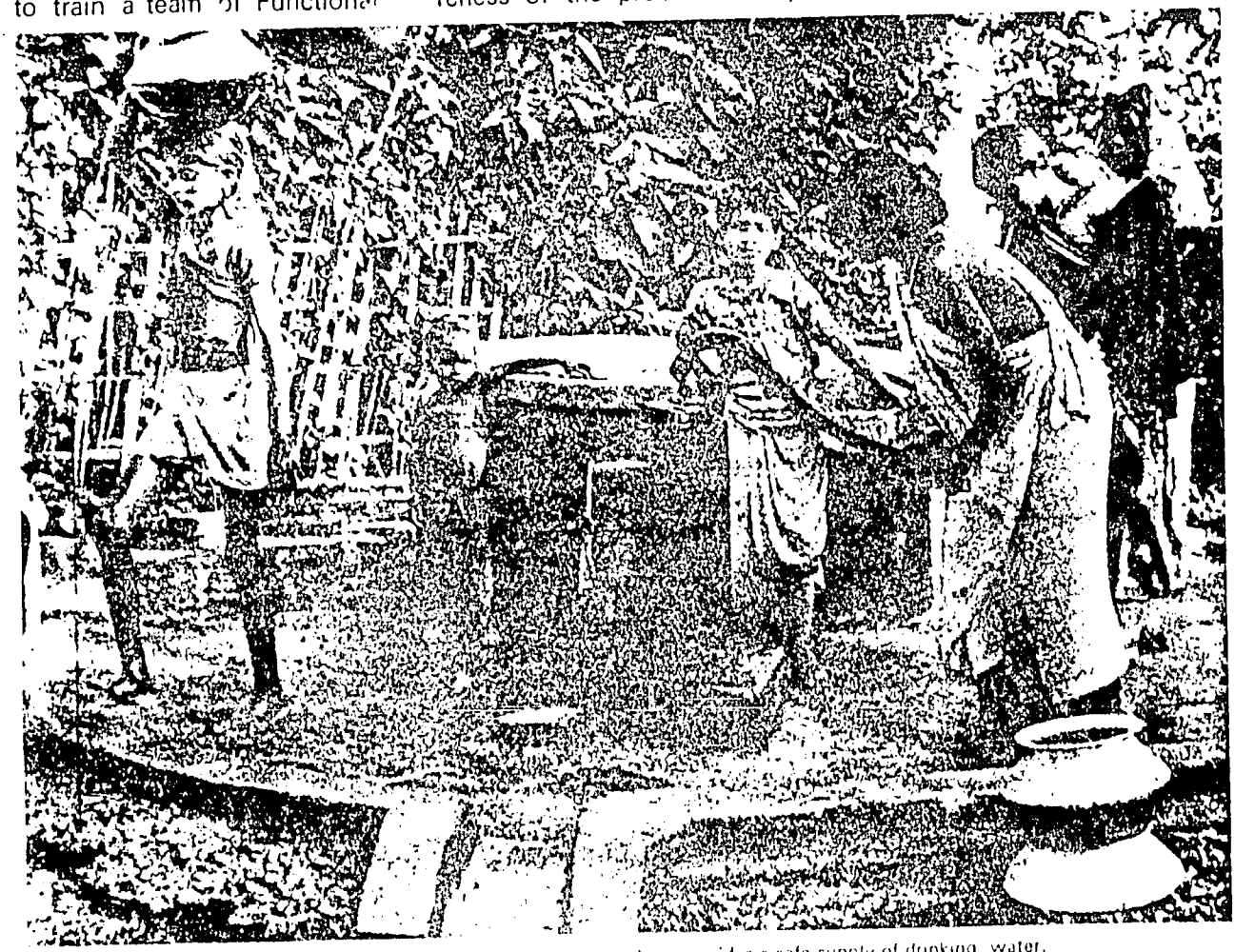
COMMUNITY ORGANISATION SECTOR

During the past year the Community Organisation Sector has worked to identify a series of low cost steps which may be taken as the basic requirement for the initiation of development work in a community. Three steps are now identified as leading to a proper awareness of problems and the building of relationships with development workers. The main element of these is a course of Functional Education.

Using entirely local staff the first step taken has been to train a team of Functional Education Teachers. Each of them works in his own village and bases his teaching work on the BRAC Functional Education course material, a series of sixty-six lessons covering health, community organisation, village politics, agriculture, village economics etc. Sixtyfive teachers were trained in 78/79.

In the second step each teacher returns to his village and forms a group of interested persons to whom he will give training.

There are 270 people now involved in such groups in Kamalganj. As a result of the training they receive group members gain a better awareness of the problems they face and also learn of ways in which these may be overcome. Groups are encouraged to open joint savings accounts and fund self-help projects. Although decision-making is slow, groups are able to agree on what they want to do with their own money and so they begin to embark on improving their conditions. Through this process too they become aware of the assistance which is available from the Kamalganj project as a whole. Thus requests come in for agriculture, health and handicrafts inputs in work to be undertaken jointly with the villagers. To date some 21 groups are involved in such activities with a membership of 380 people.



A protected well developed by Tea estate workers provides a safe supply of drinking water.

The Manipuri women in Kamalganj thana have traditionally engaged in weaving work in their houses. Their handlooms, with a characteristic backstrap, have been used to produce a full range of clothing and household materials. Under HEED's guidance these traditional items have been redesigned and new products are being sold in Dacca and exported.

At the start of the year the Handicrafts work was going on in only one village with twenty women producing bedspreads and tablemats. This work has extended rapidly so that the women of four villages are now involved. The ninety-nine weavers produce napkins, tablecloths, shawls and cushion covers in addition to the former bedspreads, tablemats and runners. The second element of the Handicrafts work in Kamalganj is closely linked with the leprosy work. Two former patients have received training in block-printing techniques and these are now training four other former patients. With the support of a blockmaker they are able to produce block-printed tablecloths, napkins, shoulderbags, dresses and tablemats. Sales at 'Shetuli' in Dacca have been encouraging and the demand for tablecloths for export has outstripped the supply. Four additional trainees are therefore being taken on and the programme is being extended to include non-leprosy sufferers.

For a patient recovering from the physical problems of leprosy the opportunity to earn a regular income from a safe mode of employment opens up the door for a full economic and social rehabilitation.

The large quantities of cane and bamboo available in Kamalganj thana provide the rawmaterials for the third part of the Handicrafts programme, training in bamboo and cane work. After twelve months in Dacca the Assistant Training Master began work in April with six trainees. These are now producing stools, baskets, bookshelf units and chairs. On completion of their training they will have a ready local market and sales in Dacca from which to earn a living.

Traditional Manipuri weaving.

Bamboo and cane work.

DACOPE

THANA

HEALTH

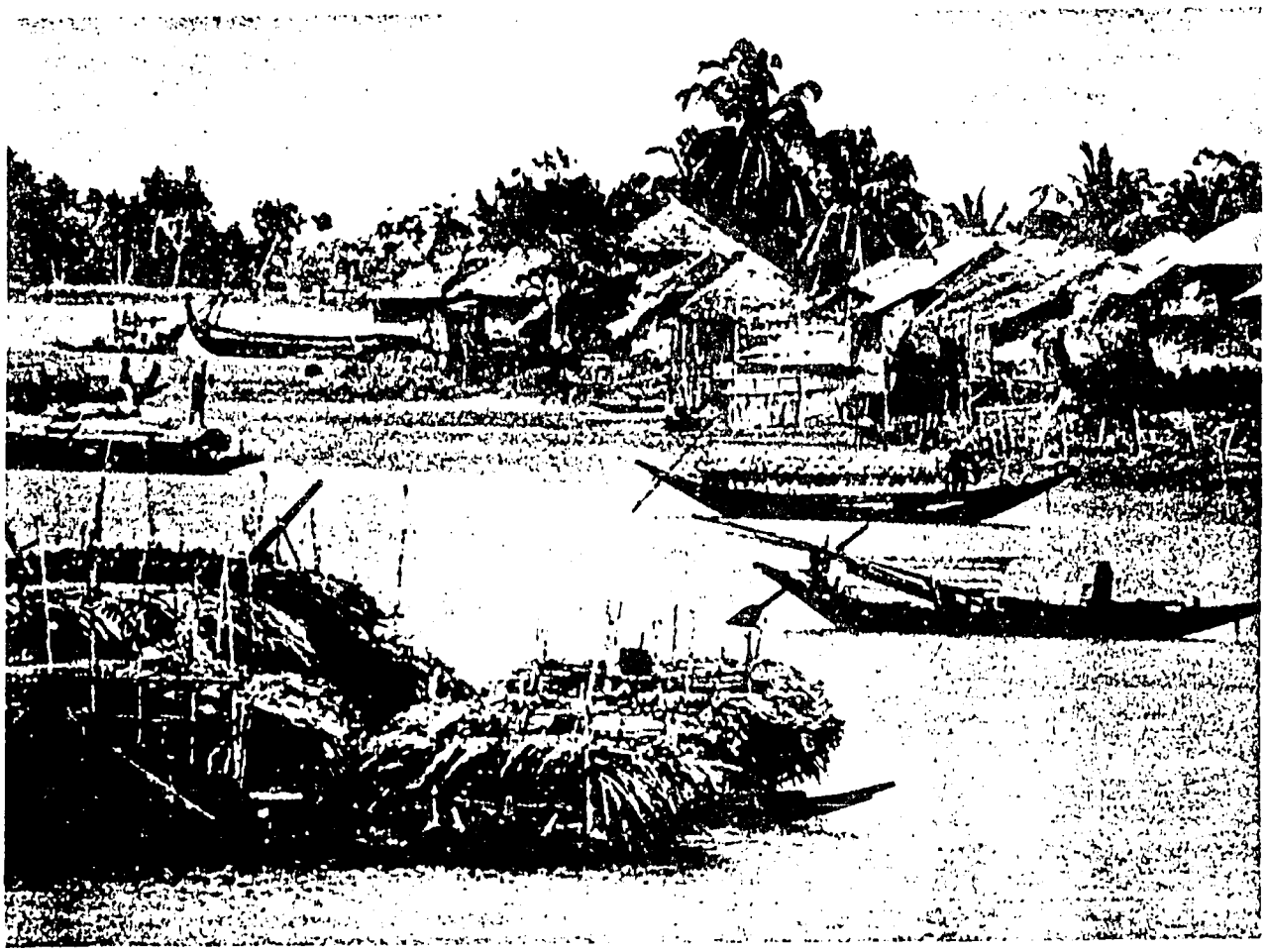
SERVICES

PROJECT

The second full year since the HEED Dacope project began to operate from the Chalna Bazar Thana Health Complex has seen a number of major developments. The project has begun to move away from its unavoidable early emphasis on building construction work and is now concentrating increasingly on training programmes. The mix of expatriate and national staff has seen some significant change. With the departure of several expatriate members increasing responsibility is being taken by the growing number of Bangladeshi nationals.

Also the year has seen a highly encouraging growth in co-operation between HEED and the staff of the Family Planning Division of the Government of Bangladesh.

As an area in which only one rice crop is grown in the year Dacope Thana is a food deficit area. Its problems are compounded by the effect of salty tidal waters, low-lying land and the network of rivers which make transport over any distance very difficult and slow. The population of 90,000 people is amongst the poorest in Bangladesh.



Bajua Village, Dacope Thana.

Community Nurses Margaret Leppard and Sheila Saha discuss Child Nutrition.

HEALTH SECTOR

HEED's health activities are aimed at the poor village people of the Dacope area. With a view to establishing effective health services, HEED has chosen to channel its resources through the programmes and personnel of the Health and Family Planning Divisions of the Government of Bangladesh.

This approach has seen HEED involvement in a number of Government programmes. HEED supports Government Health Division staff in moves towards making the 31-bed Thana Health Centre fully functional. The building was officially opened by the Honorable Minister for Health in September 1978. Since it is now fully staffed and a complete allocation of UNICEF and other equipment has been received it is a matter of some disappointment that the inpatient department is still not functioning. Government Health Division staff provide out-patient clinics on six days a week.

HEED constructed a Family Welfare Centre at Kalinager in the south of the inhabited area of Dacope thana. The centre is now being taken over by staff of the Family Planning Division and will provide Mother and Child Clinic and Family Planning services to the local area in addition to being a base for women's welfare and community organisation activities.

In Kalinagar, Bajua and Chalna Clinics the HEED Medical Officer and nurses have undertaken in-service training programmes for Government-employed Family Welfare Visitors and Family Welfare Assistants. More than 30 of these staff are in the field. These are the key workers through whom the population at large may come to a proper understanding of how to overcome their health problems and of the advantages of family planning.

Tubal Ligation operations were begun at Chalna in January 1979. Response from local people has been very encouraging and it is expected that more than 420 operations will be completed in the first twelve months.

This work is undertaken by Government staff with HEED staff in support.

Future plans for the health sector are to develop further the relationship with Government staff and to provide support at all levels of the Government programme. There will also be opportunities to assist the Ministry of Health in assessing the potential of its programme for rural areas. It is hoped to see the Chalna Bazar Thana Hospital develop as a referral centre for the health programme in the Thana and also to establish the Health Complex as one of the Field Training Centres for the Family Welfare Visitors training programme for Khulna district. HEED hopes to play an active part in realising Government plans to upgrade the work of traditional local medical practitioners, village doctors and traditional birth attendants (Dais). The positive response to the Ligation Programme also encourages the thought that there is great potential for such thana-based programmes.

September 1979 saw the departure of Dr Doug Bridge from the work at Dacope after a lengthy period of illness. The position of project director will be taken over by Dr Barry Evans as from January 1980.

In talking about their work the HEED Chalna team are anxious to emphasise their role in training. In the past year there has been ample opportunity for training to be given and there have also been many opportunities to give Government field workers the moral support they so much need in difficult village situations. The team recognises that knowledge without motivation is insufficient. Changed attitudes towards those amongest whom the work is carried on cannot be taught in a classroom. The effectiveness of the Dacope health programme, indeed of all HEED programmes, will ultimately be dependent on the extent to which right motivation can be communicated in the field.

Dacope villagers questioning what can be done to improve their standard of living

COMMUNITY DEVELOPMENT SECTOR

Staff of the Community Development sector have a wide-ranging role in Dacope. Working relationships are maintained with local officials but an equally important area of work has been in the promotion of co-operative ventures by local village people. Amongst the co-operatives the one with the most obvious potential is that in which more than 70 poor farmers have cleared and stocked a pond with fish. The hundreds of fast growing fry promise substantial income in the not too distant future. Groups of men and women making paper bags or puffing rice are making steady if not spectacular progress.

The Christian Service Society (CSS) which has a basically agricultural programme in Dacope has formed more than 50 co-operatives in the thana. HEED and CSS cooperate closely in their work and this co-operation has seen HEED staff involved in drinking water improvement activities and in the training of village health workers in villages with CSS co-operatives. Future plans are to extend this work for the improvement of sanitation systems and more general drinking water supply improvement.

HANDICRAFTS SECTOR

Being part of the vast delta area of Bangladesh and bordering on the Sundarbans or forests it seemed only natural for the Handicrafts programme of HEED to concentrate on utilising locally available wood to produce miniatare carved boats and other items for sale in Dacca. This programme began in early 1979 with the selection of six trainees, local boys from the Bajua area. These have now reached acceptable standards as producers and their products are brought up to Dacca for sale through the HEED Handicrafts Shop, Shetuli.

The more able of the original trainees are now able to earn some Tk. 500/- per month, a very substantial addition to family income and most welcome too. Miniature versions of country boats from Jessore, Madaripur, Rajapur and elsewhere in Bangladesh now appear in houses throughout Dacca as a testimony to the success of the programme. Export orders are expected and additional trainees are being taken on to meet the demand. Alternative products, particularly in the area of educational toys are also being investigated. While the male trainees have gone into wood carving a group of women are also being trained in crochet work. It is hoped that this too will become a source of reliable income to those concerned.

Above—Arkan Ali, sector head of Handicrafts work in Dacope.

Below—Training session in wood carving.

DACCA

CAMPS

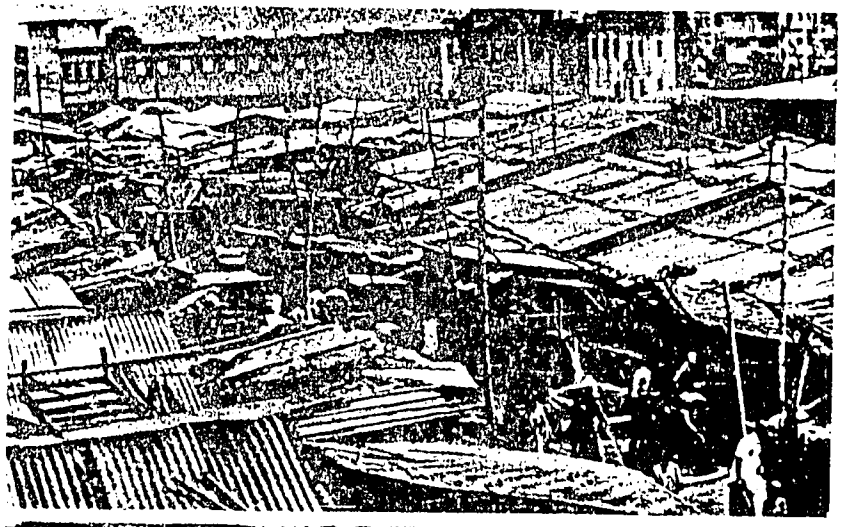
PROJECT

Through its Dacca Camps Project HEED has been involved in work amongst the 50,000 residents of the Bihari or non-local Relief Camps in and around Dacca. The most significant event of the year 1978/79 was the announcement by the Bangladesh Government in September 1978 that a further 25,000 of the non-local community of 300,000 would be repatriated to West Pakistan. This brought about a revival in interest in the whole repatriation question after a four year period of stalemate, and caused much unrest in the camps.

HEED seeks to provide preventive and simple curative health services to mothers and children and to assist those few families who are prepared to consider a future in Bangladesh to move out of the Camps.

HEALTH SECTOR

HEED's health programme began in August 1975 when the clinics of the International Committee of the Red Cross were taken over by HEED. Initially a high powered expatriate medical team was involved in the work but programme activities have changed much since that early period. The health sector now has a minority of expatriate staff and numerous national staff fill senior positions. The work is concentrated in the Mohammedpur area of Dacca.



Above & middle—New Relief Camp, Mohammedpur
Below—Children are the first to suffer in conditions where water-borne and infectious diseases are rife.

New Relief Camp, Mohammedpur, with its population of some 20,000 persons living on 12½ acres of land is the main centre for HEED's programme. Clinic services are provided for Mothers and Children (MCH) and field workers undertake health education and motivation.

Since August 1978 three specially trained female paramedical workers have worked in the clinics. It has been encouraging to see the paramedics give special attention to each mother and her young children and every opportunity taken for health education. A useful tool has been the pink Road to Health card, a graph for monitoring a child's growth as against an acceptable average. Those children who fail to maintain a steady growth in weight or fall significantly below average are singled out for special attention through the weekly Nutrition Programme with its special opportunities for teaching on nutrition. The paramedics are supervised and given in-service training by a senior—trained Bengali nurse.

With the introduction of the female paramedics a major effort has also been made to reduce the range and quantity of drugs used in the programme. A basic list of only twenty-five drugs is all that is supplied and teaching sessions are linked to the use of these. Mothers and children needing more expert attention are referred to local hospitals.

While the clinics remain the more visible part of HEED's work an equally important part of the health work is the

Community nurse Swimoraching Khiang leads a training and Administrative session with the Family Health Workers.

Family Health Worker programme. Now in its third year, Family Health Workers cover all Mohammedpur camp centres. Each day the team of some 25 camp women moves out from the clinic and the workers visit fifteen to twenty homes each. Homes with expectant mothers, young babies and particularly sick children are visited most regularly and over a three month period all homes are covered. Teaching is given on a wide range of subjects, nutrition, care of young babies, scabies, diarrhoea, Family Planning, the role of the Mothers and Children's clinic etc. Effective teaching in the home is seen as a key element in the effort to improve health standards in the camp.

The majority of Family Health Worker training is now undertaken by a national nurse.

In addition to the regular MCH and Nutrition Clinics specialised clinics are also held for pregnant mothers, for TB and Leprosy sufferers and for those needing dental treatment. In 1978 in excess of 700 babies were born in the New Relief Camp clinic under the supervision of local midwives trained and employed by HEED.

The existence of the Family Health Workers makes it possible for all camp residents to gain knowledge of clinic services. Family Health workers refer patients for treatment or vaccination or in the event of a person defaulting on regular treatment, for example for TB, the worker is instructed to visit a specific home and encourage the patient to maintain their treatment. The two elements of the programme, clinic based and community based respectively, provide a comprehensive health service for mothers and young children.

COMMUNITY DEVELOPMENT SECTOR

HEED's early involvement in the camps work made it clear that a health programme alone would be insufficient to solve the problems of the camp. The need for a programme to meet more long-term needs therefore became apparent. The community development programme is designed to assist those camp residents who accept the idea of a future in Bangladesh. Community Development

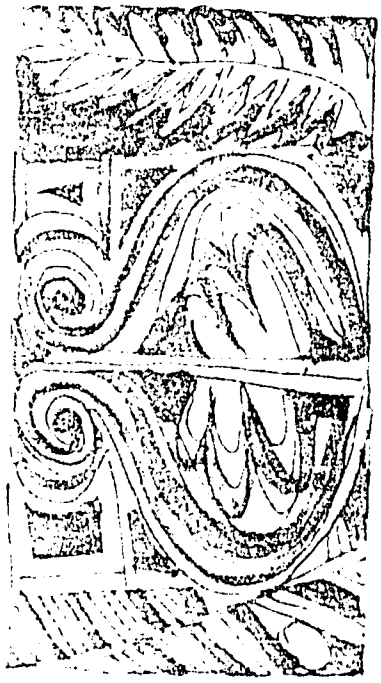
activities fall under three main headings, those of population survey, education and literacy training, and job placement.

The population survey work is now for the most part completed. Three hundred families have been identified who are prepared to make some sort of commitment to the idea of settling in Bangladesh.

The area of education has brought most encouragement. Well in excess of 250 people have attended Bengali literacy classes on four days a week throughout a nine month period. For some this has given the opportunity to enlist in a HEED-run Coaching Class and ten students successfully completed their matriculation in Bengali-medium (class 10 schooling). With the transition from Urdu-medium to Bengali these can now look forward to the prospect of further education and good employment.

Since primary education in the camps is seen as a top priority need HEED assisted seventy camps children to enter Bengali-medium schools in Dacca. These are now completing their first year of schooling at Government-recognised schools. A commitment to the Bengali language represents a most significant step towards acceptance of a long term future in Bangladesh while it in no way denies the use or beauties of the Urdu language.

The third area, that of job placement, has proved as difficult as expected. The high unemployment rate in Bangladesh means that jobs are extremely difficult to obtain for everyone. For Biharis the problem is multiplied several times over by the general lack of education and the mental dullness caused by eight years residence in camps. The position for a job placement officer has only been filled for part of the year but during that time information was collected on a range of opportunities for training and employment. Four boys are studying at St Joseph's Industrial Training Centre, a large number of women have been found employment in a garment manufacturing centre, while the largest numbers of opportunities have continued to arise at HEED's own Dacca Training Centre, where training is given in Straw Art Craft, Carpet Making, Handloom Weaving Tapestry Work, Dyeing and Spinning. Many of the products involved are on sale in "Shetuli" The increased incomes this employment provides are a major help towards a family becoming economically viable outside the camp.



Above : Mr. Hashib Khan takes a Bengali Literacy Class

Below : Zamir assesses survey results

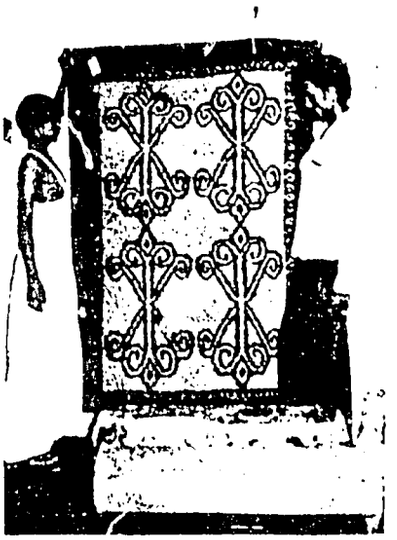
HEED HANDICRAFTS PROGRAMME

DACCA SERVICE CENTRE

The general plan for HEED Handicrafts is to establish training and production centres in the three existing projects of HEED and to have, in addition, a Service Centre in Dacca to be responsible for overall co-ordination and administration of the Handicraft programme, quality control, design and publicity, purchase of raw materials (not available locally in the project areas) and marketing of finished products, both in Dacca and overseas. The Service Centre is also seen as a centre that can offer services to other handicraft producers who are not provided with such a back-up.

From the commencement of HEED Handicrafts the rationale has been to set up a handicrafts programme that could establish and continue to support a training programme and the resulting production groups. It is intended to avoid developing dependencies of rural and urban producers on a marketing monopoly, but to give to producers the knowledge and experience to attain self-sufficiency and the freedom to use the facilities offered by the Service Centre. The emphasis therefore is on the producer in town and village. In order to adequately serve these groups HEED Handicrafts plans to develop an efficient commercial backup unit appropriate to the needs of producers and the demands of the market.

The variety and quantity of HEED products and the potential of other groups producing high quality goods has moved HEED to expand local sales facilities. In September HEED opened its own Handicrafts Emporium, which is called Shetuli. In Bengali "shetu" means bridge, but also signifies communication; "tuli" means brush, which we take to represent craft, the intention being to convey the idea of an opportunity for the poor to earn an income and the rich through their purchase of handicraft products to contribute constructively to the rehabilitation of the poorer people. In a building in the same grounds as Shetuli there is a small Art School and Art Gallery. Ten boys and girls receive training in art with a commercial bias. The course offers a three year Diploma.



One of the finished carpets gets a final inspection

Zaman, Administrator of HEED Handicrafts.

Millon of the Sales Counter sheluli.

Carpet weaving.

Handloom weaving

DACCA TRAINING CENTRE

This centre was initially organised to train Biharis living in three camps in Dacca. The training in a craft has not been as difficult as the inculcation of an understanding, of production and marketing, essential elements for anticipating the situation tomorrow.

Each trainee also attends literacy classes and learns to read and write Bengali.

More recently a move has been made to introduce other Bangladeshi groups into the Training Centre.

Training is given in a range of skills, including wool carpet and tapestry making, straw art craft, handloom weaving, tailoring and embroidery.

Straw Art Work

HEED

LANGUAGE

SCHOOL

In September 1978 Dr. H. Larson visited Dacca and undertook a month long reassessment of the HEED Language School. As a result of his report the course at the school has been completely revised under the supervision of Miss Ros Gooden, a missionary with the Australian Baptist Missionary Society.

There was an immediate positive response from both agencies and missions and throughout 1979 the demand for courses has increased. In 1978 a total of seventy-five students took courses. In 1979 more than one hundred and seventy-five students attended. Offering a range of courses to cater for beginners, for the specialist or for the person wishing to complete two full years of study the school is now viable as an independent entity. Moves are being made to form a Board of Management from amongst those agencies which make most use of the school.

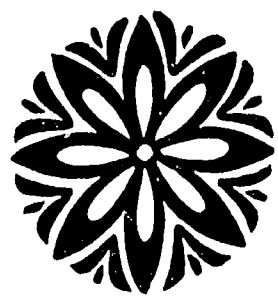
DACCA

HEADQUARTERS

1978/79 has seen a major overhaul of the HEED administration. Extra responsibilities taken on by national staff have been dealt with competently and a regular weekly training session has been instituted in which members of staff describe their work responsibilities to others and try to iron out problems.

In December 1978 the issuing of the Foreign Donations order by the Government of Bangladesh made it necessary for HEED to register as a recipient of foreign funds in Bangladesh. Registration documents were submitted and HEED's registration subsequently approved. There is now an annual requirement for HEED's budget to be approved by Government and the number of expatriate personnel permitted visas is strictly limited.

As the HEED programme has developed it has been a great encouragement to see national staff taking more responsibility within the projects. In Kamalganj several sections of the agriculture work are headed by Bangladeshi nationals as is the project service centre and the handicrafts work. In Dacope the Community Development, Building and Handicrafts Sectors are national led. The same also applies to the Dacca Camps Community Development work and to the Personnel and Finance departments in H. Q. This represents a very significant transfer of responsibility and 'nationalisation' of HEED's work.



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STATISTICAL SUMMARY

PERSONNEL

As has been emphasised throughout this report HEED is in transition from a state of expatriate management to a state in which Bangladesh nationals are for the most part responsible for management of the programmes. There has been a 50% reduction in expatriate input during the past two years and this process will continue (Table 1).

Related to this transfer of responsibility to nationals is an increasing input into the training of staff within the organisation. Opportunities are given for staff to attend special training courses and encouragement is given for staff to undertake higher studies. Several staff have been able to attend Government run courses and now hold certificates which will secure future employment for them in Bangladesh.

FINANCE

HEED financial support comes from many different countries and is co-ordinated through the Dacca office (Table 2). 1979 and 1980 are years in which very extensive funds are required for the Handicrafts programme. After this initial period capital funds required for investment will be much reduced as the various sections become self-supporting. Table 3 illustrates qualitatively how income is developed as against expenditure in the establishment of a group of production units. The approximate position of some of the present sections within the programme is also given. It is clear that after 1980 the amount of expenditure required in the Handicrafts programme will begin to reduce.

Agencies interested in funding HEED's activities should write to the Executive Director for more information.

Table 1 : Summary of Personnel, 20.9.79.

	Regular staff	Contract Staff + others	Trainees	Expatriate Workers[2]
Kamalganj Project	113	105[1]	25	18
Dacope Project	28	1	6	6
Dacca Camps Project	27	54	65	2½
Handicrafts, Dacca.	23	32	137	3
Language School	18	—	—	—
Headquarters	59	1	—	4½
Total	268	193	233	34

[1]Includes 99 Manipuri Weavers.

[2]Two further workers are studying at Language School.

Table : 2 Summary of 1979 Budget and Funding Agencies

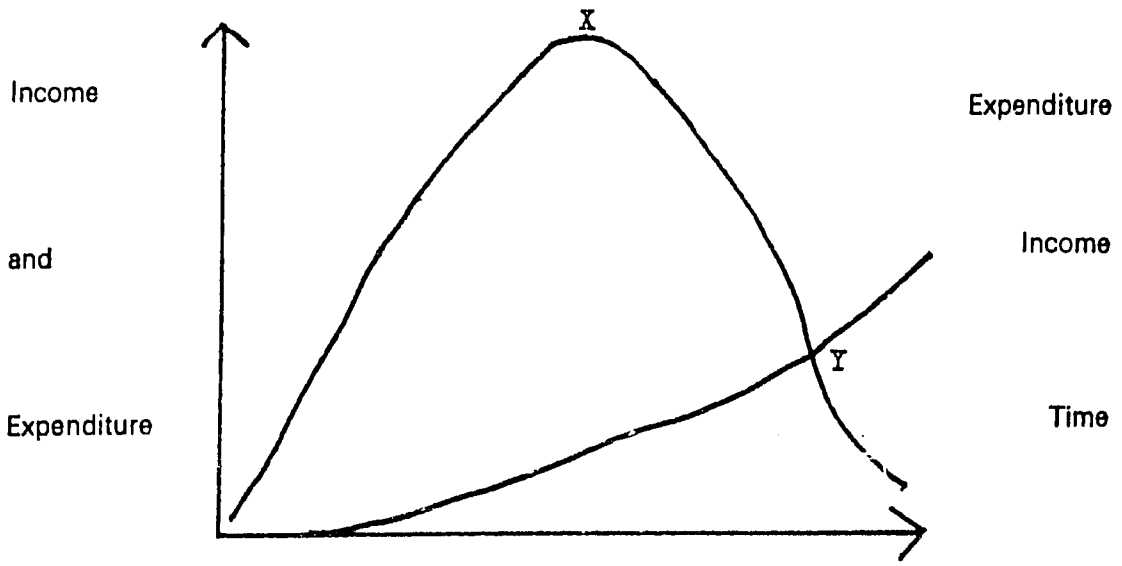
Project and Sector	1979 Budget (US$)	Funding Agency
Kamalganj—Leprosy Hospital	77,791	TLM. ICCO, MAP
Health	61,026	TEAR (UK), MAP, USAID, ADB
Agriculture	1,29,598	CBM, USAID, DMG, OREBRO, ADB, WCON
Community Organisation	35,227	CSM.
Handicrafts	54,213	TEAR (UK)
Service Centre	72,436	ICCO, Liebenzeller, UM, USAID
Total	4,30,291	
Dacope— Administration	66,144	CBM
Building	44,290	CBM, ICCO
Community Development	6,265	CBM
Health	44,788	CBM, MAP
Handicrafts	30,533	FAIR/CIDA
Total	1,92,020	
Dacca Camps—Administration	24,695	FMS, SMC, CBM
Health	33,600	MAP, TEAR (UK)
Community Development	28,432	TEAR (HOLLAND)
Total	86,727	
Handicrafts—Dacca Service Centre	1,16,427	FAIR, CIDA, TEAR
Dacca Training Centre	1,34,113	NZ Govt, FAIR, CIDA, TEAR (NZ) FLOM
Total	2,50,540	
HEED Budget Total	9,59,578	

Dacca Headquarters costs are prorated to projects (12% of total)
HEED Language School is self-supporting

Abbreviations

TLM— The Leprosy Mission
ICCO— Inter-Church Co-ordination Committee for Development Projects
ADB— Algemein Diakonaal Bureau, Holland
CBM— Christoffel Blinden Mission
DMG— Deutsche Mission Gemeinschaft
WCON—World Concern
UM— United Methodists, USA
FLOM—Finnish Lutheran Overseas Mission
FAIR— Fellowship Association for International Relief, Canada
CIDA—Canadian International Development Agency
FMS—Finnish Missionary Society
NZ Govt—New Zealand Government
SMC—Sandiford Memorial Church, Scotland

Table 3 Comparison of Expenditure and Generated Income for Sections of Handicrafts Programme



Note : Point X is the point in time at which expenditure reaches a maximum
Point Y is the point at which income equals expenditure.

Handicrafts Sector	Estimated Dates for reaching Points X and Y	
	X	Y
Kamalganj — Manipuri	1980	1983
Kamalganj — Leprosy Rehabilitation	1979	1980
Dacope — Wood Carving	1980	1982
DTC — Carpets	1980	1981
DTC — Straw Art Craft	1980	1983

ITINERARY

20 - 21 February	En route to Calcutta
22 - 26 Feburary	Attending the 3rd Congress of the World Federation of Public Health Associations, Calcutta, Indai
27 February - 1 March	In Nagpur, India
2 - 6 March	In Dacca, Bangladesh
7 - 8 March	En route to Washington

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