INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH

Progress Report 1979-80
Programme & Budget 1981-85
Construction of New Facilities

Material for Meeting of the Consultative Group on ICDDR,B. Geneva, June 6, 1980

INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH

PROGRESS REPORT 1979 - 1980

PROGRAMME AND BUDGET 1981 - 1985

CONSTRUCTION OF NEW FACILITIES

Material for Meeting of the Consultative Group
on ICDDR,B, Geneva, June 6, 1980

INTERNATIONAL CENTRE FOR
DIARRHOEAL DISEASE RESEARCH, BANGLADESH
G.P.O. Box 128, Dacca - 2
Bangladesh
April 1980

Special Publication No. 5

INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH

PROGRESS REPORT 1979 - 1980

PROGRAMME AND BUDGET 1981 - 1985

CONSTRUCTION OF NEW FACILITIES

CONTENTS

CONTENTS (contd.)

PREFACE

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is an autonomous, international, philanthropic and non-profit centre for research, education and training as well as clinical service. The Centre is derived from the Cholera Research Laboratory (CRL). The activities of the institution are to undertake and promote study, research and dissemination of knowledge in diarrhoeal diseases and directly related subjects of nutrition and fertility. The goals are to develop improved methods of health care, prevent and control diarrhoeal diseases and improve public health programmes with special relevance to developing countries. ICDDR,B issues two types of papers: scientific reports and working papers which demonstrate the type of research activity currently in progress at ICDDR,B. This special publication includes a Progress Report 1979-1980, Programme and Budget 1981-1985 and a plan for Construction of New Facilities. These materials are prepared for the Meeting of Consultative Group on ICDDR,B, to be held in Geneva on June 6, 1980.

Agenda Item 4

INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH

PROGRESS REPORT

The International Centre for Diarrhoeal Disease Research, Bangladesh, is now approaching the completion of its first year of existence. Its evolution from its distinguished predecessor organization, the Cholera Research Laboratory, far from being a mere formality, has involved far-reaching changes: in the governance of the institution, in the scope of activities, and in relationships with organizations within and outside Bangladesh.

The Centre was formally inaugurated on the occasion of the meeting of its initial Board of Trustees in June, 1979. That Board (as recounted in the final, 1978 Annual Report of the Cholera Research Laboratory) had been chosen by an international group of interested governments, international organizations and private foundations, to govern the new Centre under a charter formulated during long deliberations by many of these same organizations and given effect by Bangladesh ordinance. The members of the Board are individuals from 13 countries with wide reputations in their varying fields of medical research, health care and public administration. They are listed in Appendix A to this document.

Management and Organization

The Board has held two plenary meetings in its inaugural year (in June, 1979 and February, 1980) and has done important work through several subcommittees. A major objective of the Board has been to endow the Centre with facilities and a personnel structure consistent with its mandate and status as an international organization. Another has been to encourage constructive relationships with other organizations outside Bangladesh (including scientific institutions, the United Nations Development Programme and the World Health Organization) and to broaden the programme of the Centre so that it becomes truly international in scope.

Among notable actions, the Board

-- undertook as an immediate task the appointment of a Director. Dr. W.B. Greenough III, who had been the Scientific Director of the CRL, agreed to serve as Director of the Centre in its initial phases; and a

Search Committee drawn from the Board, after extensive reconnaissance, has established a list of candidates qualified to succeed Dr. Greenough when his services are no longer available.

-- has approved an organizational structure for the Centre overall, and has approved a task-oriented (rather than discipline-oriented) organization of the scientific research staff.

-- has made long-deferred adjustments in the compensation plan of the Centre staff to partly offset rises in the cost of living in the past four years and to bring Centre salaries to a level more comparable with (although not equal to) the salaries of the staff of other international organizations in Bangladesh.

-- has initiated procedures for the selection of an auditor and for the formulation and approval of a financial system appropriate to the multiple and international sources of the Centre's funding, and

-- has accepted the offer of the United Nations Development Programme to form a Consultative Group of governments and organizations for the purpose of informing them about the programme, activities and finances of the Centre.

The Board also has agreed on the composition of two important committees: an Ethical Review Committee, to screen all research proposals to insure that they conform to the ethical standards prescribed by the World Health Organization; and a Programme Coordinating Committee to coordinate Centre research activities and other related research activities being conducted by official agencies in Bangladesh.

The Board also has initiated steps for the preparation and execution of a programme to provide a much needed expansion of the physical facilities of the Centre in Dacca and in its field stations in Matlab and Teknaf.

Scientific Research

The scientific research programmes of the Centre have maintained their quality and momentum. The Centre, like its predecessor, continues to make unique and significant discoveries concerning diarrhoeal diseases and to relate them to health care techniques and systems for developing countries.

Some evidence of these contributions is provided by the prolific flow of staff papers to scientific journals and meetings, of which lists are given in Appendix B. Other, less formal media for disseminating the work of the Centre, such as a news letter and a series of scientific working papers, have also been initiated.

Details of the scientific work of the year will be summarized in the Centre's forthcoming Annual Report for 1979. In the meantime, some of the recent (or continuing) findings of the Centre's scientific research can be mentioned here.

In the Community Services research programme

-- A large-scale field trial comparing a simple salt-sugar solution with the complete oral rehydration solution recommended by the World Health Organization was implemented in Matlab. After data from the first three months were analyzed, there seemed to be little difference in outcome variables in the two populations under treatment.

-- A study was made in Teknaf comparing (1) a community close to a rural treatment centre, but without instructions or supplies for oral rehydration therapy, with (2) a community instructed in home use of oral rehydration. Community instruction proved to be a more effective preventive of death due to diarrhoea than proximity to a treatment centre, which affected mortality only within a three-mile radius.

-- The giving of information about contraceptive practices as part of an overall effort to improve rural family health was shown to result in a higher level of contraceptive acceptance than campaigns limited to contraception alone. A combination of efforts to control illness with efforts to control fertility, studies in Matlab indicate, succeeds in reducing both mortality and fertility rates.

-- Work is continuing for the purpose of identifying more precisely the causes of death in rural Bangladesh, with special regard for those causes for which effective prevention and treatment exist, as a basis for helping public authorities to choose the most helpful and effective components for primary health care assistance.

In the Nutrition research programme

-- The importance of breast milk for nursing infants under diarrhoeal attack has been demonstrated by studies undertaken in the past year. These studies demonstrate the loss of appetite, reduced intake of nutrients and heightened risk of death or long-term damage to the intestinal tract due to diarrhoea. They also show, however, that a nursing child's appetite for breast milk is maintained, and that continuation of breast-feeding of sick infants (despite folk practice to the contrary) is of crucial importance.

The Centre's Disease Transmission research programme

-- has produced improved techniques for identifying causes of diarrhoea. Two new agents have been identified as possible causes, the bacteria campylobacter and EF 6.

-- At the same time, the reappearance of the classical biotype of Vibrio cholerae has been noted in Dacca after an absence of 7 years. After being documented for decades as the cause of cholera in the Ganges River delta, this biotype was supplanted in 1973 and 1974 by the El Tor biotype, a milder variety believed to have originated in the Southwest Pacific region but first described at the El Tor quarantine station in the Persian Gulf. A further and ominous change has now been noted: the sudden appearance in Bangladesh of a large number of cases resistant to many antibiotics, including tetracycline, which has been relied upon since 1965. It has been shown that this resistance can be transmitted from Vibrio to Vibrio and perhaps from V.cholerae to other enteric bacteria.

-- The effectiveness of personal hygiene as a preventive of diarrhoeal disease caused by shigella was suggested by a study in Dacca City: Providing soap, water and advice on washing hands before eating and after going to the bathroom reduced the spread of shigellosis within families already affected by 80 per cent.

In the Host Defense research programme

-- Pioneering work in the long-neglected subject of the local immunological system of the gastro-intestinal tract has developed methods of measuring immune reactions to the challenge of various specific kinds of diarrhoea. Tests of the reaction of lactating women suffering from cholera, for instance, to oral or injected doses of certain antigens show good immune responses and may presage the ultimate development of an oral cholera vaccine.

Studies undertaken within the Pathogenesis and Therapy research programme

-- suggest the possibility of further clinical development of effective rehydration solutions from materials easily available to villagers. A simple solution of salt and brown or crude cane sugar seems to approach in effectiveness the more sophisticated glucose-electrolyte mixture, although it is not so effective in combatting acidosis which follows heavy loss of body fluid from the gut.

-- A further step in the direction of simple and available ingredients for oral rehydration is suggested by a formula in which a rice solution provides the glucose needed. Use of rice so far has been successful, and a study of its use is progressing toward a direct comparison between the rehydration solution recommended by WHO and the rice-based solution.

-- Studies of complications seen in conjunction with diarrhoea have shown the critical importance of blood glucose levels. Hypoglycemia in diarrhoea patients markedly increases the risk of death, and rapid correction of low blood sugar results in marked clinical improvement in many cases.

Training and Extension

A vital new mission of the Centre is to make the findings and expertise of the Centre widely available in Bangladesh and other developing countries. The Training and Extension Programme has made rapid progress in composing courses and identifying and serving individuals and groups likely to

have an impact on diarrhoeal disease services and research. The target groups vary through an extensive range — from persons concerned with the instruction of village workers, to medical students, to physicians and post-doctoral fellows in medicine, demography or biological science.

Technical and applied training was carried out at both the international and Bangladesh levels. Training of physicians responsible for thana health centres (the thana being the smallest administrative unit of the national government), began in 1978; and 301 doctors have been trained in 5-day courses. Short courses, mostly of a day's duration, were given in treatment of diarrhoeal disease to nearly 450 individuals concerned for the most part with paramedical services in villages; and similar short courses were given to nearly 300 medical students from Bangladeshi universities. Courses varying in length from two or three days to six months were given to more than 80 technical and paramedical personnel from both governmental and private institutions. Seven predoctoral and eleven post-doctoral fellows were received from outside Bangladesh for study periods of up to three years.

In addition, the work and reputation of the Centre continued to create wide interest among scientists, public health experts and public administrators throughout the world, and attracted a large number of visitors to the Centre (see Appendix C).

Relations with other organizations

In the field of research apart from relationships with governmental health organizations in Bangladesh, the Centre's activities have lead to collaboration on various topics with the University of Goteborg, Sweden, the Johns Hopkins University in the United States, the National Institutes of Health of the United States, Mahidol University in Thailand, the United Nations University based in Tokyo, and several other institutions elsewhere. It is an aim of the Centre to develop such relationships further, especially in developing countries and in the Asian area.

On an official plane, the Centre has particularly important relationships with the Government of Bangladesh, the host Government (which provides important facilities and privileges to the Centre) and to two agencies of the United Nations system; The United Nations Development Programme and the World Health Organization.

The UNDP has continued in its role as a sponsor of the Centre: it was the chairman of the original international

group which helped to develop the charter and choose the Board of Trustees, and is the Chairman of the Consultative Group of governments and organizations now gathering at Geneva to be acquainted with the Centre's programme and plans for development. As for WHO, that organization (which permanently will have a nominee on the Centre's Board of Directors) is expected to be a principal source of advice and technical collaboration; and, as mentioned below, it will be an essential part of the machinery by which the Centre is funded.

Funding

The interest taken by many countries and organizations in the scientific work of the Centre is beginning to have its parallel in the funds which have begun to come forward to support the Centre's programmes. A dozen governmental organizations are now contributing to the financial requirements of the Centre. The United States, which was the principal donor in the case of the Cholera Research Laboratory, is maintaining its previous level of financing and is still the largest single donor, but its funds are now more than matched by other participants. The donor governments and agencies are listed below:

Australia
Bangladesh
Ford Foundation
International Development Research Centre (Ottawa)
Saudi Arabia
Sweden
Switzerland
United Kingdom
United States
    Agency for International Development
    Center for Disease Control
United Nations Development Programme
United Nations Fund for Population Activities.

In the case of UNDP, a special arrangement applies. The UNDP contribution, derived from funds originating with the Organization of Petroleum Exporting Countries, is made toward the cost of constructing and equipping new physical facilities for the Centre. The UNDP contribution is channeled through WHO, as part of UNDP's larger contribution to the WHO Programme for Diarrhoeal Diseases, and WHO participates in the administration of the funds contributed.

Apart from this contribution to the Capital budget, most of the contributions to the Centre are so-called core contributions — that is, they are available for general support of the Centre's overall programme. Some contributions, however, are project funds — that is, their use is limited to specific projects. The Centre prefers core contributions, since project funds are difficult to administer and sometimes fail to cover the full costs of the projects they are intended to finance.

The generation of core contributions continues to be a high priority for the Centre. The Centre is pressing a campaign to enlist further participation in both its technical programmes and its financing. The two most serious constraints to the development of the Centre are likely to be the availability of qualified personnel and of funds. In the removal of both these potential obstacles, other governments and agencies will have an important role to play.

BOARD OF TRUSTEES

ICDDR,B

Chairman: Dr J. Sulianti Saroso, Advisor to Minister of Health, Jakarta, Indonesia

Dr A.R.A. Al-Awadi, Honourable Minister of Public Health, Kuwait

Mr M.K. Anwar, Secretary, Bangladesh Election Commission, Sher-e-Bangla Nagar, Government of Bangladesh

Dr D.J. Bradley, Professor of Tropical Hygiene and Director, Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, London, England

Dr C.C.J. Carpenter, Director, Department of Medicine, University Hospital of Cleveland, Cleveland, Ohio, U.S.A.

Dr A.Q.M. Badruddoza Chowdhury, Deputy Leader of the Parliament of the Government of Bangladesh

Dr J. Holmgren, University of Goteborg, Institute of Medical Microbiology, Goteborg, Sweden

Dr G.W. Jones, the Australian National University, The Research School of Pacific Studies, Development Studies Centre, Canberra, A.C.T., Australia

Professor J. Kostrzewski, Chief, Department of Epidemiology, State Institute of Hygiene, Chocimska 24, Warsaw, Poland

Professor L.J. Mata, Director, Instituto de Investigaciones en Salud (INISA), Universidad de Costa Rica, Cuidad Universitaria "Rodrigo Facio" San Pedro, Costa Rica

Professor M.A. Matin, Honourable Minister for Health and Population Control, Government of Bangladesh

Dr V. Ramalingaswami, Director-General, Indian Council of Medical Research, Ansari Nagar, New Delhi, India

Dr O.M. Solandt, The Wolfe Den, R.R. No. 1, Bolton, Ontario LOP 1AO, Canada

Dr M.K. Were, Senior Lecturer, Department of Community Medicine, University of Nairobi, Kenya

Dr Albert Zahra, Director, Division of Communicable Diseases, WHO, Geneva, Switzerland

PAPERS PUBLISHED

Ahmed, A., Aziz, K.M.S.: In-Vitro identification of labile toxin (LT)-producing Escherichia coli by passive hemagglutination inhibition. Bangladesh Medical Research Council Bulletin. 4(2):53-57, 1978.

Ali, S., Haque, A.S.M., Oppenheimer, J.R., Aziz, K.M.S.: Studies on the bottom fuana of three fish ponds in Dacca City, Bangladesh. Bangladesh Journal of Zoology. 6(1):43;55, 1978.

Aziz, K.M.A.: Marriage practices in a rural area of Bangladesh. Journal of the Indian Anthropological Society. 13(1):29-40, 1978.

Aziz, K.M.S.: Bioscience education in Bangladesh. Edited by Ramasarma, T., Avadhani, P.M., Bioscience education in developing countries. Bangalore, COSTED, Indian Institute of Science, 1978:88-91.

Aziz, K.M.S., Alam, K.: Comparative studies of crude culture filtrates of Shigella dysenteriae type 1 and Shigella flexneri. Bangladesh Journal of Microbiology. 1(1):11-15, 1979.

Briscoe, J., Ahmed, S., Chakraborty, M.: Domestic water use in a village in Bangladesh. I: A methodology and a preliminary analysis of use patterns during the "cholera season." Progress in Water Technology. 11(1):131-142.

Briscoe, J.: Energy use and social structure in a Bangladesh village. Population and Development Review. 5(4):615-641, 1979.

Brown, K.H., Parry, L., Khatun, M., Ahmed, M.G.: Lactose malabsorption in Bangladeshi village children: relation with age, history of recent diarrhea, nutritional status and breast-feeding. American Journal of Clinical Nutrition. 32(9):1962-1969, 1979.

Brown, K.H., Gaffar, A., Alamgir, S.M.: Xerophthalmia, protein-calorie malnutrition and infections in children. Journal of Pediatrics. 95:651-656, 1979.

Chen, L.C.: Control of Diarrhoeal Disease Morbidity and Mortality: Some strategic issues. American Journal of Clinical Nutrition. 31:2284-2291, 1978.

Chen, L.C., Chowdhury, A.K.M.A., Huffman, S.L.: Seasonal dimensions of energy protein malnutrition in rural Bangladesh. The role of agriculture, dietary practices and infection. Ecology of Food and Nutrition. 8(3):175-187, 1979.

Feeley, J.C., Curlin, G.T., Aziz, K.M.A., Wiggins, G.L., Albritton, W.L.: Response of children in Bangladesh to adult-type tetanus diptheria toxoid (td) administered during a field trial of cholera toxoid. Journal of Biological Standardization. 7(3):249-254, 1979.

Gary, G.W., Hierzholzer, J.C., Black, R.E.: Characteristics of non-cultivable subgroup of human adenoviruses. Journal of Clinical Microbiology. 10(1):96-103, 1979.

Gilman, R.H., Islam, S., Rabbani, H., Gosh, H.: Identification of gallbladder typhoid carriers by a string device. Lancet. 1:795-796, 1979.

Greenberg, H.B., Levine, M.M., Merson, M.H., Sack, R.B., Sack, D.A., Valdesuso, J.R., Nalin, D., Hoover, D., Channock, R.M., Kapikian, A.Z.: Solid-phase microtiter radioimmunoassay blocking test for detection of antibodies of Escherichia coli heat-labile enterotoxin. Journal of Clinical Microbiology. 9:60-64, 1979.

Greenberg, H.B., Valdesuso, J.R., Kapikian, A.Z., Chanock, R.M.M., Szmuness, W., Larrick, J., Kaplan, J., Gilman, R.H., Wyatt, R.G., Sack, D.A.: The prevalence of antibody to the Norwalk virus in various parts of the world. Infection and Immunity. 26:270-273, 1979.

Hoyle, B., Yunus, M., Chen, L.C.: Breastfeeding and food intake among children with acute diarrhoeal disease. American Journal of Clinical Nutrition.

Huber, D.H., Khan, A.R.: Contraceptive distribution in Bangladesh villages: the initial impact. Studies in Family Planning. 10:246-253, 1979.

Huffman, S.L., Chowdhury, A.K.M.A., Mosley, W.H.: Reply: Difference between postpartum and nutritional amenorrhea. Science. 230:922-923, 1979.

Hughes, J.M., Boyce, J.M., Alim, A.R.M.A., Wells, J.G., Rahman, A.S.M.M., Curlin, G.T.: Vibrio parahaemolyticus enterocolitis in Bangladesh: Report of an outbreak. American Journal of Tropical Medicine and Hygiene. 27(1):106-112, 1978.

Huq, M.I., Huber, D.H., Kibryia, G.: Isolation of urease producing Vibrio parahaemolyticus strains from cases of gastroenteritis. Indian Journal of Medical Research. 70:549-553, 1979.

Huq, M.I.: A simple laboratory method for the diagnosis of Vibrio cholerae. Transactions of the Royal Society of Medicine and Hygiene. 73(5):553-556, 1979.

Khan, M.U., Curlin, G.T., Huq, M.I.: Epidemiology of Shigella dysenteriae type 0 infections in Dacca urban area. Tropical and Geographical Medicine. 31(2):213, 1979.

Khan, M.U.: Some population biostatistics of rural Bangladesh. Bangladesh Medical Journal. 8(1):5-12, 1979.

Khan, M.U., Curlin, G.T., Chakraborty, J.: Growth and development studies: Rural Meheran, Comilla. Bangladesh Medical Journal. 7(34):74-90, 1979.

Khan, M.S.I.: ed. Union catalogue of current periodicals of major libraries in Dacca. Dacca, Bangladesh Institute of Development Studies, 57 p., 1979.

Merson, M.H., Ørskov, F., Ørskov, I., Sack, R.B., Huq, I., Koster, F.T.: Relationship between enterotoxin production and serotype in enterotoxigenic Escherichia coli. Infection and Immunity. 23(2):325-329, 1979.

Merson, M.H., Sack, R.B., Kibriya, A.K.M.G., Al-Mahmud, A., Ahmed, Q.S., Huq, M.I.: Use of colony pools for diagnosis of enterotoxigenic Escherichia coli diarrhea. Journal of Clinical Microbiology. 9(4):493-497, 1979.

Merson, M.H.: Doxycline and the traveller. Gastroenterology. 76:1485-1488, 1979.

Netselaar, D., Sack, D.A., Kapikian, A.Z., Muller, A.Z.: Machakos Project Studies XI. Antibodies against rotavirus in sera from children living in the Machakos District of Kenya. Tropical and Geographical Medicine. 30:531-535, 1978.

Morris, G.K., Merson, M.H., Huq, M.I., Kibriya, A.K.M.G., Black, R.: Comparison of four plating media for isolating Vibrio cholerae. Journal of Clinical Microbiology. 9(1):79-83, 1979.

Mosley, W.H., Khan, M.U.: Cholera epidemiology - some environmental aspects. Progress in Water Technology. 11(2):309-316, 1979.

Mosley, W.H.: Health, nutrition and mortality in Bangladesh. Editor, Sirajeldin, I., Research in Human and Capital Development. Baltimore, Johns Hopkins University Press, 1979.

Mutanda, L.N., Cruickshank, B., Itotia, J.N.: Rotavirus infection in private practice in Nairobi City. East African Medical Journal. 56:589-592, 1979.

Nalin, D.R., Levine, R.J., Levine, M.M., Hoover, D., Bergguist, E., McLaughlin, J., Libonati, J., Alam, J., Hornick, R.B.: Cholera, non-vibrio cholera and stomach acid. Lancet. 2:856-859, 1978.

Oppenheimer, J.R., Aziz, K.M.S., Ahmed, M.G., Huq, A., Haque, K.A., Alam, A.K.M.A., Ali, S., Haque, A.S.M.M.: Limnological studies of three ponds in Dacca, Bangladesh. Bangladesh Journal of Fisheries. 1(1):1-28, 1979.

Palmer, D.L., Zaman, S.N.: Depression of cell-mediated immunity in cholera. Infection and Immunity. 23:27-30, 1979.

Rabbani, G.H., Greenough, W.B. III, Holmgren, J., Lonnroth, I., Chlorpromazine reduces fluid-loss in cholera. Lancet. 1:410-412, 1979.

Rahaman, M.M., Aziz, K.M.S., Patwari, Y., Munshi, M.H.: Diarrhoeal mortality in two Bangladeshi villages with and without community based oral rehydration therapy. Lancet. 2:809-812, 1979.

Rahaman, M.M.: Aetiological and epidemiological considerations on weanling diarrhoea. Indian Journal of Nutritional Dietetics. 16:114-119, 1979.

Rahaman, M.M.: A strategy for control of Shigellosis in Teknaf: A rural Bangladesh village. Progress in Water Technology. 11(2):303, 308, 1979.

Ruzika, L.T., Chowdhury, A.K.M.A.: Marriage and fertility in rural Bangladesh. International Planned Parenthood Federation Medical Bulletin. 12(4):3-4, 1978.

Sack, D.A., Chowdhury, A.M.A.K., Eusof, A., Ali, M.A., Merson, M.H., Islam, S., Black, R.E., Brown, K.H.: Oral hydration in rotavirus diarrhoea: a double blind comparison of sucrose with glucose electrolyte solution. Lancet. 2:280-283, 1978.

Sack, D.A.: Single dose doxycycline for cholera. Antimicrobial Agents and Chemotherapy. 14:462-464, 1978.

PAPERS PRESENTED AT MEETINGS

January, 1979

Huq, M.I.: Microbiological aspect of diarrhoeal diseases. Seminar on Comprehensive and Co-ordinated Medical Research Programmes, Institute of Public Health, Dacca, Jan 18-20, 1979.

Rahaman, M.M.: Diarrhoea research programme of Bangladesh. Seminar on Comprehensive and Co-ordinated Medical Research Programme, Institute of Public Health, Dacca, Jan 18-20, 1979.

February, 1979

Khan, M.U.: Infant feeding practice in rural Meheran. National Seminar on Rural Child Health Care, Dacca, Feb 23-25, 1979.

Molla, A.M.: Paediatric diarrhoea and nutrition. National Seminar on Rural Child Health Care, Dacca, Feb 23-25, 1979.

March, 1979

Khan, M.U.: Infant feeding practices in rural Meheran, Comilla. 3rd Bangladesh Nutrition Seminar, Dacca University, Dacca, Mar 22-24, 1979.

Molla, A.M.: Paediatric diarrhoea and nutrition. Annual Meeting of the Belgian Paediatric Society, Mar 20-22, 1979.

April, 1979

Aziz, K.M.A.: Significant divisions of the kindred in a rural area of Bangladesh. First Conference of Bangladesh Sociology Association, Dacca University, Dacca, Apr 1-2, 1979.

Becker, S.: Seasonality of births. Workshop on Recent Trends of Fertility and Mortality in Bangladesh, Dacca, Apr 3-5, 1979.

Chen, L.C., Rahman, M., Sardar, A.M.: Patterns and causes of death among children in a rural area of Bangladesh: priorities for health programs. Workshop on Recent Trends of Fertility and Mortality in Bangladesh, Dacca, Apr 3-5, 1979.

Chowdhury, M.K., Sheikh, A.M.: Preliminary review of levels and trends of fertility and mortality in Matlab, 1966-1977. Workshop on Recent Trends of Fertility and Mortality in Bangladesh, Dacca, Apr 3-5, 1979.

Rahman, M., Rahaman, M.M., Aziz, K.M.S.: Fertility and mortality in Teknaf. Workshop on Recent Trends of Fertility and Mortality in Bangladesh, Dacca, Apr 3-5, 1979.

Khan, M.U.: Epidemiology of shigellosis, Dacca. VI Pediatric Gastroenterologic Conference, Ujang Paudang City, Indonesia, Apr 11-12, 1979.

Huber, D.H., Rahman, M., Chakraborty, J.: The condom in rural Bangladesh - a special effort is needed. PARFR Workshop in Travaginal Contraception, Guatemala City, Apr 25-27, 1979.

Brown, K.H.: Children's growth and development and childhood diseases as related to Vitamin A deficiency and Xerophthalmia. The Helen Keller International Workshop on Nutritional Blindness, Glen Cove, New York, Apr 1979.

June, 1979

Islam, M.S.: Inter-relationship among certain socio-economic variables in a rural population of Bangladesh. Seminar on Statistics for Rural Development, Dacca, Jun 18-20, 1979.

July, 1979

Curlin, G.T., Chakraborty, J., Aziz, K.M.A., Levine, R.J., Verwey, W.F.: Risk factors in neighborhood cholera studies. U.S.-Japan Cholera Conference, July 23-25, 1979.

Daniel, R., Spira, W.M.: Biotype clusters formed on the basis of virulence characters in non-0 Group 1 Vibrio cholerae. 15th Joint Conference on Cholera, U.S.-Japan Cooperative Medical Science Program, Cholera Panel, NIH, Bethesda, July 23-25, 1979.

Sweemer, C.D., Trowbridge, F.L., Parker, R.L., Brown, K.H., Black, R.E., Reinke, W.A., Taylor, C.E.: Critical factors in obtaining reliable and accurate data on health in epidemiologic studies. 15th Joint Conference on Cholera, U.S.-Japan Cooperative Medical Science Program, Cholera Panel, NIH, Bethesda, July 23-25, 1979.

Huq, M.I., Khan, M.U., Aziz, K.M.S., Brenner, D.J.: Studies on the newly recognized group of organisms termed EF6, isolated from an unusual epidemic causing diarrhea. 15th Joint Conference on Cholera, U.S.-Japan Cooperative Medical Science Program, Cholera Panel, NIH, Bethesda, July 23-25, 1979.

Khan, M.U., Shahidullah, M.: Pattern of intrafamilial spread of cholera. 15th Joint Conference on cholera, U.S.-Japan Cooperative Medical Science Program, Cholera Panel, NIH, Bethesda, July 23-25, 1979.

Sack, D.A., Islam, A., Holmgren, J., Svennerholm, A.M.: Development of methods for determining intestinal immune response to Vibrio cholerae antigens in humans. 15th Joint Conference on Cholera, U.S.-Japan Cooperative Medical Science Program, Cholera Panel, NIH, Bethesda, July 23-25, 1979.

September, 1979

Faruque, A.S.G., Bari, A.: Role of the village practitioners in the practice and propagation of oral rehydration for diarrhoea. National Workshop on Oral Rehydration, Institute of Public Health Auditorium, Dacca, Sep 26-28, 1979.

Greenough III, W.B.: Oral rehydration in diarrhoea: the role of ICDDR,B in research, training and extension. National Workshop on Oral Rehydration, Institute of Public Health Auditorium, Dacca, Sep 26-28, 1979.

Islam, M.S., Rahaman, M.M., Aziz, K.M.S., Patwari, Y., Rahman, M.: Variation of oral therapy volume measurement in rural Bangladesh. National Workshop on Oral Rehydration, Institute of Public Health Auditorium, Dacca, Sep 26-28, 1979.

Munshi, M.H., Rahaman, M.M., Aziz, K.M.S., Patwari, Y.: Diarrhoeal mortality in two Bangladeshi villages with and without community based oral rehydration therapy. National Workshop on Oral Rehydration, Institute of Public Health Auditorium, Dacca, Sep 26-28, 1979.

Rahaman, M.M., Aziz, K.M.S., Munshi, M.H., Patwari, Y., Rahman, M.: The influence of distance, sex and age on utilization of a diarrhoea clinic in rural Bangladesh. National Workshop on Oral Rehydration, Institute of Public Health Auditorium, Dacca, Sep 26-28, 1979.

Yunus, M., Chakraborty, J.: Role of mothers in oral rehydration programme. National Workshop on Oral Rehydration, Institute of Public Health Auditorium, Dacca, Sep 26-28, 1979.

Huq, M.I.: Researches on medical microbiology and its relationship to veterinary microbiology. First Annual Veterinary Conference, Mymensingh, Bangladesh, Sep 27-28, 1979.

October, 1979

Huq, M.I.: Microbial monitoring in the surveillance system. First National Seminar on Health Laboratory Sciences, Institute of Public Health, Dacca, Oct 16-18, 1979.

Rahaman, M.M.: Aetiology and epidemiology of weanling diarrhoea. WHO Workshop/Symposium on Weanling Diarrhoea, Hyderabad, India, Oct 25-26, 1978.

November, 1979

Seaton, B.: Monitoring menstrual cycles in Bangladeshi women. Bangladesh Fertility Research Programme, Dacca, Nov 8, 1979.

Aziz, K.M.S.: Toxins, adherence and invasion in bacterial diarrhoeas. International Conference on Infant Nutrition and Diarrhoeal Disease and Workshop on Postgraduate Paediatric Education, Kuala Lumpur, Nov 9-16, 1979.

Khan, M.U.: Dynamics of development of malnourished infants. International Conference on Infant Nutrition and Diarrhoeal Disease and Workshop on Postgraduate Paediatric Education, Kuala Lumpur, Malaysia, Nov 9-16, 1979.

Molla, A.M., Bardhan, P., Hossain, M., Ali, H., Wahed, M.A.: Hypoglycaemia, a complication of diarrhoea in children. International Conference on Infant Nutrition and Diarrhoeal Disease and Workshop on Postgraduate Paediatric Education, Kuala Lumpur, Malaysia, Nov 9-16, 1979.

Rahaman, M.M., Aziz, K.M.S., Munshi, M.H., Rahman, M., Patwari, Y.: Diarrhoeal Diseases and attendance to rural treatment centre in Bangladesh according to disease, age and sex. International Conference on Infant Nutrition and Diarrhoeal Disease and Workshop on Postgraduate Paediatric Education, Kuala Lumpur, Malaysia, Nov 9-16, 1979.

Khan, M.U.: Prevention of shigellosis by handwashing. 20th Anniversary Conference of Indian Society of Gastroenterology, Poona, Bombay, India, Nov 10-14, 1979.

Khan, M.U.: Prevention of shigellosis by handwashing. 3rd Asian Congress of Paediatrics, Bangkok, Nov 19-23, 1979.

Molla, A.M., Sarker, S.A., Rahman, M., Wahed, M.A., Molla, A.: Electrolyte loss in paediatric diarrhoea. 3rd Asian Congress of Paediatrics, Bangkok, Nov 19-23, 1979.

Rahaman, M.M.: Epidemiology and prevention. Symposium Diarrhoeal Diseases of Children in Rural Areas, 3rd Asian Congress of Paediatrics, Bangkok, Nov 19-23, 1979.

Molla, A.M.: Interaction between diarrhoea and nutrition. National Seminar on Nutrition, Dacca, Nov 26-28, 1979

Wahed, M.A., Molla, A.M., Sarker, S.A., Rahaman, M.M.: Hypernatraemic dehydration in Bangladesh. International Conference on Infant Nutrition and Diarrhoeal Disease and Workshop on Postgraduate Paediatric Education, Kuala Lumpur, Malaysia, Nov 9-16, 1979.

December, 1979

Molla, A.M.: Institutional Paediatric Training in Bangladesh. Paediatric Society of Bangladesh Workshop held at IPGM, Dacca, between Dec 11 and 12, 1979.

Mosley, W.H., Khan, M.U.: Cholera epidemiology; some environmental aspects. Symposium on Engineering, Science and Medicine in the Prevention of Tropical Water-related Diseases, London, Dec 11-14, 1978.

Rahaman, M.M.: A strategy for control of shigellosis in Teknaf: a rural Bangladesh village. Seminar on Engineering, Science and Medicine in the Prevention of Tropical Water-related Diseases, London, Dec 11-14, 1978.

D'Souza, S., Chen, L.C.: Sex bias in fertility differentials in rural Bangladesh. Third Annual Conference, Indian Association for Studies in Population, Bombay, Dec 28-30, 1979.

Brown, K.H.: Milk supplementation for children in the tropics. Symposium on Lactose Digestion: Clinical and Nutritional Consequences, Baltimore, Maryland, Dec 1979.

LIST OF VISITORS
TO THE CHOLERA RESEARCH LABORATORY

January, 1979

Dr. Sook Bang
ESCAP, Bangkok, Thailand

Mr. Harold Graves
Consultant, Internationalization, Chevy Chase, Maryland, U.S.A.

Dr. Henry Gelfand
Epidemiologist, University of North Carolina, Population Laboratories, U.S.A.

Professor Tord Holme
Head, Department of Bacteriology, Karolinska Institute, Stockholm, Sweden

Dr. Gunnel Huldt
Associate Professor, Chief, Department of Parasitology, Bacteriological Laboratory, Karolinska Institute, Sweden

Dr. Retno Iswari
Department of Microbiology, University of Indonesia, Indonesia

Dr. H. Logan
University of North Carolina, Population Laboratories, U.S.A.

Mr. Richard Manning
South East Asia Development Division, Overseas Development Ministry, London, United Kingdom

Dr. O. Ouchterlony
Department of Bacteriology, Institute of Medical Microbiology, University of Goteborg, Sweden

Dr. David Pyke
Endocrinologist, Registrar, Royal College of Physicians, London and Consultant to Kings College Hospital, London, United Kingdom

Dr. L. T. Ruzicka
Department of Demography, Australian National University, Canberra, ACT, Australia

Dr. James Shelton
Population Office, USAID, Washington, D.C., U.S.A.

February, 1979

Dr. B. D. Nag Choudhuri
Vice Chancellor, Jawaharlal Nehru University, New Delhi, India

Dr. Dunlop
Treasury Medical Adviser, London, United Kingdom

Dr. Green
Medical Adviser, British High Commission, New Delhi, India

Dr. Toshiaki Hayashi
Post Graduate student, Institute of Tropical Medicine Nagasaki University, Nagasaki, Japan

Dr. Masaharu Ito
Head of 2nd Medical Cooperation Division, Japan International Cooperation Agency (JICA) Tokyo, Japan

Dr. Hisao Manabe
Director-General of Hospital, National Cardiovascular Centre, Tokyo, Japan

Dr. Tatsuro Naito
Department of Bacteriology, Institute of Tropical Medicine, Nagasaki University, Nagasaki, Japan

Dr. Hideki Ozawa
Head of Preventive Medicine, National Cardiovascular Centre, Tokyo, Japan

Dr. Hideaki Shigeno
Post Graduate student, Institute of Tropical Medicine
Nagasaki University, Nagasaki, Japan

Dr. Katsuro Shimomura
Head of Cardiology Department, National
Cardiovascular Centre, Tokyo, Japan

Dr. John Stoeckel
Regional Advisor, Population and Development,
Population Council, Bangkok, Thailand

Dr. Hiroshi Suzuki
Associate Professor of Internal Medicine, Institute
for Tropical Medicine, Nagasaki University, Nagasaki,
Japan

March, 1979

Mrs. Barnara Boston
Church of North India, India

Professor Ranjit Ray Chaudhury
WHO Consultant, Geneva, Switzerland

Professor R. R. Colwell
Department of Microbiology, University of Maryland,
College Park, Maryland, U.S.A.

Dr. John A. Dixon
Agriculture Program Economist, The Ford Foundation,
Thaman Kebon Sirth, Jakarta, Indonesia

Dr. E. U. Farusworth
Boston, Massachusetts, U.S.A.

Dr. John F. Kantner
Professor and Chairman, Department of Population
Dynamics, The Johns Hopkins University, Baltimore,
Maryland 21205

Dr. Jim Kaper
Professor of Microbiology, Division of Agriculture,
University of Maryland, College Park 20742

Mr. William S. Lafes
United States Mission to the Asian Development Bank,
Pasay City, Philippines

Professor Gananath Obeysekere
WHO Consultant, SEARO, New Delhi, India

Professor Ray Prosterman
University of Washington, Seattle, Washington, U.S.A.

Dr. Jeffrey Redinger
University of Washington, Seattle Washington, U.S.A.

Dr. Paul Richards
South East Asia Development Division, Bangkok, Thailand

April, 1979

Mrs. Clee Certer
St. Augustine, Florida, U.S.A.

Mr. Dave Certer
St. Augustine, Florida, U.S.A.

Dr. Stan D'Souza
Indian Social Institute, Lodhi Road, New Delhi, India

Dr. Diana Riad Fahmy
Head of the Supra Regional Assay Service, Welsh National School of Medicine, U.K.

Dr. A. F. Huston
Research Associate, International Development Research Centre, Canada

Professor Per Lous
WHO Consultant, World Health Organization, Geneva, Switzerland

Ms. Kay Johnston
Johns Hopkins University, School of Medicine
Baltimore, Maryland, U.S.A.

Mrs. Ulla Rousoe
WHO Consultant, World Health Organization, Geneva, Switzerland

Dr. Vasquez
WHO Scientist, Lab/HQ, Geneva, Switzerland

Dr. K. Velauthapillai
Public Health Epidemiology, Ministry of Health,
Government of Sri Lanka, Sri Lanka

May, 1979

Dr. P.R. Goldsmith
Landeer Community Hospital, Missouri, India

Dr. C. Gopalan
WHO Consultant in Public Health Nutrition and
Chairman, WHO Regional Advisory Committee on
Medical Research, SEARO, New Delhi, India

Dr. Houang
WHO Consultant, World Health Organization, Geneva,
Switzerland

Dr. Vijay Kochar
Senior Fellow, Indian Council for Social Science
Research, Department of Preventive and Social
Medicine, Institute of Medical Sciences, Banaras
Hindu University, Banaras, India

Dr. James Kocher
Ford Foundation, New Delhi, India

Dr. David R. Nalin
Assistant Professor of Medicine and Chief, Physiology
Section, Center for Vaccine Development, Division
of Infectious Diseases, University of Maryland,
Baltimore, Maryland, U.S.A.

Dr. Robert S. Northrup
The Rockefeller Foundation, Yogyakarta, Indonesia

Dr. Ranjit K. Ratnaike
Department of Medicine, University of Adelaide,
South Australia, Australia

Dr. Wayne Stinson
Research Scientist, Health Service Research Institute,
University of Texas Health Sciences Center, San
Antonio, Texas, U.S.A.

Dr. R. Vejlsgaard
WHO Consultant, WHO Headquarters, Geneva, Switzerland

Dr. Stan Zehman
44 Croton Avenue, New York, New York, U.S.A.

June, 1979

Dr. Michael Apstein
Boston VA Hospital, Boston, Massachusetts, U.S.A.

Dr. Richard Cash
Harvard School of Public Health, Shattuck Street, Boston, Massachusetts, U.S.A.

Dr. Eric R. Crystall
FAO/UNFPA Consultant, Nairobi, Kenya

Dr. Andrew Fisher
University of California, Berkeley, California, U.S.A.

Dr. Harold Gustafson
University of California, Berkeley, California, U.S.A.

Dr. Michael H. Merson
Bacterial and Veneral Infections, World Health Organization, Geneva, Switzerland

Dr. Clifford A. Pease
Deputy Director, Officer of Health, Development Support Bureau, AID, Washington, D.C. U.S.A.

Dr. R. Slooff
Royal Tropical Institute, Amsterdam, Holland

July, 1979

Mr. Richard Hodes
Bor 249, University of Rochester, Medical Center, Rochester, New York, New York, U.S.A.

Dr. John G. Huber
1764 Las Provadas Court, Santarosa, California, U.S.A.

Dr. T. Johnson
1707 Charlton, Ann Arbor, Michigan, U.S.A.

August, 1979

Dr. Abdul Rahman Ali Ishak
Technical Director, Kuwait General Hospital, Yemen Arab Republic

Dr. Donald Mackay
Deputy Director, Ross Institute of Tropical Medicine, London, United Kingdom

Dr. Paul Wise
Children's Hospital Medical Center, Boston, Massachusetts, U.S.A.

Dr. Joe D. Wray
Harvard School of Public Health, Boston, Massachusetts, U.S.A.

September, 1979

Dr. Jack Richman
Consultant, Diarrhoeal Disease, UNICEF/WHO

Dr. Kurt Sorensen
Director, NAMRU 2, Taiwan, R. P.

Mr. Joseph Trout
USAID, Washington, D.C. U.S.A.

Mr. John Delevalle Tupper
Shakespeare 27, Mexico 5, D.F.

October, 1979

Dr. Elizabeth Baker
University of Manitoba, Manitoba, Canada

Dr. Selwyn Baker
St. Boniface General Hospital, Manitoba, Canada

Dr. Marianne Fachlemann
National Bacteriological Laboratory, Sweden

Mrs. Esther Fuller
San Francisco, California, U.S.A.

Mr. Palmer Fuller
San Francisco, California, U.S.A.

Dr. Peter W. Hochachka
University of British Columbia,
British Columbia, U.S.A.

H.E. Baron Patrick Nathomb
Ambassador of Belgium to Bangladesh, Dacca, Bangladesh

Mr. E. Staples
Representative, Ford Foundation in India, New Delhi,
India

Professor Gunnel Huldt Statsserum
National Bacteriological Laboratory, Sweden

November, 1979

Dr. Kallyn Bagchi
Nutrition Unit, World Health Organization, Geneva,
Switzerland

Mr. David E. Bell
Executive Vice President, The Ford Foundation,
New York, New York, U.S.A.

Dr. S. Blah
Pasteur Institute, Shillong, India

Mr. John Boone
UNFPA, Dacca, Bangladesh

Mrs. Nancy Boone
Dacca, Bangladesh

Dr. Laurence Finberg
Professor and Chairman, Department of Paediatrics,
Montefiore Hospital and Medical Center,
Albert Einstein

Dr. Stanley Foster
Director, Research and Development Division,
Bureau of Smallpox Eradication, Center for Disease Control,
Atlanta, Georgia,
U.S.A.

Dr. Leif Gothefors
Department of Paediatrics,
University of Umea, S-901
85 Umea, Sweden

Dr. Kazuhiko Hashimoto
3-39-15 Showl-mach, Department of Opthalmology
Gunma University, Maebashi, Japan

Dr. Hidemasa Kuwabara
First Department of Internal Medicine,
Gunma University, Maebashi, Japan

Dr. E. Lauridsen
Ministry of Foreign Affairs,
Danida, Copenhagen,
Denmark

Dr. Dilip Mahalanabis
Consultant, World Health Organization,
Geneva, Switzerland

Dr. Richard Mahoney
Associate Director, PIACT,
Manila, Philippines

Dr. Skov Mansen
Ministry of Foreign Affairs,
Danida, Copenhagen,
Denmark

Mr. Frances Marnioon
British High Commission,
Dacca, Bangladesh

Dr. Donna Mortensen
Embassy of Denmark,
Dacca, Bangladesh

Dr. Tadashi Okano
Clinical Professor, Department of Ophthalmology,
Gunma University, Maebashi, Japan

Mr. G. Pfister
Deputy Regional Program Coordinator, Swiss
Development Cooperation, Embassy of Switzerland in
India, New Delhi, India

Dr. David Relman
c/o Dr. John Murphy, Department of Microbiology,
Harvard Medical School, Boston, Massachusetts,
U.S.A.

Dr. L. T. Ruzicka
The Australian National University, Canberra,
Australia

Dr. Bradley Sack
The Johns Hopkins University, Baltimore, Maryland,
U.S.A.

Dr. J. Sulianti Saroso
Chairman, Board of Trustees, ICDDR,B, Advisor to
Minister of Health, Jakarta, Indonesia

Mr. David L. Smallman
Foreign and Commonwealth Office, Downing Street,
London, England

Mr. Enamainn Taylor
South East Asia Department Overseas Development,
London, England

Mr. R. F. Taylor
Second Secretary (Aid), British High Commission,
Dacca, Bangladesh

Mr. Yasuo Uchita
First Secretary, Embassy of Japan in Bangladesh,
Dacca, Bangladesh

Dr. Marcos R. Vaga
Deputy Director General, IRRI,
Manila, Philippines

December, 1979

Dr. Richard Cash
Harvard Institute for International Development,
1737 Cambridge Street, Cambridge, Massachusetts,
U.S.A.

Dr. Roger Feldman
Center for Disease Control, Atlanta,
Georgia, U.S.A.

Dr. V. K. Kochar
Department of Sociology and Anthropology,
University of Hyderabad, India

Dr. Hans D. Nothdurft
Institut fur Tropenmedizin dir Universitaet, Munchen,
Leopoldstr. 3, 8000 Muenchen 22,
West Germany

Mr. Soukiassan
World Health Organization Architect, World Health
Organization, Geneva,
Switzerland

Mr. C. J. C. Van der Horst
Secretary RAWOO and Deputy Director NUFFIC,
Badhuisweg 251, P.O. Box 90734, 2509 LS,
The Hague,
Netherlands

Dr. J. C. Waterlow
London School of Hygiene and Tropical Medicine,
Keppel Street, London, England

INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH

PROGRAMME AND BUDGET DESCRIPTION: 1981-1985

THE PROBLEM

Diarrhoeal diseases are a leading cause of sickness, malnutrition and death in less developed countries, and continue to be an important problem in developed countries. In many regions, they exceed all other causes of sickness and death. In rural areas, they may kill half of all children in the first five years of life, and can cause one-third of all deaths in the general population.

It is difficult to solve this vital problem by efforts centered only around individual disciplines or in institutions remote from the setting where the problem exists. The diarrhoeal diseases have close biological and socio-economic links with the problems of malnutrition, other diseases, and high fertility which are also of great importance to developing countries. Further, these entities share social and economic causes, interact to reinforce each other, and constitute the chief focus of primary health care. This being the case, the solutions to the problem of diarrhoeal disease required an integrated research and training effort, conducted in a location where the problem can be explored in its full content.

It is these factors which shape the aims, programmes and organization of the International Centre for Diarrhoeal Disease Research, Bangladesh. This document describes the programmes and activities of the Centre, and indicates what manpower and finance are needed to carry them out.

An operating budget of $6,100,000 is proposed for the calendar year 1981, together with a staff of 39 scientists of at least assistant scientist grade. The basic purpose of the 1981 expenditure budget is to bring the activities of the Centre to the levels originally foreseen when the International Committee of governments, international agencies and private organizations cooperated to bring the Centre into being in 1979.

As compared with the programme of the Centre's predecessor organization, the Cholera Research Laboratory, the 1981 budget

adds strong emphasis on research to improve community services, and on training, research and communications to disseminate findings and to support national organizations in their own work. Apart from programme increases, the 1981 budget is significantly larger than the rate of expenditure for 1979/80, as a result of the staff compensation adjustments already mentioned in the Progress Report presented in connection with Agenda Item 4 of the Consultative Group meeting.

For the year 1982, an operating budget of $7,400,000 is proposed. Taking into account an inflation factor of 12 per cert, this would represent an increase of 10 per cent in real terms over 1981, chiefly to support a further increase in training and extension activities.

Details of the budget are tabulated in Appendix A. While projections of the years 1983, 1984 and 1985 are included, these obviously are speculative, they represent real increases of 5 per cent annually and a continuing inflation rate of 12 per cent a year.

Separate expenditures are contemplated for the construction of new buildings at the Centre's headquarters and field stations. These are estimated to cost upwards of $11 million over a period of approximately five years. The capital plan, insofar as it has been developed, is described in a separate paper prepared in connection with Agenda Item 6.

Of the $6,100,000 sought for operating costs in 1981, $4,800,000 are estimated to be available from donors at present. The funds remaining to be found for 1981 therefore amount to $1,300,000.

THE CENTRE

The aims and objectives of the Centre under the Ordinance creating it are:

1. To undertake and promote study, research and dissemination of knowledge in diarrhoeal diseases and directly related subjects of nutrition and fertility, with a view to developing improved methods of health care and for the prevention and control of diarrhoeal diseases and improvement of public health programmes with special relevance to developing countries.

2. To provide facilities for training to Bangladeshi and other nationals in areas of the Centre's competence, in collaboration with national and international institutions.

The Centre's mission will be accomplished by:

1. Conducting clinical, laboratory and field research with the objective of developing practical technologies for disease prevention and health care along with methods for the application of these technologies.

2. Conducting research and applied training programmes for scientists, administrators, technicians and other persons.

3. Developing collaborative research and training efforts with national and international institutions, particularly in the developing countries, to strengthen local initiatives and capabilities.

4. Sponsoring technical and educational seminars.

5. Publishing information on new technology.

6. Consulting with governments and other agencies on effective application of health interventions.

Organization

The Centre's substantive activities are of two kinds: (a) scientific research and (b) training and extension. The Centre's scientific programme is organized into five research working groups, each addressed to a problem area related to diarrhoea. The Community Services Research Working Group carries out the basic demographic research necessary to provide the framework for all the field studies of the Centre. In addition, this working group examines ways in which established technologies of prevention and treatment can be swiftly and efficiently brought to bear, to the benefit of people and communities. The Nutrition Working Group seeks to identify ways by which diarrhoea interferes with nutrition and how poor nutrition enhances susceptibility to illness. The Disease Transmission Working Group focuses on how the agents which cause diarrhoea are spread and in what ways transmission may be interrupted. The Host Defense Working Group seeks to understand more clearly the body's resistance to diarrhoea-causing microbes and to develop, assess and field test potential vaccines. The Pathogenesis and Therapy Working Group aims to elucidate mechanisms of illness and how best to treat diarrhoea.

The Training and Extension Working Group carries out the Centre's commitment to propagate proven technologies and strategies to national and other groups involved in diarrhoea control and health care services in developing countries.

Scientific activities have the support of various staff facilities. There are three locations with treatment centres, field staff and logistical support, in Dacca City, Matlab and Teknaf (see map). In addition, there are biochemistry, microbiology and immunology laboratories, a statistics and data management unit, an animal resources facility, and a library and publications unit, and a small computer. Maintenance and logistical support for scientific and training activities include departments of supply, management, maintenance, transport and general administration.

The Centre has approximately 805 full-time employees. There are 39 scientists guiding the research projects; in support of these scientific activities are 655 people. Staff responsible for management, administration and general services number 111 and make up the remaining complement.

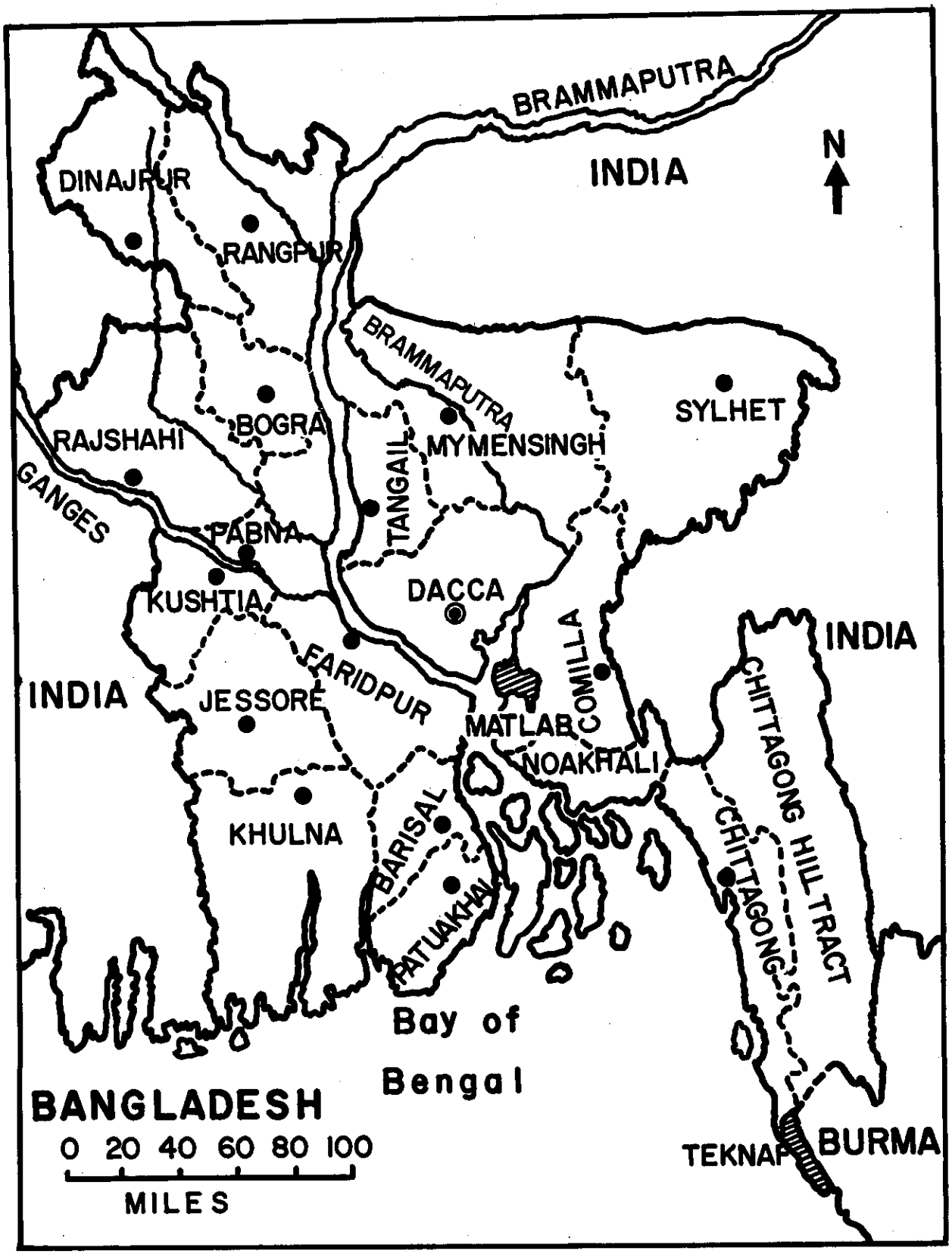
SCIENTIFIC RESEARCH

Community Services

The Ordinance creating ICDDR,B charges the Centre, in its study of diarrhoeal diseases and "directly related subjects of nutrition and fertility" to have in mind the development of "improved methods of health care and improvement of public health programmes of a kind relevant to developing countries." This charge provides the focus for the work of the Community Services Research Working Group.

Among the many projects being pursued by the Group are:

1. Basic studies. The programme to maintain and further develop demographic surveillance systems in Matlab and Teknaf is continuing and ultimately may be extended to other sites. The programme involves regular censuses of births, deaths, migrations and marriages, as well as more detailed information on illness. It provides an invaluable and virtually unparalleled resource for basic methodologic studies as well as studies regarding practical policies and programmes to deal with major health problems.



Bangladesh showing location of Matlab and Teknaf field research areas.

2. An ongoing programme providing diarrhoeal treatment, family planning, immunization and nutrition services to a population of 80,000 in the Matlab district south of Dacca (the so-called MCH-FP programme) constitutes a unique resource for operational research on community structure, social change, interaction between programme staff and the community, and functions of field workers — all relevant to the delivery of diarrhoeal and other health services. Particular components of this programme include:

a) Oral therapy field trial. This trial seeks, among other things, to assess the effectiveness of home-based oral therapy in reducing morbidity and mortality from diarrhoea and in providing child nutritional status.

b) Family planning and evaluation. The family planning component has been operating since 1975. A full range of modern contraceptive technologies is being made available by trained village workers, backed by a clinic at Matlab centre and by four subcentres. The project seeks answers to such questions as:

i. What is the demand for fertility control services?

ii. How efficient and effective is the programme in meeting this need?

iii. How appropriate and effective are various contraceptive methods? What hazards exist in their use?

This research is being conducted in collaboration with the Ministry of Health and Population Control of Bangladesh.

c) Immunization. Tetanus toxoid vaccination of pregnant women was started in June, 1978. Besides providing a necessary service, this component will aid in determining the effects of reducing child mortality on acceptance of contraception.

d) Nutrition. Iron-supplement tablets and advice on nutrition during pregnancy are given to women. In addition, programme staff encourage continuation of normal feeding during diarrhoeal episodes.

The Community Service Research Working Group has an interdisciplinary approach, and consists of scientists versed in demography, biostatistics, anthropology, sociology and epidemiology. It has the direct assistance of the Centre's computer services and data management branches. In addition, the head of the Working Group has the responsibility for the scientific aspects of the activities undertaken at Matlab.

The person-months required of scientists during 1981 are estimated at 72. For support staff, 2196 person-months will be needed in 1981.

Nutrition

There is a circular relationship between nutrition and diarrhoeal diseases: diarrhoeal diseases cause wastage of nutrients and reduce the body's ability to absorb nutrients, while malnutrition increases the body's susceptibility to diarrhoeal (and other) infections. The research of the Nutrition Working Group seeks to break the circle by developing measures to improve nutrition by better food utilization and by reducing nutritional wastage among families and individuals. Among the approaches being followed by the Group, for example, are:

1. Studying the relationship between diarrhoea control and nutrition. The Group applies a nutritional perspective to programmes aimed at immunological or environmental interventions against diarrhoeal diseases, to test what improvements in nutritional well-being are accomplished by these interventions.

2. Feeding practices. Field studies are being carried on to analyze the distribution of food among individuals within the family (particularly during periods of food scarcity, illness or physiological states such as lactation and pregnancy) to see how it may be improved. From such studies, effective approaches toward improving nutrition (e.g., education and food supplementation for pregnant women; prevention of food withdrawal during illness) can be developed and made more effective.

3. Metabolic studies of food wastage in diarrhoea. Acute diarrhoeas may decrease appetite and accelerate the destruction of nutrients in the body; and repeated bouts of diarrhoea may reduce intestinal capacity to absorb food and may depress the activity of enzymes necessary to digestion. An objective of the Working Group is a better understanding of these mechanisms and a fuller knowledge of how they operate in the case of diarrhoeal diseases of differing origins.

At full strength, the Nutrition Working Group consists of two clinical nutritionists, a biochemist and a behavioural scientist, with assistance from the support branches dealing with biochemistry and experimental animals. The person-months required for scientists in 1981 is estimated at 60. For support staff, 324 person-months will be needed in 1981.

Disease Transmission

The Working Group on Disease Transmission is one of three groups whose interests center directly on diarrhoeal diseases. It has three long-range goals:

a. to identify the agents responsible for the various kinds of diarrhoeas and to define and identify their cycles of occurrence and modes of transmission;

b. to delineate the ways in which these agents interact with humans and are spread in different communities; and

c. to develop effective and applicable means for interrupting the transmission of diarrhoeal diseases.

Investigation of these topics requires basic studies in the laboratory and field research in both urban and rural populations. Among the studies in progress or in prospect are:

1. Diarrhoea in children. To analyze the spread among children of diarrhoeas caused by several common agents — E.coli, rotavirus, Vibrios and campylobacter — studies are being conducted of families and communities over periods of two or more years to determine, for instance,

the differences in the behaviour of diseases from these causative agents, and to determine what factors in environment or social behaviour may be altered to interrupt the transmission of these diseases.

2. The role of parasites. Except for E.histolytica and Giardia lamblia the role of parasites and worms in diarrhoeal diseases has yet to be established. Do parasitic infestations cause diarrhoea? Do parasites ever serve as vehicles for transmission of bacteria and viruses causing diarrhoea? These and other questions require in-depth field work backed by strong capabilities in clinical pathology and microbiology.

3. Environmental studies. Environmental differences in such factors as water availability, sanitary practices, cultural behaviour and population density are known to influence the distribution of causative agents and to influence the spread and characteristics of diarrhoeal diseases. Analysis needs to be undertaken of these factors, along with comparative data from different regions. Also, environmental microbiological studies are planned to investigate the role of water, environment and behaviour in facilitating transmission.

4. Microbiological investigation. Two lines of microbiological investigation are proposed to support studies of diarrhoeal disease transmission. One is a comprehensive study of the molecular composition of different strains of the species Vibrio cholerae, some of which cause disease and some of which do not, this will make it possible to probe, among other things, the possibility of developing an effective vaccine from a non-pathogenic strain.

Another line of investigation is to study the transmission of genetic factors from one bacterial species to another, or within single species. Both investigations require highly sophisticated equipment, and are being pursued in cooperation with laboratories in developed countries.

The Working Group on Disease Transmission is intended to be composed of epidemiologists, microbiologists and a water engineer in 1981. The number of person-months required of scientists in 1981 is expected to be 60.

Host Defense

The human body is able to defend itself by various mechanisms which may attenuate disease or turn it aside altogether. Some of these mechanisms are specific to particular diseases; others are general, reflecting a good state of nutrition and health. The Host Defense Working Group is concerned with both types of defense.

The Group already is investigating new vaccines found in early tests elsewhere to be safe and effective in enhancing the body's defenses against cholera, particularly in children. The testing of still other vaccines, including an oral vaccine for cholera, are foreseen for 1981 and thereafter.

The small intestine appears to be capable of generating an immune response to diarrhoeal illness, but little is known about how this response is triggered or exactly how it affords protection to the host. In cooperation with scientists elsewhere, the Centre has initiated a programme to study the subject. The goal is to identify those immunological factors actually responsible for prevention of disease.

The Working Group's study of general resistance to enteric infections is following two lines of investigation: to elucidate the role of stomach acid as a barrier to infection, and to study the significance of alterations in the microbial population of the intestinal tract as a possible influence on the incidence of diarrhoea.

The Host Defense Working Group consists of five scientists, including immunologists, a paediatrician and a veterinarian. The number of person-months expected from these scientists is 60 in 1981.

Pathogenesis and Therapy

The Working Group on Diarrhoea Pathogenesis and Therapy has two broad goals: (a) to understand the causes and physiological mechanisms of various diarrhoeal diseases; and (b) to develop and evaluate techniques for treating, and reducing or preventing, these diseases.

Among topics of interest to the Group are:

1. The study of toxins which generate heavy loss of fluid is essential to the development of effective mixtures for oral rehydration of affected individuals,

and for the identification of drugs and other substances which interfere with the action of the toxins and thereby reduce or prevent diarrhoea.

2. Study of the physiological action of rotavirus, the agent which recently has emerged as the single most common cause of diarrhoea in infants aged from six months to two years. The action of rotavirus is significantly different from the pathogenesis of cholera and the bacterium E.coli. Better knowledge of it is necessary for the formulation of the most effective courses of rehydration therapy and to determine the extent and duration of damage to food utilization in affected individuals.

3. Management of complications following diarrhoea and dysentery. The commonest specific complications, especially among children, are pneumonia and bronchitis, high fever with shock, and altered states of consciousness, often with convulsions. Study is needed of the causes of these complications and of simple and effective means of dealing with them in rural treatment centres.

The Group is to include five clinical scientists in 1981, bringing together experience in infectious diseases, physiology, gastroenterology and other relevant specialities. The person-months required for scientists in 1981 is 60.

TRAINING AND EXTENSION

Training and extension are a major new element in the programme of the ICDDR,B as compared to its predecessor organization, the Cholera Research Laboratory. It ultimately is expected to claim about 30 per cent of the budget of the Centre, and the scientific personnel of the Centre are expected to devote 25 per cent of their time to participation in training and extension activities.

The primary objective of the programme is to use the resources of the Centre to help developing countries (including Bangladesh) to improve the planning and execution of diarrhoeal and related health services and to help develop national research capacity in these countries. Conversely, it is expected that feedback from training and extension activities

will be useful to the Centre itself. Many activities of the Research and Training Group will involve close cooperation with the World Health Organization.

The specific goals of the Training and Extension Working Group are:

a. To prepare trainers and extension workers to train other workers in their own regions.

b. To improve research capacity in developing countries by providing research training for their nationals.

c. To encourage the planning of extension projects for diarrhoeal disease services.

d. To disseminate to interested countries manuals and other instructional and demonstrational materials, and to publish the Centre's output of scientific reports, monographs and special publications.

Practical courses offered by the Centre include (a) short courses (one week or less) in diarrhoeal disease management and therapy for doctors in rural health centres in Bangladesh and ultimately for medical students and interns, (b) two-week courses in management and therapy for trainers from the Asian region, and (c) two-week courses in diagnostic procedures, also for trainers from the Asian region. Three courses will be offered in the region and internationally to individuals and groups who will be responsible for developing programmes to control diarrhoeal illnesses in their own countries. The Group looks forward to offering courses to trainees from other regions at a later date. Courses may also be offered outside Bangladesh by mobile training teams for countries requesting them.

Research training affords a dozen fellowships to doctoral or masters candidates for Bangladesh and other countries of Asia, for periods ranging from three months to three years. Each fellow is assigned to one of the Centre's scientific working groups, and each is guided by a scientific supervisor.

Seminars and workshops also are used as a training method — for example, an annual workshop is held for persons involved in planning or administering national oral rehydration programmes in Asia.

Extension activities will be aimed at Bangladesh or any other developing country where there is a demand and need for technical assistance. Aside from the training of appropriate personnel to themselves act as trainers, or carry out research or implement diarrhoeal disease services, the Centre would help in the planning of services.

The Research and Training Working Group is headed by an Associate Director of the Centre. The person-months from scientists required for training staff in 1981 is estimated to be 96.

SUPPORT

Programme Support

The scientific research and the training working groups are assisted by a variety of activities: the departments of Animal Resources, Biochemistry, Biometrics and Data Management, Immunology, Microbiology, Library and Publications, and the station complements at Dacca, Matlab and Teknaf. The procedures for screening proposals for research projects and for evaluating research done, although not departmentalized, also can be considered part of this support structure.

The largest support items are for station operations at Dacca and Matlab, which account for about three-fifths of expenditures in this category. The Dacca operation includes a treatment centre which handles as many as 80,000 patients in epidemic years; and the Matlab operation includes a large field staff of village workers as well as a treatment centre.

Logistical Support

Administrative support is given to the Centre's substantive programmes by a group of offices operating in the oversight of a General Manager. They are charged with personnel administration, maintenance, supply, transport and general services (e.g., grounds upkeep, security). These are conventional items of which the largest is transport, necessitated, among other things, by the transportation of local staff to the Centre and the frequent requirement for travel between the Centre and Matlab and Teknaf areas. The lack of a central facility for vehicle maintenance on the Dacca campus is a handicap.

MANAGEMENT

The Office of the Director includes the Director, a Deputy Director, an Associate Director for Training and Extension (see p. 42), an Associate Director for Finance and Administration and an Associate Director for Resources Development concerned with financial relationships with donors, along with secretarial staff. Closely associated with it is a Physical Plant Officer, concerned with planning the development and utilization of laboratory, office and other space.

Also in the management sector is the Controller: he maintains the Centre's accounts, controls its disbursements and otherwise acts as the fiscal officer in the Centre.

For the Board of Trustees, an allowance is made to cover the costs of travel and per diem for two meetings a year of the full Board and for ad hoc meetings of its subcommittees.

WORKING FUND

The Centre is now receiving financial support from a dozen different donors, each of which has its own budgetary and disbursement procedures. The resulting cash flow to the Centre is uneven and, although funds are committed, may leave the Centre without adequate funds at given moments. Such instances, in fact, already have occurred, making it necessary for the Centre to obtain bank accommodation with considerable trouble and expense.

The Centre proposes to meet this problem by creating a working fund out of donor contributions to the Centre. This fund would be used only to cover temporary shortfalls in cash flow, and would be replenished as soon as the expected funds were received. It would, therefore, be a revolving fund, and would not need recurring appropriations from year to year. The amount budgeted for this purpose is $610,000, or about 10 per cent of disbursements expected in 1981.

APPENDIX A

INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH
SUMMARY OF FIVE YEARS PROGRAMME BUDGET

	Person - Month 1981			1981	1982	1983	1984	1985	Total
	Scientist	Support	Total	US $	US $	US $	US $	US $	US $
A. RESEARCH PROGRAMME	300	3,276	3,576	2,304,200	2,789,400	3,146,700	3,681,500	4,307,300	16,229,100
1. Community Services Research	72	2,196	2,268	857,700	1,046,400	1,224,300	1,432,400	1,675,900	6,236,700
2. Nutrition	48[1/]	324	372	365,700	446,200	522,100	610,800	714,600	2,659,400
3. Disease Transmission	60	300	360	314,700	384,000	449,300	525,700	615,000	2,288,700
4. Host Defense Therapy	60	216	276	431,800[2/]	505,000[2/]	473,900	554,400	648,700	2,613,800
5. Pathogenesis and Therapy	60	240	300	334,300	407,800	477,100	558,200	653,100	2,430,500
B. TRAINING AND EXTENSION	96	336	432	946,000	1,154,100	1,350,300	1,579,800	1,848,400	6,878,600
C. PROGRAMME SUPPORT	-	3,324	3,324	1,047,700	1,278,200	1,495,500	1,749,700	2,047,100	7,618,200
D. MAINTENANCE & LOGISTICS	-	1,068	1,068	841,600	1,026,800	1,201,400	1,405,600	1,644,500	6,119,900
E. MANAGEMENT AND ADMINISTRATION	24	1,356	1,380	955,400	1,165,600	1,363,800	1,595,600	1,866,900	6,947,300
Sub-Total (A - E)	420	9,360	9,780	6,094,900	7,414,100	8,557,700	10,012,200	11,714,200	43,793,100
F. WORKING FUND 10% of 1981 operating Budget:	-	-	-	609,500	-	-	-	-	609,500
GRAND TOTAL (A - F)	420	9,360	9,780	6,704,400	7,414,100	8,557,700	10,012,200	11,714,200	44,402,600

1/ Plus 12 person-month of Deputy Director shown under Management.

2/ Includes $100,000 for Vaccine Field Trial.

Agenda Item 6

INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH

DEVELOPMENT OF PHYSICAL FACILITIES: 1981 - 1985

The ICDDR,B's headquarters occupy one 3-storey wing and some additional rooms in the national Institute of Public Health (IPH) in Dacca. This space houses clinical, laboratory and administrative facilities, the largest element of which is the treatment centre covering most of the ground floor. Separate buildings on the IPH campus house library, training, supply, transportation and experimental animals. Maintenance operations are in rental space off campus. A guest house and a hostel rented in Dacca provide some accommodations to visiting scientists and trainees.

At the Matlab field station, there is a small field hospital with laboratory and research office space located in a Government rural health centre. The clinical laboratory and office space at the Teknaf field station are rented. Proper housing is not available to staff at either field station.

The amount of space at Dacca and in the field has for a long time been falling behind the growing activities of the Centre and its predecessor organization, the Cholera Research Laboratory. There now is an acute shortage of space at all locations, critically impeding the work of the Centre and gravely limiting the potential ability of the Centre to attract and retain staff of the desired calibre.

Many of the research activities in the Dacca headquarters are squeezed into corners of the treatment centre. The administrative offices, on average, have half, or less, of the space that would be regarded as normal in developing countries for an institution like the Centre. Space for training, a new activity of the Centre, has had to be improvised. If the vacancy existing for an Associate Director of Finance and Administration were filled today, the incumbent would have no place to sit.

The Centre's Board of Directors have approved, and funds are beginning to come forward, for an expansion of physical plant to deal with the most serious existing deficiencies. At Dacca, a project has been approved in principle for the construction next to the present compound of a separate,

seven-storey building for the Centre, with adjacent service buildings, (e.g., engine room, boiler room, laundry, stand-by generator room, etc.).

The construction of the project has been divided into two phases. The first phase includes completion of the foundations and ground floor of the new building and the transfer to that floor of the present treatment centre. This will add 21,000 square feet to the 58,000 square feet now available at Dacca. It will enable the expansion of clinical facilities from 18,000 to 21,000 square feet, and will free 8,000 square feet in the present quarters for other uses. Currently, also, a small addition (4,000 square feet) is being made to the present IPH wing. (It also is intended to air-condition the animal house.)

The Bangladesh Government has agreed to make 3.44 acres available for the expansion of facilities on the Dacca campus, including the new building. Architects (a Bangladeshi/ British consortium) have been retained, have done the site survey, and are preparing detailed plans for the treatment-centre floor of the new building. The total cost of this floor, including equipment, is estimated at $800,000 which $500,000 so far has been made available.

The total cost of the whole building, including equipment (e.g., laboratories, air conditioning) is estimated at $10 million in constant dollars; and the time needed for construction is estimated at 48 months. In current dollars, taking inflation into account, the total cost might amount to $11.5-13 million over the whole period of construction.

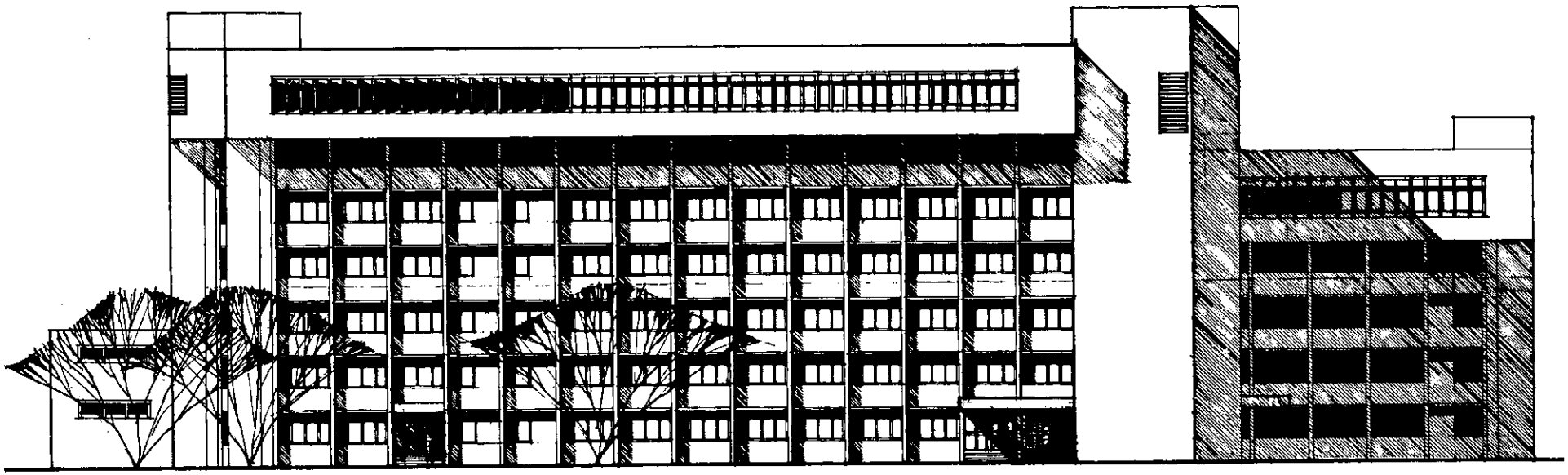
The Directors of the Centre also have instructed the staff

(a) to develop a comprehensive plan for the full utilization of the ground being made available in Dacca. This may include an addition to the existing library/ training building to make possible a centralization of maintenance facilities, at a cost amounting to perhaps $200,000.

(b) to take steps toward the acquisition of land for the construction of needed operational buildings at Matlab and Teknaf. The possible cost of construction at Matlab, according to a rough preliminary estimate, is $500,000.

(c) to develop plans for staff housing in Dacca, Matlab and Teknaf.

The Board will further consider these initiatives at its meeting in November, 1980. The staff of the Centre is expected to have well-defined overall development plan at this time.



NORTH ELEVATION

0 5 10 20

PROPOSED MULTI STORIED BUILDING FOR
INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH
MOHAKHALI, DACCA
ENGINEERING CONSULTANTS AND ASSOCIATES LIMITED
STHAPATI SANGSHAD LIMITED CONSORTIUM