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DANIDA

PROJECT DOCUMENT

International Training Network Centre for

Water Supply and Waste Management

UNDP/World Bank - DANIDA

Bangladesh

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September 1995

Ref. No. 104.Bang.1

R204.2 - 14062

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ANNEXES

ANNEX 1: Terms of Reference for ITN Centre expatriate adviser

LIST OF ABBREVIATIONS

BIT:	Bangladesh Institute of Technology
BUET:	Bangladesh University of Engineering and Technology
DPHE:	Department of Public Health Engineering
GoB:	Government of Bangladesh
IMED:	Implementation, Monitoring and Evaluation Division
ITN:	International Training Network
NGO:	Non-governmental Organisation
R&D:	Research and Development
RWSG-SA:	UNDP/World Bank, Regional Water and Sanitation Group - South Asia
TAPP:	Technical Assistance Project Proforma
UNDP:	United Nations Development Program
UNICEF:	United Nations Children's Fund
WASA:	Water and Sanitation Authorities

PROJECT DOCUMENT

COUNTRY: The People's Republic of Bangladesh

Project title: International Training Network Centre for Water Supply and Waste Management

Implementing Agency: Bangladesh University of Engineering and Technology

Duration: 5 years subdivided into 2 phases each of 2½ years

Starting date: March 1996

GoB contribution: Staff and offices as well as payment of taxes and duties

Danida contribution: USD 1,259,400

Project description:

In order to improve the human resource base for promotion of appropriate low-cost water supply and sanitation activities, an International Training Network (ITN) Centre will be established at Bangladesh University of Engineering and Technology (BUET).

The purpose of the ITN Centre will be to: i) re-orient the basic engineering education towards increased emphasis on low-cost technologies and software issues such as community mobilization, hygiene promotion and communication skills; ii) update the skills of staff and decision makers within the rural water supply and sanitation sector, in particular through refresher training, and iii) promote local capability for applied research and development activities.

The Danida support will be provided through the UNDP/World Bank Regional Water and Sanitation Group - South Asia (RWSG-SA) and a Danida adviser will be provided during the first year of implementation.

On behalf of	Signature	Date	Name/title
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The Government
of Bangladesh

Danida

1. CONTEXT

1.1 Description of the Sector

Substantial progress has been made within the rural water supply and sanitation sector since the independence of Bangladesh, and the national coverage with safe water supply installations amounts to in average one public installation per 110 persons. In general the quality of the installations is good, but the introduction of some new technologies such as Tara pumps and pond sand filters seem to pose some problems. One caretaker family is trained for each installation and most pumps are maintained without Government involvement.

As a result of intensive social mobilization for sanitation campaigns during the last years, the coverage with hygienic latrines has increased from 3% in 1985 to 35% in 1994. Though the Government provides some subsidized latrines, the majority of the latrine components have been produced by the private sector. To what extent the use of the latrines is sustainable and to what extent the personal hygiene practices have been improved, remain to be verified.

In addition to the Government water supply programme, a large number of private households have on their own installed tubewells with handpumps. A number of NGOs are also active within the sector, in particular in promoting sanitation.

Bangladesh has a quite elaborate engineering educational system with the following three tiers: i) Bangladesh University of Engineering and Technology (BUET), ii) four Bangladesh Institutes of Technology (BIT), and iii) twenty Polytechnic Institutes. In general, there is no shortage of qualified technical staff within the sector.

1.2 Government of Bangladesh Strategy

The water supply and sanitation sector lacks a coherent and coordinated manpower development strategy which to some extent is a hinderance for optimal use of sector allocations. Reference is made to section 2.1: "Problems to be addressed".

1.3 Prior and ongoing Danida Assistance

Danida has supported the national rural water supply and sanitation sector through UNICEF for almost two decades, and has during the last decade been the biggest donor within the sector. The Danida assistance has gradually moved away from sinking of tubewells to integrated promotion of water supply, sanitation and hygiene.

Human resource development and capacity building within the sector has increasingly been emphasized by Danida in its development assistance.

1.4 Socio-economic Context

Poor environmental sanitation and hygiene practices combined with limited use of safe water contribute to high diarrhoeal incidence and parasitic infection, particularly among children. On the average, each child under five years of age suffers from 3.5 diarrhoeal episodes per year and the prevalence of parasitic infections is frequently over 85%. This leads to malnutrition and to 260,000 annual deaths associated with malnutrition - a third of all child deaths. The under-5 mortality rate was estimated to be 133 per thousand in 1991.

Most projects within the sector emphasize changes in personal behaviour, such as use of safe water for all purposes, use of hygienic latrines, and improved personal hygiene practices. Knowledge about and sensitivity for the prevailing socio-cultural environment are crucial for achieving such project objectives. It is, therefore, important that such factors are included in the formal engineering educational system and in the refresher training of sector staff. Reference is made to Section 2.1 "Problems to be addressed".

1.5 Institutional Framework

The national agency for rural water supply and sanitation is the Department of Public Health Engineering (DPHE) under the Ministry of Local Government, Rural Development and Cooperatives. DPHE is, to a considerable extent, supported by UNICEF, primarily with funds from Danida and the Swiss Development Cooperation. The UNDP/World Bank Regional Water Supply and Sanitation Group - South Asia (RWSG-SA) provides strategic inputs to the sector. The European Union has recently declared interest to support the sector.

envisaged to play key roles in this Project with regard to: i) function as communicators and trainers, ii) promotion of health and hygiene, iii) promotion of community involvement, and iv) monitoring. All these social engineering tasks will necessitate reorientation and retraining of the involved actors.

Training activities undertaken by different organizations are not coordinated. Thus, NGOs carry out their own training activities and DPHE's training courses are open to DPHE staff only. Educational institutions are seldom involved in such training because of the teachers' lack of field experience.

Applied Research and Development (R&D) is mainly managed by donors and DPHE. Educational institutions are involved to a very minor extent only because they are considered to lack a practical attitude and experience. To the extent local institutions have initiated R&D activities, they appear not to have had any impact on project implementation. The local potential for R&D has, thus, not been properly developed.

2.2 Expected end-of-project Situation

At the end of the Project, the following is expected to have been achieved:

- the engineering educational system has been adjusted to fulfil the needs of the rural water supply and sanitation sector in Bangladesh;
- the capacity of the engineering educational institutions to undertake refresher training of sector personnel and decision makers has been improved;
- the collaboration between the educational and the implementing sectors has been strengthened for mutual benefit;
- the capacity of the educational institutions to undertake applied and relevant research and development activities has been strengthened.

A number of NGOs implement projects within the sector. In particular, their role in promotion of sanitation and hygiene has increased recently. The NGO activities are to some extent coordinated by the NGO Forum which is an umbrella organization for the NGOs.

2. PROJECT JUSTIFICATION

2.1 Problems to be addressed

The rural water supply and sanitation sector lacks a coherent and coordinated educational and training strategy.

Educational institutions base their curricula on Western models rather than on analysis of the needs in Bangladesh. Thus, the existing education of engineers does not sufficiently emphasise low cost technologies. This results in the graduation of engineers neither motivated for nor readily capable of assuming responsibilities within major areas of the national water supply and sanitation sector. Furthermore, a clear need exists to reorient the educational system within the sector toward a higher emphasis on software issues such as community participation, hygiene education and communication skills.

The links between the educational and the implementing sectors are weak, resulting in teachers having hardly any practical experience. The potential for the teachers to undertake field work during their vacations and the students to undertake industrial attachment, e.g. at DPHE, has not been developed.

Within DPHE, training does not have a high priority, at least not among field staff. The training of DPHE field staff is mainly carried out by senior DPHE staff, which may not have the appropriate background and aptitude to act as trainers. The need for technical training of DPHE staff and of contractors working for DPHE is mainly associated with new technologies such as Tara pumps, iron removal plants and pond sand filters.

The real training need is, however, not technical training. A number of non-technical tasks have been allotted to DPHE's technically oriented field staff in connection with the DPHE/UNICEF Social Mobilization for Sanitation Project. Local decision makers, DPHE field staff and staff from sub-national government organizations are

SA has a proven capacity to provide strategic inputs to the sector, and iii) BUET has requested Danida to finance the Project through RWSG-SA.

2.5 Special Considerations

The Project is important for promoting the role of women in future rural water supply and sanitation projects. The engineering educational system in Bangladesh does not educate the students to be gender sensitive in their future work and virtually all staff within the sector are men. The Project will among others re-orient the engineering educational system to put more emphasis on socio-economic issues including how best to ensure the involvement of women in all stages of project implementation.

For further promotion of the above re-orientation, it has been recommended that at least two of the professional project staff be women.

Environmental issues will to some extent be promoted through the re-orientation of the engineering educational system. As examples can be mentioned: i) the increased emphasis on promotion of a healthy environment around the pumps, and ii) improved environment as a result of use of hygienic latrines rather than open defecation.

Technical cooperation among developing countries will be promoted as the proposed ITN Centre will be a part of a global network of ITN Centres. Collaboration with an ITN Centre in Calcutta and, though to a minor extent, with an ITN Centre in the Philippines are included in the project proposal.

NGOs and contractors from the private sector will benefit from the Project through the planned training activities.

2.6 Government of Bangladesh Support Capacity

The Environmental Engineering Division of Bangladesh University of Engineering and Technology (BUET) has the necessary capacity to support the Project during its initial stages. Gradually, BUET will take over the staffing of the Project either by transferring existing staff from other posts within BUET or by recruiting new staff as and when academic posts become vacant. BUET has the capacity and has committed itself to do this. Reference is made to Chapter 10 "Risks".

2.3 Target Beneficiaries

The primary target groups for the Project are:

1. faculty members and students at BUET, BITs and Polytechnic Institutes;
2. DPHE staff, particularly Sub-Assistant Engineers and Tubewell Mechanics;
3. union, thana and pourashava decision-makers;
4. workers involved in community development and health promotion;
5. NGO staff;
6. women.

2.4 Project Strategy and Institutional Arrangements

Two main considerations lay behind the chosen strategy and the institutional arrangements.

The strategy emphasizes strengthening of the engineering educational institutions. These institutions have the potential to combine: i) reorientation of the basic engineering education towards the needs of the sector, ii) refresher training of already graduated engineers, and iii) training of non-engineering staff and decision makers in water supply and sanitation related matters.

DPHE, being the national rural water supply and sanitation organization is heavily involved in day-to-day implementation. Though DPHE recently has established a Training Division it is uncertain to what extent this division will be given funds and manpower with adequate professional background and the right aptitude. Engineering educational institutions can, therefore, provide valuable inputs to training strategies developed by DPHE.

Danida could either support the proposed project directly or through the UNDP/World Bank Regional Water and Sanitation Group - South Asia (RWSG-SA). The latter has been chosen as: i) the UNDP/World Bank Regional Water and Sanitation Groups globally are involved in and have experience with human resource development and capacity building through their International Training Network, ii) RWSG-

5. OUTPUTS

A general output related to **all objectives** is:

1. a national network of cooperating institutions with the ITN Centre at BUET as the focal point.

The primary outputs related to **Immediate Objective 1**, i.e. re-oriented engineering educational system, are:

2. curricula and syllabi for formal education with emphasis on: i) appropriate low cost water supply and sanitation, ii) socio-economic issues, and iii) gender issues at BUET, BITs and Polytechnic Institutes;
3. relevant educational materials and equipment at BUET, BITs and Polytechnic Institutes;
4. use of the revised curricula, syllabi and materials at the concerned institutions.

The primary outputs related to **Immediate Objective 2**, i.e. updated skills of staff and decision makers, are:

5. training packages including materials for the Project's target groups;
6. trained trainers from BITs, Polytechnic Institutes and DPHE;
7. training and orientation courses by the trained trainers and utilizing the prepared training packages;

The primary outputs related to **Immediate Objective 3**, i.e. applied R&D activities are:

8. relevant applied R&D projects within the low-cost water supply and sanitation sector.

2.7 Reasons for Assistance from Danida

Danida has supported the rural water supply and sanitation sector in Bangladesh for almost two decades. The ITN Centre Project emphasizes human resource development and capacity building within the sector which increasingly has been emphasized in Danida's development assistance to Bangladesh.

The Project is in accordance with the Danida strategy for development assistance to Bangladesh in which: i) the water supply and sanitation sector has been chosen as one of Danida's three priority sectors in Bangladesh, and ii) the development of the human resources is emphasized.

3. DEVELOPMENT OBJECTIVES

The Development Objectives of the Project are:

1. improved human resource base for promotion and wider application of appropriate i.e. socially acceptable, affordable and sustainable low-cost water supply and sanitation for low income groups;
2. strengthened local capacity for training, information dissemination as well as applied research and development activities;

4. IMMEDIATE OBJECTIVES

In order to put more emphasis on low-cost technologies and on socio-economic issues, including how best to ensure the involvement of women in all stages of project implementation, the Immediate Objectives of the Project are:

1. re-oriented curricula and syllabi for engineering education at all levels within the water supply and sanitation sector;
2. updated skills of staff and decision-makers within the low cost water supply and sanitation sector;
3. established applied research and development capability.

The primary activities related to **Output 3**, i.e. educational materials and equipment at BUET, BITs and Polytechnic Institutes, are:

13. review of existing local educational materials pertaining to low-cost technologies, community participation (in particular women) and health promotion;
14. assessment of relevant international educational materials;
15. supplementing the libraries at BUET, BITs and Polytechnic Institutes;
16. preparation of educational materials for the BUET, BITs and Polytechnic Institutes in close collaboration with the institutions concerned including a student text book on low-cost technology, community participation, gender awareness and hygiene education in Bangladesh;
17. distribution of the prepared materials together with e.g. slide projectors and flip charts;
18. construction of demonstration models at educational institutes as e.g. models of Tara pumps, pond sand filters, iron removal plants and latrines.

The primary activities related to **Output 4**, i.e. use of the curricula, syllabi and materials at BUET, BITs and Polytechnic Institutes, are:

19. approval of the curricula and syllabi by the competent authorities; alternatively, to promote teaching in appropriate low-cost technology, community participation, gender awareness and hygiene education within the framework of the existing curricula and syllabi;
20. training of teachers at these institutions. This training could consist of a week training course at the ITN centre at BUET and two annual refresher courses;
21. encouraging teachers to gain more field experience e.g. through field work.
22. use of the curricula, syllabi and educational materials in teaching. Special emphasis should be given to providing the students with practical field experience through e.g. study projects and industrial attachment arrangements;

6. ACTIVITIES

The primary activities related to **Output 1**, i.e. an ITN Centre at BUET, are:

1. recruitment of an expatriate adviser;
2. establishment of the ITN facilities at BUET and selection of sub-centres at BITs and Polytechnic Institutes. Tentatively 5 sub-centres are aimed at;
3. selection of members for the ITN Centre board;
4. appointment of professional ITN Centre staff. At least one of the RWSG-SA consultants and at least one of the BUET specialists should be women;
5. preparation of work plans and identification of indicators for monitoring purposes;
6. purchase of equipment;
7. two day orientation and preparatory workshops for staff from BUET, BITs, Polytechnic Institutes, DPHE, UNICEF and NGOs;
8. identification and establishment of sub-centres, tentatively at the BITs;
9. collaboration with other ITN Centres in Asia, particularly the ITN Centre at Calcutta;
10. preparation and distribution of a Newsletter.

The primary activities related to **Output 2**, i.e. educational curricula and syllabi at BUET, BITs and Polytechnic Institutes for low cost technologies, are:

11. analysis of existing curricula and syllabi. Identification of shortcomings with regard to low-cost technologies, community participation, gender awareness, health promotion and practical field experience;
12. preparation of curricula with the necessary emphasis on the above subjects in close collaboration with the institutions concerned. A two-day workshop is envisaged with relevant BUET, BIT and Polytechnic Institute staff, as well as with representatives from the ministries concerned.

The primary activities related to **Output 8**, i.e. relevant applied research and development projects, are:

31. assessment and endorsement of proposals for applied research and development projects related to low-cost water supply and sanitation;
32. assisting, advising and monitoring the planning, as well as the implementation of the research and development projects.

7. STRATEGY

In order to contribute to the human resource development and capacity building within the sector, the main elements in the adopted strategy are:

The ITN Centre has a national network of cooperating institutions with the ITN Centre at BUET as the focal point. Such a strategy can combine the strength of:

- BUET, which is the leading engineering educational institution in Bangladesh and which has an academic environment suitable for an ITN Centre;
- Provincial BITs and the Polytechnic Institutes are in a good position to establish good direct working relations to the engineers actually implementing rural water supply and sanitation activities. This is in particular the case as most field engineers have graduated from BITs or Polytechnic Institutes.

Emphasis will be given to making the engineering education more relevant for the graduated engineers. This can be done by increasing the emphasis on aspects such as low cost technology, community mobilization, hygiene education and communication skills. Thus, curricula and syllabi will be modified, and the educational institutions will be provided with better educational materials including a student textbook specifically designed for use in Bangladesh.

In order to improve the gender awareness among sector staff, virtually all men, emphasis will be given to gender issues. Thus, involvement of women in all aspects of project implementation will be promoted. At least one of the BUET specialists as well as one of the RWSG-SA consultants will be women. Attempts to identify female trainers at the ITN Sub-centres will be made.

23. regular assessment and improvement of the curricula, syllabi and materials through workshops for trainers and consultations with the target groups;

The primary activities related to **Output 5**, i.e. packages for training of in-service staff and orientation of decision makers, are:

24. survey of existing training and orientation efforts within the low-cost water supply and sanitation sector, including an assessment of methodology and training materials applied;
25. assessment of training needs for different categories of staff and decision makers in close collaboration with particularly DPHE and UNICEF;
26. preparation of packages consisting of curricula, methodology and training materials for different types of training and orientation. The packages should be prepared in close collaboration with DPHE and UNICEF. Existing materials should be used whenever possible.

The primary activities related to **Output 6**, i.e. trained trainers for training and orientation activities, are:

27. outlining a strategy for training of trainers including identification of trainers (some of which should be women) and preparation of curricula and materials for the training;
28. training of trainers.

The primary activities related to **Output 7**, i.e. training and orientation courses, are:

29. implementation of training and orientation courses using the prepared training packages and the trained trainers. Some financial support to the training activities from the ITN Centre is envisaged;
30. regular assessment and improvement of the packages e.g. through the proposed workshops for the trainers.

The Danida support to the Project will cease at the end of the Consolidation Phase, i.e. after 5 years.

8.2 BUET Inputs

BUET will provide the following inputs:

1. Office space and furniture to the ITN Centre;
2. Project staffing as described in Section 11.2;
3. General administrative support including the use of BUET's facilities, e.g. the accounting system;
4. Payment of Custom Duties and Value Added Tax;
5. Half-yearly audited financial statements to RWSG-SA.

In order to allow for the proper sanctioning and recruitment of the supporting staff their salaries will be covered by Project funds for a maximum period of 1 1/2 years.

8.3 UNDP/World Bank Inputs

The UNDP/World Bank RWSG-SA will, specifically through its Bangladesh Office, provide the following support:

1. management assistance, including signing of contracts with non-BUET staff;
2. professional advice;
3. budget approval;
4. performance monitoring of the ITN Centre;
5. import of equipment (BUET will pay the Custom Duties and the Value Added Tax).

The links between basic engineering education and refresher training of staff and decision makers involved in project implementation will be strengthened for mutual benefits. Engineering educational institutions located in the different parts of the country can play important roles in this respect.

The gaps between the implementing sector and the educational institutions will be narrowed. This will enable e.g. DPHE engineers to draw upon the knowledge of the teachers at the educational institutions while these teachers at the same time will learn more about the realities in the field.

The applied research and development (R&D) capacity of the educational institutions will be strengthened, which will enable them to undertake relevant R&D work and hereby gradually take over an increasing part of the R&D work, at present undertaken by donors such as e.g. UNICEF. Attempts will be made to make the applied R&D activities more demand driven in accordance with the needs of the sector. Furthermore, the combination of carrying out basic education and undertaking applied research and development is likely to be a strong asset.

With regard to preparation of a strategy for promoting organizational and financial sustainability, reference is made to chapter 12.

8. INPUTS

8.1 Danida Inputs

The main input to the Project is financial assistance from Danida through the UNDP/World Bank Water and Sanitation Program. The Danida inputs for the five years of implementation amounts to (in thousands of USD):

ITN Centre Project:	USD 1,144,900
UNDP/World Bank service charge:	USD 114,500

Total:	USD 1,259,400

A detailed budget is given in section 15.1.

During the first year of implementation, Danida will provide an advisor to support the planning, the start-up and the implementation of the ITN Centre.

There is a tendency for most teachers to apply whatever educational materials are readily available. If the student's textbook, mentioned in chapter 6, is prepared and distributed to all students and if sets of slides pertaining to the textbook are distributed to the teachers, it is quite likely that most teachers will use this textbook even if curricula and syllabi have not officially been changed. Furthermore, the planned training workshops will provide ample motivational opportunities.

DPHE has hardly any tradition of using external teachers in connection with its in-service training. This has so far been partly justified by the lack of relevant practical experience among potential external trainers. Furthermore, the Donors supporting DPHE have, for the same reason, not encouraged DPHE to do so. Once teachers from BUET, BITs and Polytechnic Institutes can provide relevant contributions to in-service training, DPHE's attitude towards external trainers may change. In addition, the donors supporting DPHE can probably influence DPHE to use the services offered by a well functioning ITN Centre.

Careful monitoring and follow-up by the RWSG-SA, Bangladesh Office can reduce the risk that the professional staff from BUET will not devote the necessary time to the ITN Centre activities. The presence of an adviser during the first year of operation, the regular reviews and the conditionality for funding of the Consolidation Phase (Phase 2) are likely to reduce the risks as well.

The risks that BUET will not be able to provide the agreed qualified specialists after 1½ years can be reduced through RWSG-SA and Danida advocacy. Furthermore, the fact that funding of the Consolidation Phase, after 2½ years, is made conditional on BUET providing the agreed inputs, is deemed to reduce this risk further.

11. ORGANIZATION AND ADMINISTRATION

11.1 ITN Board

The ITN Centre at BUET will be headed by a Board with members representing the following:

- BUET, ITN Project Director (Chairman)
- ITN Centre, Project Coordinator (Member Secretary)

9. ASSUMPTIONS AND PRECONDITIONS

9.1 Assumptions

The major assumptions for successful Project implementation are:

1. that no major institutional changes and disturbances will obstruct the implementation of the Project;
2. that the present efforts to strengthen human resource development will be supplemented by other efforts, in particular within DPHE projects supported by different donors.

9.2 Preconditions

The funding of the Consolidation Phase is made conditional on the outcome of the Establishment Phase including that BUET has provided the agreed inputs.

10. RISKS

The major risks for the Project are:

1. that some of the involved educational institutes, in spite of their declared interest in the Project, are unwilling or unable to change their curricula and syllabi in accordance with ITN Centre recommendations;
2. that the implementing organizations, particularly DPHE, will not take advantage of the training packages offered by the Project;
3. that the professional staff from BUET, working part time for the ITN Centre, will not be able to devote the necessary time to the ITN activities;
4. that BUET will not be able to provide the agreed three specialists after 1½ years or that the specialists provided will not have the necessary qualifications and experience to take over the activities when the RWSG-SA recruited consultants are withdrawn after 3 years.

11.2 ITN Staffing

The following staffing of the ITN Centre is envisaged:

Professional Staff

- Project Director (part time, minimum 25%, from the beginning of the Project, BUET);
- Curriculum Development Specialist (part-time, minimum 25%, from the beginning of the Project, BUET);
- Low-cost Technology Consultant (preferably an Executive Engineer from DPHE or equivalent) (full time, for 3 years from the beginning of the Project, RWSG-SA);
- Low-cost Technology Specialist (full time, to start after 1½ years, BUET);
- Community Development Consultant (full time, for 3 years from the beginning of the Project, RWSG-SA);
- Community Development Specialist (full time, to start after 1½ years, BUET);
- Training Consultant (full time, for 3 years from the beginning of the Project, RWSG-SA);
- Training Specialist (full time, to start after 1½ years, BUET);

Full Time Supporting Staff from the Beginning of the Project

- Project Associate, secretary (BUET);
- Project Associate, office assistant-cum-librarian (BUET);
- 2 drivers (BUET);
- 2 office attendants (BUET).

- WASAs
- Implementation, Monitoring and Evaluation Division (IMED), Planning Commission
- DPHE
- UNICEF
- BITs
- Polytechnic Institutes
- NGO Forum
- UNDP/World Bank (RWSG-SA, Bangladesh Office)
- Danish Embassy

ITN professional staff, except the Programme Coordinator, will participate in Board meetings as observers.

The Board is expected to meet every three months and discuss among others the following issues:

- semi-annual progress reports;
- semi-annual work plans;
- integration of the ITN Centre's activities in relevant institutions and departments training and educational activities;
- proposals for applied research and development projects.

While the Board is advisory, its inputs will be of considerable use to the Project Director.

commercial basis where the collaborating institutions under the ITN Centre at BUET will generate income from training courses carried out for staff and decision makers from e.g. local administrations, DPHE and NGOs.

The attempts to promote demand driven research and development activities are expected to result in future financing of some research and development activities on contract basis.

13. INDICATORS AND MEANS OF VERIFICATION

Systematic monitoring of ITN Centre activities will be carried out by RWSG-SA based on work plans and progress reports. In addition to regular monitoring, RWSG-SA will follow the project activities closely.

As a part of the detailed planning of the project implementation carried out by the project staff, the staff will, under the management of the Project Director and assisted by the expatriate advisor, identify a set of indicators for monitoring of project progress and effect. Emphasis should be given to effect indicators such as:

- use of revised curricula and syllabi;
- use of prepared educational materials, in particular the prepared student textbook;
- to what extent the project activities are reflected in the examination of the students;
- to what extent the graduated students have benefitted from the project activities in their future work;
- to what extent the teachers are gaining practical field experience and the students are doing relevant industrial attachment within the sector;
- to what extent the trained trainers are carrying out refresher training and orientation;
- to what extent gender awareness and environmental issues have been emphasized in the project activities;

Terms of Reference for the Project Director and for other professional staff are given in the TAPP.

BUET staff will be selected by BUET. In order to allow for proper sanction and recruitment of the above supporting staff their salaries will be covered by Project funds for a maximum period of 1 1/2 years. At least one of the selected BUET professional staff members should be a woman.

Long-term RWSG-SA consultants will be identified jointly by RWSG-SA and the Project Director. This staff will sign contracts with RWSG-SA but will in professional matters refer to the Project Director. At least one of the consultants should be a woman.

For smooth implementation of the Project, including coordination with RWSG-SA, one of the RWSG-SA recruited consultants should have the additional responsibility of being Project Coordinator. In professional matters the Project Coordinator will refer to the Project Director.

Short-term local consultants will be recruited to assist with special professional skills not available at the ITN Centre. Whenever short-term local consultants are used, Terms of Reference will be prepared by the ITN Centre in consultation with RWSG-SA and the consultants will be approved jointly by RWSG-SA and the ITN Centre.

During the first year of implementation, Danida will provide an expatriate advisor to support the planning, the start-up and the implementation of the ITN Centre. Terms of Reference for the adviser are given in Annex 1. The expatriate advisor will in professional matters refer to the Project Director.

12. ORGANIZATIONAL AND FINANCIAL SUSTAINABILITY

The organizational sustainability of the ITN Centre Project has been emphasized in the project design. Thus, BUET will gradually take over the staffing of the ITN Centre, either by transferring existing staff from other posts within BUET or by recruiting new staff as and when academic posts become vacant. Eventually, the ITN Centre will be merged into other BUET activities.

Initially, the ITN Centre will be financed entirely by funds from Danida and, to a minor extent, BUET. Gradually, the ITN Centre is planned to function on a semi-

- impact of the Project with regard to use of prepared curricula and training packages.

After the ITN Board has discussed the draft reports, final progress reports should be submitted to RWSG-SA and the Danish Embassy, Dhaka.

Half yearly financial statements should be prepared, audited by BUET and submitted to RWSG-SA.

14.3 Reviews

Joint Danida-UNDP/World Bank reviews are recommended after one, two and five years respectively. The financing of the activities during the Consolidation Phase (Phase 2) will be made conditional on the outcome of the first two reviews.

14.4 Evaluation

Ex-post evaluation of the ITN Centre Project is not foreseen at the present stage.

15. BUDGET AND FINANCING

15.1 Budget

The total budget for the Danida contribution to the five years of implementation amounts to USD 1,259,400. A budget breakdown is given below (in 1000 USD):

- to what extent the institutions are carrying out relevant research and development activities including whether the outcome of such activities are used by the implementing sector;
- to what extent the potential users of the ITN Centre and sub-centres are interested in using their services;
- to what extent the potential users are willing to and actually pay for these services.

The effect monitoring should be carried out on a contract basis by local consultants through sample basis studies, e.g. with one year intervals and with the first study to be carried out after 1½ years.

14. PLANNING, REPORTING, REVIEWS AND EVALUATION

14.1 Planning

The ITN Centre activities should be planned in detail through rolling work plans to be prepared by the ITN Centre staff in collaboration with the BITs, the Polytechnic Institutes, DPHE and UNICEF. Each rolling work plan should cover a period of 12 months. The plans should include detailed planning for the first 6 months and outline planning for the subsequent 6 months. The work plans should be updated every 6 months.

The draft work plans should be discussed at ITN Board meetings, ref. to paragraph 11.1, before final approval by the Project Director.

14.2 Reporting

The ITN Centre project staff should prepare draft semi-annual progress reports to be submitted to the ITN Board. The reports should particularly emphasize:

- achievements in relation to the work plans;
- problems and constraints encountered;

The budget has been prepared under the assumption that the ITN Centre will have no income from consultancy services during the first 5 years. During the Establishment Phase (the first 2½ years), emphasis will be on establishing the Centre and convincing sector organizations and donors that the Centre has something to offer. During this period the income generation by the Centre may be modest. However, during the Consolidation Phase (the next 2½ years) the Centre is likely to generate some income from consultancy services in relation to human resource development.

15.2 Financial Arrangements

The ITN Centre will prepare semi-annual budget proposals. The proposals will be submitted to the RWSG-SA for approval. Approval of the budgets is a prerequisite for the disbursement of funds.

Project personnel appointments, procurement of equipment, overall financial management and adjustments in budgetary re-allocation should be managed by the Project Director and Project Coordinator through RWSG-SA for smooth and speedy functioning of project activities.

16. ACCOUNTING AND AUDITING

The ITN accounts should be audited by BUET and audits submitted to the UNDP/World Bank RWSG-SA within 12 months after receipt of each disbursement.

17. PLAN OF IMPLEMENTATION

The Project is subdivided into three phases as follows:

1. Establishment Phase, Phase 1 (2 1/2 years);
2. Consolidation Phase, Phase 2 (2 1/2 years);
3. Operational Phase, Phase 3 (after 5 years).

The Project director supported by the ITN Centre staff and the Danida adviser will prepare a plan of implementation at the start of the Project.

	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Project staff	83.7	75.3	70.3	16.0	15.0	260.3
Trainers' training	27.1	24.9	22.4	20.2	18.2	112.8
Training and orientation courses	6.5	12.8	12.8	12.8	12.8	57.7
Staff travels	9.7	9.7	9.7	9.7	9.7	48.5
National consultants	9.0	11.0	9.5	9.5	9.5	48.5
Equipment and consumable	64.4	11.0	11.0	11.0	11.0	108.4
Research and development	5.0	20.0	30.0	30.0	30.0	115.0
Vehicles including O&M	42.5	5.5	6.1	6.7	7.4	68.2
Training materials	70.0	10.0	5.0	5.0	5.0	95.0
Educational materials	10.0	0.0	6.0	0.0	0.0	16.0
Expatriate consultants	Nil	50.0	50.0	40.0	20.0	160.0
Contingencies 5%	16.4	11.5	11.6	8.1	6.9	54.5
SUB-TOTAL	344.3	241.7	244.4	169.0	145.5	1,144.9
UNDP/WB 10% service charge	34.4	24.2	24.4	16.9	14.6	114.5
TOTAL	378.7	265.9	268.8	185.9	-160.1	1,259.4

- revision of existing curricula and syllabi on the basis of needs assessment;
- purchase of basic library sets for the educational institution;
- preparing educational materials including a student textbook specially designed for the Bangladeshi context;
- training of trainers for: i) in-service refresher training of engineers and other professionals, and ii) orientation courses for local decision makers;
- survey of the applied research and development work carried out by educational engineering institutions and assessment of the potential for involving these institutions further;
- issues relating to gender awareness and environment.

Reporting

At the end of the assignment, the Adviser should prepare a report emphasizing:

- the general progress of the Project;
- problems and constraints encountered, in particular those which may endanger the achievement of the outputs envisaged;
- deviations from the activities listed in the Project Document.

Timing

The duration of the advisory services will amount to 1 year starting early 1996.

TERMS OF REFERENCE FOR ITN CENTRE EXPATRIATE ADVISER**Background**

The UNDP/World Bank is establishing a global International Training Network within the water supply and sanitation sector. As a part of this network, an ITN Centre is being established at the Bangladesh University of Engineering and Technology (BUET) with financial assistance from Danida.

The ITN Centre will during the first 1½ years be run on a part time basis by staff from BUET supported by Bangladeshi consultants for a period of three years. The Centre will be supported by the UNDP/World Bank Regional Water and Sanitation Group - South Asia (RWSG-SA) through its Bangladesh office. Furthermore, the Centre will during the first year be supported by a Danida adviser.

Scope of Work

The Adviser will refer to the Bangladeshi Project Director and work closely together with the following Bangladeshi professionals: Curriculum Development Specialist, Low-cost Technology Consultant, Community Development Consultant and Training Consultant. The Adviser will also liaise closely with the RWSG-SA Bangladesh Office. The Adviser will take part in the daily professional work at the ITN Centre. In particular he/she will advise on:

- how to link the Environmental Engineering Division of BUET with other programmes and activities within the water and sanitation sector in Bangladesh;
- organizing the ITN Centre at BUET and establishing sub-centres at some of the engineering educational institutions;
- preparing of work plans;
- establishing a monitoring system with special emphasis on effect monitoring including identification of indicators for assessment of the progress and the effect of the Project;