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HEALTH OPPORTUNITIES IN WATER RESOURCES DEVELOPMENT

An 18-day course
to promote collaboration between middle-level officials from various ministries for the incorporation of health safeguards and health promotional measures in water resources development projects

WATER AND LAND MANAGEMENT INSTITUTE
AURANGABAD, INDIA
9-27 NOVEMBER 1997

organized by

the joint WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control, the Danish Bilharziasis Laboratory and the Health Impact Programme of the Liverpool School of Tropical Medicine

in collaboration with

The Malaria Research Centre (ICMR), Delhi
The Water and Land Management Institute (WALMI), Aurangabad
The International Commission on Irrigation and Drainage (ICID), Delhi

PEEM Secretariat
World Health Organization
Geneva, 1999

WHO FAO UNEP UNCHS (Habitat)

About PEEM

The joint WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control (PEEM) was established in 1981 to create a framework for inter-agency and inter-institutional collaboration with a view to promoting the extensive use of environmental management for disease vector control as a health safeguard in the context of land and water resources development projects and for the promotion of health through agricultural, environmental, human settlement, urbanization and health programmes and projects. The collaboration originates from memoranda of understanding between three agencies (WHO, FAO and UNEP) covering the areas of prevention and control of water-borne and water-associated diseases in agricultural development, rural water supply and waste water use in agriculture, forestry and aquaculture. In 1991 the three agencies were joined by UNCHS and PEEM's mandate was expanded accordingly to include human settlements, urbanization and urban environmental management including urban water supply, sanitation, drainage and solid waste disposal.

The development and organization of the training course *Health Opportunities in Water Resources Development* is part of the capacity building component of the Panel's Programme of Work. The Secretariat of the Panel is located at WHO headquarters in Geneva, Switzerland.

About DBL

Established in 1964, the Danish Bilharziasis Laboratory (DBL) is a private foundation working on water-related, vector-borne parasitic diseases that prevail in the tropics. It specializes in training, research and technical cooperation and offers its expertise in these areas in collaboration with partner institutions in the developing countries. DBL is officially associated with the Faculty of Natural Sciences of the University of Copenhagen and is financed primarily by the Danish International Development Assistance (Danida) of the Ministry of Foreign Affairs. The core of DBL's training programme consists of its course activities and workshops, including Diploma courses offered in Denmark and Certificate courses organized in a number of countries in Africa.

About the Liverpool School of Tropical Medicine

The Liverpool School of Tropical Medicine is a charity established in 1898 to provide education and training, and technical assistance and to carry out research with a view to promoting improved health, particularly for peoples of the less developed countries. It is affiliated with the University of Liverpool and it is a post-graduate centre of excellence in the field tropical medicine. Each year it welcomes over 500 students from more than 50 countries. Research at the School is funded by many bodies including DFID, MRC, WHO, EU and Wellcome Trust. It is involved in field research throughout the tropics.

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ACKNOWLEDGEMENTS

The organizers of the course would like to gratefully acknowledge the support received from the Danish Ministry of Foreign Affairs/Danish International Development Assistance (Danida), through their budget allocation to the Danish Bilharziasis Laboratory, and from the Liverpool School of Tropical Medicine. The continued support provided by Professor Charles Engel ensured steady progress in the development of the course.

The organizers would also like to express their appreciation for the substantial contributions made by Dr V.P. Sharma, then Director, currently Emeritus Scientist, Malaria Research Centre (ICMR), Delhi, who served as the national course coordinator, and the staff of the Malaria Research Centre (ICMR), both in Delhi and in the relevant MRC field stations.

The Director-General of WALMI and his staff all worked enthusiastically towards creating conditions that were conducive to the success of the course; in this connection the smooth and productive collaboration with Professor S.G. Boghle, Head, Faculty of Social Sciences, who assured the day-to-day link between the organizers and WALMI, deserves special recognition.

SUMMARY

The fifth PEEM/DBL/HIP training course "Health opportunities in water resources development" was held in Aurangabad from 9 to 27 November 1997 for 20 participants from four States of India: Gujarat, Maharashthra, Rajasthan and Tamil Nadu. During 18 days the participants worked in intersectoral groups on six planning-related tasks, in the context of a project for the development of water resources from each State. The tasks reflect decision-making moments in the project cycle of water resources development which provide a critical opportunity for the incorporation of human health considerations.

In addition to its specific capacity building goals, this course also had a number of objectives in the on-going process of developing a definitive package of course materials that can be implemented by countries without major external inputs:

- in the preparatory phase, to test whether this course on intersectoral decision making processes can be organized placing the contents in a different context
- to assess whether the course methodology and materials, developed on experiences in Africa and Central America, can be applied without any modifications in the culturally different setting of an Asian country
- to complete the training materials and the outline for the final course guide, so that the product of five years course development and testing can be published in 1998

In order to meet these development goals, preparations for the course started with an investigation of the option to run it in an urban context, under the title: *Health opportunities in urban planning and management.* This included a visit to Gujarat, where meetings with representatives of the Municipal Corporation of Ahmedabad (Gujarat State) were held, and the collection of more information on urban planning in different countries in Asia by means of a questionnaire. The conclusion of this exercise was that the transformation of the course to the urban context -in principle feasible, and certainly most desirable in view of rapid urbanization and the serious health problems in peri-urban settlements- would require more resources and time than anticipated and would cause a major delay in the agreed timetable for the production of the final course materials. It was therefore decided to remain within the original course context

and to leave the transformation and testing of the course in a different context for a next phase.

Subsequent preparatory activities included visits by one of the international organizers to three of the four States selected; the fourth one (Tamil Nadu) was handled by the national coordinator. In each State, focal points were designated, who took care of the collection of documentation for each individual water resources project, the nomination of participants from the different Departments and the logistics of their travel to Aurangabad. MRC Delhi coordinated clearances, letters of invitation to participants, and the selection and contracting of local experts.

The PEEM Secretariat, DBL and the Liverpool School kept their inputs to a minimum: updating of the training materials, transfer of funds and some technical advice.

The course programme was carried out smoothly. The international organizers were present full time and used the occasion for intense review sessions to complete the training materials. Similar to the previous course in Honduras, the field trips to irrigation schemes closeby Aurangabad were of generic value rather than of immediate relevance to the Tasks.

This course showed that the course methodology is truly universally applicable and that the Tasks developed for middle level managers of central government ministries are also valid in a more decentralized setting. Last minute cancellation by some of the local resource persons provided an unplanned opportunity to prove that their role is essential in the setting of a problem-based learning approach. And finally, the added value was demonstrated of the joint organization of this intersectoral management course by a health and an agricultural institution.

The quality of the outputs of all groups was of a high standard, and, following the course, the generic terms of reference for health impact assessment of water resources development have been forwarded to the relevant authorities in India. The WALMI management has expressed its interest to repeat the course as part of its own programme and eventually this may lead to its dissemination to other WALMIs in India.

PROCEEDINGS OF THE COURSE

INTRODUCTION

The fifh training course "Health opportunities in water resources development" was held at the *Water and Land Management Institute* (WALMI) in Aurangabad, Maharashthra State, India from 9 to 28 November 1997. It was organized by the WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control (PEEM), the Danish Bilharziasis Laboratory (DBL) and the Liverpool School of Tropical Medicine. Local counterparts were the Malaria Research Centre (MRC) of the Indian Council of Medical Research (ICMR), Delhi and WALMI, Aurangabad. The International Commission on Irrigation and Drainage (ICID) with its secretariat in Delhi, accepted to be patron of the course.

Twenty participants from four States in India attended the course: the States were Gujarat, Maharashthra, Rajasthan and Tamil Nadu.

This was the fifth and last in a series of trial courses; previous courses were held in Zimbabwe (1992), Ghana (1994), Tanzania (1995) and Honduras (1996); reports of these courses can be obtained from the PEEM Secretariat, WHO, Geneva.

The course objectives remained unchanged and are described in more detail in the reports of previous courses (WHO, 1992, 1994, 1995 and 1996). In educational terms, the course aimed to develop the capacity of each participant, irrespective of his/her sectoral affiliation, to adequately participate in the intersectoral decision-making process of water resources development projects, in particular: to contribute to the decision on the need for an in-depth health impact assessment, to the appraisal of the HIA report and its recommendations, to the formulation of HIA Terms of Reference and to the preparation of an intersectoral action plan, focusing on the implementation of health risk management measures and monitoring of the health status of affected communities.

The course methodology built on the experience gained in previous courses with the task-oriented, problem-based learning approach. It also had a set of course development objectives, which included:

- to assess whether the principles of strengthening managerial capacity for intersectoral decision making can be applied in another context, for example urban planning

- to test whether, in a large country like India, the course can be run on a sub-national basis, even though some procedures may take place at the level of central government

- to assess whether joint organization of the course by a local health and a local agricultural institution provides addedd benefit in terms of course organization and quality

- to run the course with a broader scope for the health component, i.e. beyond water resources development associated vector-borne diseases, to cover other water resources related health issues

The groups were organized by State and worked on the six course Tasks in the same composition throughout the course, assisted by a non-expert tutor assigned to them. It had been the intention to have one group for each State. Due to some last minute cancellations of nominated participants, however, one of the groups (Maharashthra) lacked sufficient multisectoral representation needed for an effective learning process. It was, therefore, decided to merge this group with the one from Gujarat. This was a functional solution that allowed the participants from Maharashthra State to benefit from the course and, in effect, permitted more time during the plenary sessions, because there were only three Task reports to present and discuss. It was, however, not optimal in that the Maharashthra participants identified less with the tasks (which were carried out in the context of a Gujarati water resources project). This came to expression in the quality of the Task work delivered by this group. Also, the network-building purpose of the group work was, to some extent, lost. This experience underscored the need for safeguards in the process of nominating and designating participants (and possible reserves), to ensure a critical mix of disciplines and sectors in each group. One of the designated participants from Maharashthra wanted to join in the second week of the course. This was refused by the organizers, on the grounds that this would disrupt the process of group bonding that is one of the basic principles of the course.

Gender balance was not satisfactory in any of the groups. Only one out of the twenty participants was female (Dr Aruna Basu Sarcar from Tamil Nadu). Considering the efforts by the organizers to promote the nomination of female candidates for participation in the course (the issue was stressed during initial visits to government departments, in the formal letters of invitation and in the follow-up by the national course coordinator), it can only be concluded that the male dominance is a reflection of the actual composition of mid-level management in government departments in India.

The groups were given six Tasks during the 18 day period, as reflected in the course programme (annex 2). These Tasks were updated, but similar versions of those used in the previous course and included:

1. Constructing a framework for comprehensive development planning
2. Rapid Health Impact Assessment: a preliminary step
3. Technical appraisal of an HIA report
4. Appraisal of the economic evaluation component of an HIA report
5. Formulation of generic Terms of Reference for a Health Impact Assessment
6. Intervention and monitoring: formulation of a plan for intersectoral action.

The Tasks reflect critical decision-making moments and procedures in the planning of a water resources development project. Through the structure and contents of the Task guides, they aim to generate an intersectoral dialogue so that health risks and opportunities are effectively assessed and health protective and promotional activities can be integrated into project planning and implementation.

Four of the six Tasks were carried out in the context of a proposed water resources development project, and the three projects used were the Dholisamel Water Resources Project in Gujarat (for the combined Gujarat/Maharashthra group), the Som Kamla Amba Irrigation Project in Rajasthan and the Mordhana Reservoir Project in Tamil Nadu.

Three of the six local resource persons scheduled to join the course at specific periods relating the the Task programme cancelled last minute and could not be replaced at short notice. Tasks 1 and 4 were particularly handicapped by the absence of appropriate resource persons. Without it being intended this way, this proved the great value of local resource persons in the course methodology. Even though their role is strictly passive (they will only respond to questions from the groups), their function is essential in filling the knowledge gaps that the groups inevitably will come across in their Task work.

Those who attended were Dr Ram Boojh (for Tasks 2 and 3), Dr (Ms) Pratima Naidu (for Tasks 3 and 6) and Dr Dinesh Paul (for Task 6). Professor SA.R. Suryavanshi of WALMI kindly agreed to be a local resource person for Tasks 3 and 6.

Each group was accompanied by a non-expert tutor during the first five Tasks and they had access to resource persons and a provisional course library. The briefing of the non-expert tutors went according to schedule and provides a good check of the clarity of the course materials and the consistency of the methodology.

COURSE PREPARATIONS

In preparing for the fourth course (Central America, June 1996) in March 1996, the international organizers decided in principle to focus the fifth course on strengthening the generic value of the course as a capacity building tool in the promotion of intersectoral collaboration. This would imply testing out the same generic contents in a different specific context. It was also decided to organize the fifth course in India.

A visit by two of the international organizers to India in September 1996 (accompanied by the local counterpart, Dr V.P. Sharma, then Director MRC) aimed to explore options of running the course in the context of urbanization. Specifically, the objectives of this India visit included:

- to learn about urban planning procedures in general and more specifically, in the cities of Gujarat; to assess whether the project cycle concept on which the course materials are based also applied at the urban planning level

- to collect information on the nature and magnitude of urban health problems in India, particularly in the cities of Gujarat

- to clarify and possibly define the profile of potential course participants and to decide which authorities, institutions and/or organizations should be represented at the course.

The observations of this visit are summarized below (*Urbanization in India*). These were reported to the organizers at the evaluation meeting of he Central America course, in the second half of September 1996.

Urbanization in India

According to a 1991 census in India, there are over 300 cities with a population over 100,000, 23 cities with a million or more inhabitants and the four megacities Calcutta, Mumbai, Delhi and Chennai (formerly Madras) each with over 5 million inhabitants. All added up, the rural/urban ratio in India is 60?40, but this is expected to be reversed early in the next century.

The transition from a rural to an urban society is disruptive in an economic and in a social sense. Financial support for the rural areas comes from the Central Government and from the State Governments. This support is discontinued without any compensation the moment a human settlement is declared a town. Only big cities, managed by a municipal corporation, generate their own income and can provide some level of services. An undefined situation similar to that of small towns and cities exists around big urban areas - major urbanization processes are taking place in these peri-urban areas athat are not under the jurisdiction of the Municipal Corporation. In these areas, urban development authorities are operational. Their activities depend on the willingness of the municipalities making up the peri-urban area to implement their plans. Communication between a municipal corporation of a large city and the urban development authorities is poor as a general rule.

Urban planning is equivalent to physical planning, i.e. devising land use patterns on the basis of which licences for the development of residential, industrial, public utility or recreational areas are issued. State approved masterplans and subsequent licensing in accordance from masterplan zoning cannot prevent unlicensed construction to take place, partly

because means for rule enforcement are lacking and partly because demolition of unlicensed constructions is politically unacceptable.

The origins of urban planning lie in the need to create sanitary conditions, but the appreciation of human health hazards resulting from faulty urban planning was lost in the wake of the large scale application of residual insecticides. Health has disappeared from the agenda of the urban planner to the extent that nowadays often not even the contours of the terrain, crucial for the master drainage plan, are being taken into account.

Bylaws that regulated littering or provided specifications for mosquito-proof rooftop drinking water tanks no longer play their preventive role. At the grass roots level, urban illiteracy (estimated at 20% in a city like Delhi, i.e. two million people) hampers community education in basic sanitation.

With respect to water: of Delhi's daily use of 30 billion liters, some 20 billion liters of waste water is produced of which only 2 billion is collected and treated - the rest ends up in the Yamuna River. In Ahmedabad, the second level aquifer(the first level one is too polluted) drops by 9 feet every year.

Intersectoral collaboration within municipal corporations is hampered by heavy core workloads and lack of capacity to work in an intersectoral manner. The picture is further complicated by the fact that numerous State, autonomous and private sector institutions manage their own areas in town.

Environmental Impact Assessment is not part of the urban planning process and local authorities lack the capacity to take it on. It would appear difficult to include EIA into the planning process since that lacks a clear structure itself.

Based on the information collected, the international organizers recommended to further investigate the nature and structure of urban planning and management in Asia through a questionnaire. This should elucidate whether the Indian situation was representative and what the implications would be of changing the course context. It was also decided to shift the dates of the course to November 1997.

The information subsequently gathered by means of the questionnaire provided a clear indication that urban planning and management in other Asian countries presents the same picture: un-structured, a lack of capacity and jurisdiction and no

role for environmental assessments. Based on an analysis of this information the international organizers decided that testing the course in the context of urban planning and management at this stage would delay the completion and publication of the course materials for too long. While a good partner had been identified in the School of Planning of the Centre for Environmental Planning and Technology in Ahmedabad, the adaptation of the course materials would have required further research and development over a period of some six months.

THE COURSE PROGRAMME

Preliminaries

Two non-expert tutors had been made available by WALMI and two by the MRC. They received their induction on the Saturday and Sunday prior to the start of the course. This was a good opportunity to (1) document the process of induction for the Manual of the training course and (2) scan the training materials for any inconsistencies or lack of clarity. It also served to create a good relationship with the tutors, so they would feel part of the organizing team and feel comfortable in their "bridge" function between the participants and the organizers.

The course was opened on Monday 10 November, with statements by Mr M.K. Kulkarni (Chief Engineer and Director, WALMI), Mr R. Bos (on behalf of WHO/PEEM), Mrs G. Gotsche (on behalf of the Embassy of the Kingdom of Denmark and the DBL) and Dr V.P. Sharma (Director MRC). The inaugural speech for the official opening of the course was delivered by Mr M.A. Chitale, Secretary-General of the International Commission on Irrigation and Drainage.

Course proceedings

After the initial introduction on the first day of the course, the task-oriented, problem-based learning methodology did not create any difficulties. The groups rapidly picked up the idea of what was expected of them and communicated very well with the tutors and through these with the course organizers.

The preparation of letters of remit on official stationary of the health ministries and the national environment councils was a non-starter in India. Instead, for tasks 2, 3 and 4, 5, and 6 letters were prepared on paper with the MRC letterhead, and they were signed by its Director, Dr V.P. Sharma. This did not devalue the letters in the eyes of the participants, and some groups made sure to have their Task reports always accompanied by a cover letter responding to the original request.

The daily routine of plenary sessions at 8.30 and 14.00 hrs followed by group work was maintained with punctuality. Contacts between the participants and the organizers outside of course hours were, however, less frequent than in previous courses because the lodging places were quite separate on the WALMI campus.

The presentation of Task reports remained within the originally outlined programme, i.e. for each group fifteen minutes of presentation and fifteen minutes of discussion. After the first two series of presentations, feed-back was given to the groups about presentation techniques, which was rapidly assimilated in subsequent Task presentations. For some of the presentations highlevel authorities were brought in: for Task 2 Dr P.P. Doke, joint Director, Health Services, Government of Maharashthra, Pune; for Task 3 Mr M. Hota, Ministry of the Environment, Government of India, Delhi; and, for the final presentations of Task 6 a Panel in which Mr Furu was joined by Dr Arum Kandiah (FAO, Rome) and local resource persons Dr Dinesh Paul and Dr A.R. Suryavanshi.

Tasks 1 and 4 proved to be the most tedious, because of the absence of local resource persons and, for Task 4, the subject matter. The organizers concluded that in spite of various updates the contents of Task 4 was still too technically oriented on issues of health economics, and too little focused on the relevant decision making procedures in this domain. Task 3 and 4 (appraisal of an HIA report) therefore needed reconsideration, a better segregation of issues and a re-write of the health economics aspects.

As in previous courses, a debate was organized with the goal of lifting everybody's spirits in a half-serious/half entertaining activity.

The last week, with the end of the course in sight, groups worked with renewed energy on Tasks 5 and 6. After completing Task 5, the tutors separated from the groups and were given their own assignment, i.e. to consolidate a regional set of generic terms of reference for health impact assessment. The final plenary session, in the presence of one of the vice-ministers of health, resulted in solid presentations by all groups, with realistic intersectoral action plans.

The presentation of certificates of successful participation was followed by a formal dinner and a more informal social gathering afterwards.

In terms of recreational activities the course offered a visit to the nearby caves of Ellora and the frescoes in the Ajanta caves.

Field trips

The first field trip, linked to Task 2 (Rapid Health Impact Assessment) took the participants to the *Shivna (Takli) Medium Irrigation Project*, in a drought prone area near the Shivna river. The background to this project included a socio-economic baseline study that had been sponsored by the Irrigation Department in 1984. This study describes the pre-project situation but made no attempt to forecast the environmental or health impact of the project. The Government of India Central Water Commissioned conducted an economic appraisal in 1994 and approved the project. The project consists of the construction of and earthen and masonry dam with a flood spillway and left and right bank unlined canals. The entire catchment

amounts to 574 square kilometers with an irrigable command area of 6600 hectares. There is a provision for drinking water storage for the nearby Ellora Water Supply Scheme. On the whole, 4579 people in 686 families spread over five villages will have to be resettled. Resettlement had been planned nearby at a higher elevation, but land had not been acquired. Land of four other villages is partly affected. Water courses, field channels and drains are included. Ground water depth is about 10 meters and falling, a trend that will be stabilized or reversed by the project. The construction will take seven years, and the benefit cost ratio is 1.2, with an internal rate of return of 10.96%.

Here the groups rotated in visits to the Office of the Engineer, the private doctor (the Government doctor, also invited, did not show up) and the inhabitants of one of the resettlement villages. They also walked along the dam site, the Old Vaispur village and the quarters of the construction workers for direct observations.

The visit to the *Sukhna Medium Project,* linked to Task 6, aimed at identifying health hazards and risks in an operational irrigation scheme by direct observations and interviewing key informants, identifying opportunities for safeguards and mitigating measures that were missed in the project's planning and design, and, relating the outcome of the visit the the needs for intersectoral monitoring in Task 6.

This scheme, on the Sukhna river, has an irrigable command area of 2510 hectares, where a variety of crops are cultivated, among which cotton. The scheme dates back to the mid-1960s. The groups rotated among four sites: the Irrigation Office, the Primary Health Care Centre, the Office of the Multipurpose Cooperatio Society (farmer representatives) and a drinking water reservoir close to one of the villages. Increased economic welfare was reflected in the use of private practitioners rather than the local PHC centre.

Outputs

The individual group reports of the various Tasks are all on file with the organizers. The generic terms of reference for health impact assessment, as consolidated from the individual group TORs by the tutors, have been distributed to the relevant Indian authorities for their consideration as a basis for possible HIA regulations at the GOI or State level.

EVALUATION

Evaluation exercises included a mid-term nominal group session and a final evaluation with multiple choice and open questions for the participants, and debriefings of the local resource persons and non-expert tutors. The aim was an appraisal of the *acceptability, effectiveness* and *efficiency* of the course. The results can be found in Annex 3.

ANNEX 1

LIST OF PARTICIPANTS AND ORGANIZERS

List of Participants

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ANNEX 2

PROGRAMME AND MATERIALS

Course on Health Opportunities in Water Resources Development
Water and Land Management Institute, Aurangabad
10 - 27 November 1997

Day-to-day programme

Saturday 8 and Sunday 9 November

Induction of the tutors in two full day sessions.

Monday, 10 November

08:00-08:45 Registration of participants

09:00-12:30 Plenary session

09:00-10:00 Official opening, with the following programme:
Opening statement by Mr M. Kulkarni, Chief Engineer and Director of WALMI

Opening statement on behalf of the representative of the WHO in India

Opening statement on behalf of the Ambassador of the Kingdom of Denmark in India

Opening statement by Dr V.P. Sharma, Director, Malaria Research Centre (MRC/ICMR), Delhi

Inaugural speech by Dr M.A. Chitale, Secretary General of the International Commission on Irrigation and Drainage

10:00-10:45 Refreshments

10:45-11:45 Introduction of the course:
objectives, scope, structure, method of working and evaluation

11:45-12:30 Video: *Disease and development: a critical connection*

12:30-14:00 Lunch

14:00-14:30 Plenary session

14:30-17:30 Group work on Task 1

Tuesday, 11 November

09:00-09:30 Plenary session

09:30-12:30 Group work on Task 1

12:30-14:00 Lunch

14:00-18:00 Plenary session

14:00-14:30	Construction of a comprehensive development planning framework for water resources development in Gujarat
14:30-15:00	Construction of a comprehensive development planning framework for water resources development in Maharasthra
15:00-15:20	Break
15:20-15:50	Construction of a comprehensive development planning framework for water resources development in Rajasthan
15:50-16:20	Construction of a comprehensive development planning framework for water resources development in Tamil Nadu
16:20-16:50	General concluding discussion

16:50-17:15 Briefing on Task 2

17:15-18:00 Initial evaluation session

Wednesday, 12 November

09:00-09:30 Plenary session

09:30-12:30 Group work on Task 2

12:30-14:00 Lunch

14:00-14:30 Plenary session

14:30-18:00 Group work on Task 2

Thursday, 13 November

09:00-09:30 Plenary session

09:30-12:30 Group work on Task 2

12:30-14:00 Lunch

14:00-14:45 Plenary session, including briefing on next day's field trip

14:45-18:00 Group work on Task 2

Friday, 14 November

Holiday

Saturday, 15 November

Field trip to a closeby area where an irrigation project is planned (Shivna Takle Project)

Sunday, 16 November

09:00-09:30 Plenary session, including de-briefing of field trip

09:30-12:30 Group work on Task 2

12:30-14:00 Lunch

14:00-14:30 Plenary session

14:30-18:00 Group work on Task 2

Monday, 17 November

09:00-12:30 Plenary session

09:00-10:30	Presentation reports on Task 2 and discussion
10:30-11:00	Break
11:00-11:30	Presentation reports on Task 2 and discussion (continued)
11:30-12:30	Evaluation first week (nominal group process)

12:30-14:00 Lunch

14:00-14:30 Plenary session: Briefing on Task 3

14:30-18:00 Group work on Task 3

Tuesday, 18 November

09:00-09:30 Plenary session

09:30-12:30 Group work on Task 3

12:30-14:00 Lunch

14:00-14:30 Plenary session

14:30-18:00 Group work on Task 3

Wednesday, 19 November

09:00-12:00 Plenary session

09:00-10:30	Presentation technical appraisals prepared for Task 3 and discussion
10:30-11:00	Break
11:00-11:30	Presentation technical appraisals prepared for Task 3 and discussion (continued)
11:30-12:00	Briefing on Task 4

12:00-12:30 Group work on Task 4

12:30-14:00 Lunch

14:00-18:00 Group work on Task 4

Thursday, 20 November

09:00-09:30 Plenary session

09:30-12:30 Group work on Task 4

12:30-14:00 Lunch

14:00-14:30 Plenary session

14:30-18:00 Group work on Task 4

Friday, 21 November

09:00-11:45 Plenary session

09:00-10:30	Presentation economic appraisals prepared for Task 4 and discussion

10:30-11:00	Break
11:00-11:30	Presentation economic appraisals prepared for Task 4 and discussion (continued)
11:30-11:45	Briefing on Task 5

11:45-12:30 Group work on Task 5

12:30-14:00 Lunch

14:00-14:30 Plenary session

14:30-18:00 Group work on Task 5

Saturday, 22 November

09:00-09:30 Plenary session

09:30-12:30 Group work on Task 5

12:30-14:00 Lunch

14:00-15:00 Group work on Task 5

15:00-15:30 Break

15:30-18:00 Plenary session: presentation of generic terms of reference and discussion

Sunday, 23 November

Holiday

Monday, 24 November

09:00-09:30 Plenary session: briefing on Task 6

09:30-12:30 Group work on Task 6

12:30-14:00 Lunch

14:00-14:45 Plenary session: briefing on next day's field trip

14:45-18:00 Group work on Task 6

Tuesday, 25 November

Field trip to a closeby operational irrigation scheme, the Sukhna Irrigation Scheme

Wednesday, 26 November

09:00-09:45 Plenary session: de-briefing of the previous day's field trip

09:45-12:30 Group work on Task 6

12:30-14:00 Lunch

14:00-14:30 Plenary session

14:30-18:00 Group work on Task 6

Thursday, 27 November

09:00-11:30 Plenary session

09:00-10:00	Presentation of intersectoral action plans prepared for Task 6 and discussion
10:00-10:30	Break
10:30-11:30	Presentation of intersectoral action plans prepared for Task 6 and discussion (*continued*)

12:00-14:00 Lunch

14:00-16:00 Evaluation by participants

16:00-17:00 Reflection on the overall course and options for follow-up

In the evening: Official closing dinner, with presentation of certificates

Friday, 28 November

Departure from Aurangabad

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LIST OF PUBLICATIONS AVAILABLE IN THE COURSE LIBRARY

Asian Development Bank (1992). *Manual of Epidemiology for District Health Management.* WHO, Geneva.

Cooper-Weil, D.E., Alicbusan, A.P., Wilson, J.F., Reich, M.R. and Bradley, D.J. (1990). *The Impact of Development Policies on Health.* A Review of the Literature. WHO,Geneva.

Ghosh, B. (1991). *Health Implications of Public Policy. Case Studies, Modules, Methodologies.* Indian Institute of Management,Bangalore.

Hunter, J.M., Rey, L., Chu, K.Y., Adekolu-John, E.O., Mott, K.E. (1993). *Parasitic Diseases and Water Resources Development. The need for intersectoral negotiation. World Health Organization, Geneva*

Jobin, W.R. (1992). *Irrigation Planning and Prevention of Bilharzia.* Blue Nile Handbook One. Blue Nile Associates, Foxboro, Massachussetts, USA.

Jobin, W.R. (1992). *Bilharzia Prevention and Hydroelectrics Reservoirs.* Handbook Two. Blue Nile Associates, Foxboro,USA.

Lipton, M., and de Kadt, E. (1988). *Agriculture-Health Linkages.* WHO, Geneva.

Vaughan, J.P., Morrow, R.H. (1989). *Manual of Epidemiology for District Health Management.* WHO, Geneva.

World Bank (1993). World Development Report 1993. *Investing in Health.* Summary report. World Bank, Washington D.C.

World Bank (1993). World Development Report 1993. *Investing in Health.* Full report. World Bank, Washington D.C.

World Health Organization (1982). *Environmental Management for Mosquito Control.* WHO Offset Publication 66, WHO, Geneva

World Health Organization (1987). Technical Discussions of the 3rd, 4th, 5th and 6th PEEM meetings. WHO, Geneva

World Health Organization (1988). *Environmental Management for Vector Control.* VBC Slide Set Series, WHO, Geneva

World Health Organization (1992). *Health: A Conditionaly for Economic Development: Breaking the Cycle of Poverty and Inequity.* WHO,Geneva.

World Health Organization (1992). *Our Planet, Our Health.* Summary report of the WHO Commission on Health and Environment. WHO, Geneva.

World Health Organization (1992). *Our Planet, Our Health.* Full report of the WHO Commission on Health and Environment. WHO, Geneva.

World Health Organization (1992). *WHO Commission on Health and Enviroment.* Report of the Panel on Food and Agriculture to the WHO Commission on Health and Environment. WHO, Geneva.

World Health Organization (1992). *Health Dimensions of Economic Reform.* WHO, Geneva.

PROJECT DOCUMENTS

Gujarat

Dholisamel Water Resources Project

1. Volume I. - Report
2. Volume IIa - Appendix
3. Volume IIb - Appendix
4. Volume III - Estimates
5. Volume IV - Plans

Rajasthan

Project documents of the Som Kamla Amba Irrigation Project

Tamil Nadu

Project documents of the Mordhana Reservoir Project in Tamil Nadu

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ANNEX 3

EVALUATION

Following are the results of the various evaluation components carried out and analysed by Professor Charles Engel.

Acceptability of the Course

All participants were present at a Nominal Group session at the half way mark of the course. Each participants was asked to nominate up to three aspects of the course which were so positive that it should be retained in future courses and up to three aspects that were so negative that they would need to be changed. When these positive and negative perceptions had been listed and any ambiguities had been clarified, the group identified its corporate view of importance, as recorded below.

Positive

20 Structure of the course
20 Course well designed and planned
20 Emphasis on health
20 Discipline and punctuality
20 Methods encouraging active participation
20 Interaction between the participants
20 Opportunity to represent different points of view
20 Communication between participants and the staff
20 The enthusiasm and commitment of the participants
20 The presence of international experts
20 Reference material
12 The field trips
6 The weather and physical environment

Negative

20 Course too long
20 Board and lodging inadequate
20 Inadequate transport for field trip
20 Absence of the medical officer at the field site
20 Distance from, and inadequate transport facilities to, nearest town
12 Group sessions too long
12 Lack of entertainment
11 Not enough time to study all the reference material
11 No advance information about the course
11 No advance access to the course materials
9 Vegetarian food only
8 Mosquitoes
7 Poor gender balance (only one female participant)

Many of the mid-course perceptions were mirrored in the end-of-course questionnaire. All participants (20) responded to the six open-ended questions and one question which offered choices related to comparison of the course with previously attended courses. Major responses only are listed here.

1. *What have you gained from the course?*
   Knowledge about HIA (17)
   Skills for intersectoral collaboration (13)
   Knowledge about health hazards (8)
   Knowledge about health opportunities (7)
   Fewer than five participants mentioned skills in how to tackle problems analytically and systematically, how to design Terms of Reference and Plans of Action, how to present reports.

2. *Which three aspects of the course did you find particularly good/interesting/beneficial?*
   The educational method (11)
   Intersectoral collaborative approach (8)
   Team work and learning by discussion (7)
   The course material (6)
   Learning how to present reports (6)
   The international resource persons (6)

3. *How could the course be improved?*
   Reduce the length (e.g. 10 days) (9)
   Use more appropriate venue for accommodation and catering (5)
   Only one or two suggested lectures before or after a Task, or access to course material prior to the course (1)

4. *If you have not already mentioned the following, would you please comment below. What was good? What needs to be improved?*
   (a) Non-expert tutors
      Very helpful in pacing, clarifying, resolving difficulties (14)
      Acted as go-between with the course staff (4)

   (b) Local resource persons
      One or two were very helpful (9)
      While some participants may be able to act as resource persons, local experts, also from the private sector, need to be carefully selected. They need to be briefed on the status of the participants and on the details in the Task Guides.

   (c) The Task Guides
      Excellent as guides and thought provoking (19)
      The Guides could use simpler language and be more country-specific

(d)The Books issued to the participants and in the course reference library
Helpful for the Tasks (16)
Could more be provided, perhaps by local authors?

5. *In relation to other courses, this course was -*
More enjoyable (16)
More beneficial (16)
Less tiring (10) [more tiring (5), no more or less tiring (5)]

6. *Please consider the cost - in monetary terms.*
What financial expenses have you had or will you have (before, during, after the course) that have not been covered by the course organizers?
While 15 participants reported Nil expenses, the other 5 participants mentioned between Rs6900 and Rs600 for telephone, laundry, city visits and family presents.

7. *Please consider the cost - in time.*
Please estimate how much time you have spent and may still have to spend on:
(a) making arrangements in your office and at home before coming to the course:
The responses ranged from 1 hour to 96 hours, with twelve between 1 hr and 10 hrs; five between 12 hrs and 28 hrs; two between 40 hrs and 48 hrs; and one for 96 hrs.
(b)making arrangements in your office and at home after leaving the course:
The responses ranged from 1½ hours to 278 hours, with seven between 1½ hrs and 10 hrs; with six between 12 hrs and 20 hrs; with four between 22 hrs and 40 hrs; with two between 72 hrs and 96 hrs; and one at 278 hrs.
(c) How many hours do you normally spend at work in one week?
The responses ranged from 39 hours to 70 hours per week, with thirteen between 36 hrs and 56 hrs; and seven between 60 hrs and 70 hrs.
(d) Please calculate how many hours you worked during the course, from registration to presentation of certificates.
The responses ranged from 110 hrs to 216 hrs, with eight between 110 hrs and 120 hrs; five between 125 hrs and 140 hrs; four between 144 hrs and 185 hrs; and three between 200 hrs and 216 hrs.

Questions 6 and 7 were concerned with aspects of the *efficiency* of the course, the cost in terms of time and actual funds expended by the participants. The per diem was clearly sufficient to cover any incidental expenses during the course, and the cost of travel had also been covered by the funding agency.
It is unfortunately not clear how accurately the participants have estimated the cost in terms of time before, during and after the course. The disparity between 1½ hours and 278 hours needing to be spent to catch up with commitments at home and in the office after the end of the course would indicate ambiguity in the question. A similar problem may have operated to elicit so wide a range of responses of 110 hours and 216 hours spent during the sixteen working days of the course.

Effectiveness of the Course

This evaluation was designed to identify:

(i) the extent to which the participants had progressed in knowledge and appreciation of intersectoral collaboration; this used an identical open ended questionnaire at the beginning and end of the course.

(ii) the ability of the participants to apply what they had learned to the drafting of generic Terms of Reference (Task 5), a plan of action for monitoring aspects of health during the construction and production phases of a project, and a memorandum of agreement (Task 6); the latter two documents would also show to what extent the groups had succeeded in applying intersectoral collaboration, where allocation of responsibilities and resources (power sharing) had to be negotiated.

(i) Knowledge and appreciation of intersectoral collaboration

There was a clear gain in both knowledge and appreciation. This was most noticeable in a shift from a relatively narrow concentration on the participants' own responsibilities within their respective sector to a broader appreciation of corporate responsibilities by public services to their society and, therefore, the need for collaboration.

However, only a few participants ventured beyond general collaboration in order to deal with a common task. This may suggest that the course might in future end with a discussion on wider aspects of intersectoral collaboration, e.g. sharing of power: sharing of information, sharing of resources - intellectual as well as material; removal of bureaucratic barriers; and, above all, creating the "political will" at federal government, state government and local government levels that will legitimize and foster intersectoral collaboration and institutionalize it through regular intersectoral meetings at all levels.

The majority agreed that their own expectations of the course had been met or, indeed, exceeded. Almost half of the participants mentioned specifically that they had gained new insights in aspects of health and extended their competences in relation to systematic analysis, reasoned decisions making, presentation of recommendations and the drafting of TORs, action plans and memoranda of agreement which they could also apply to other departmental tasks. Several participants also mentioned their first experience of a course of this nature.

(ii) Application of knowledge, understanding and intersectoral collaboration to specific tasks: drafting an action plan and a memorandum of agreement.

The reports and presentations of the groups concerning Task 6 showed that they had absorbed a great deal of additional knowledge. There were also inventive solutions for interventions of an environmental management type. The Memoranda of Understanding were, however, rather generic in nature, thus avoiding a clear commitment of resources to the intersectoral action required. In discussion the issues following the presentations it

was clear that this was not a matter of not having captured the concepts and skills promoted in the course, but rather a matter of attitude. A hallmark of Indian civil service is not to commit resources without having had the proper clearances from the appropriate superiors.

Visiting Experts - Their Perceptions

Three of the six invited local consultants were unable to attend. As this was not known before the start of the course, the organizers were not able to arrange replacements. Fortunately, the expatriate staff were able to provide general, though not country-specific, guidance for the groups on issues related to vector borne diseases, health impact assessment and health economics. The area of hydraulics was professionally covered by WALMI faculty.

The four local experts represented Environment, Health Administration, Hydrology and Irrigation. Their commitment to the aims and philosophy of the course was remarkable and contributed significantly to the success of the course. They appreciated that they had received advance information in the form of the Task Guides and the Guide for Visiting Experts.

It was apparent that the enthusiasm and commitment of individual experts influenced the groups in the use they made of these consultants during group meetings, plenary sessions and the field trips.

Unfortunately, the design of the course did not make it possible to accede to their request to sit in as silent observers during group sessions, or to display their expertise in the form of lectures. Although these consultants could bring their own work with them, several would have preferred the course to have been more condensed and thus more didactic. It would have been preferable if more than one of the experts could have been found from among the staff of the host institution.

ANNEX 4

PRODUCT OF TASK 5:

Generic Terms of Reference for Health Impact Assessment

GENERIC TERMS OF REFERENCE FOR HEALTH IMPACT ASSESSMENT OF WATER RESOURCES DEVELOPMENT PROJECTS IN INDIA

Preamble

The responsibility for human health cuts across all public sectors responsible for development projects. Health Impact Assessment (HIA) is an integral and indispensable part of Environmental Impact Assessment (EIA). It is of particular importance for large and medium scale Water Resources Development (WRD) projects.

In accordance with the policy of Government of India under 'The Environment (Protection) Act 1986', EIA is a mandatory State Government procedure for all such projects. The Ministry of Environment and Forests of the Government of India is the central authority for the appraisal of EIA reports and for the endorsement of Environmental Impact Statements.

The purpose of HIA is to identify, evaluate and interpret the hazards and health opportunities of WRD and to propose health safeguards, mitigating measures and health promotional measures that can be incorporated into the WRD project without affecting its overall objectives.
The concept of the hidden costs of development due to ill-health supports the need for HIA.

The HIA should be carried out at the feasibility stage of project planning by a multidisciplinary team composed of, preferably national, experts. The outcome of an HIA will focus attention on major health risks, assist in comparing and ranking them and thus help in examining options for possible interventions.

Criteria and preconditions for HIA

At the pre-feasibility stage of any medium- or large-scale water resources development project, the government agency proposing the project (the project proponent) should, in close collaboration with the Department responsible for public health, carry out a rapid HIA. This should lead to a decision whether or not to carry out a full HIA. If affirmative, the project proponent is responsible for the tasks described below, ensuring that the criteria and preconditions are met, and starting with the formulation of specific Terms of Reference (TORs) whose generic outline is presented in the next section.

Composition of a multidisciplinary team and selection of a consultant/team leader:

The tendering should define the characteristics of the team, in particular which disciplines must be represented by its subject specialist members.

The profile of the consultant/team leader should include the following criteria:

- The consultant should have appropriate qualifications with a broad vision and the capacity to integrate the information from various disciplines.

- The consultant should have sufficient experience in assessing the health impacts of WRD projects.

Timing

The timing of the EIA/HIA should be decided

- to allow optimal opportunity for the team to collect seasonally fluctuating health data (e.g. seasonal transmission of malaria) if these are not readily available from the health authorities.

- to allow effective communication between the HIA consultant and the consultants working on the EIA and the overall feasibility studies.

The relationship between the team leader and the commissioning authority:

- The team must carry out the tasks given in the TORs comprehensively, but should not be limited by the TORs.

- The team leader and the team members will have full independence as far as their tasks are concerned.

- All the information relevant to project and local assistance as and when required will be provided by the commissioning authority.

- The commissioning authority will also facilitate meetings with Heads of Departments, field visits and health services, etc.

- In the case an international consultant is hired, it should be required to involve a team of local experts in the assignment.

- The commissioning authority will submit the HIA report to a formal, independent appraisal procedure, on the basis of which it can be accepted, partly accepted or rejected. In the case it is partly rejected the consultant is bound to complete the assignment conform the TORs. The commissioning authority will inform the consultant/team leader about the criteria applied in the appraisal procedure at the start of the assignment.

Conditions for financial support:

- The funding of an EIA, including an adequate HIA component, should be proportionate to the budget of the feasibility study.

- The Government will apply norms and procedures to determine the mode of payment as per agreement.

Other considerations

It is desirable that the consultant submit the draft HIA report to the commissioning authority for circulation among the different Government Departments concerned, that he give serious consideration to the comments and suggestions made by these Departments and that he make amendments to the final report as justified.

The consultant should submit required number of copies of the final HIA report.

For breach of contract from either side or in case of any dispute action will be taken as per agreement.

Generic Terms of Reference (TORs)

Introduction

The introduction should explicitly state the following aspects

- a short description of the project
- geographical boundaries of the project.
- existing institutional infrastructure and arrangements (public and private sector)
- sources of relevant data and institutions which can assist in the HIA.

Objectives

The objectives of the HIA should focus on:

- the assessment of health risks and opportunities
- the suggestion of alternative interventions and mitigating measures required at the appropriate stages, as well as health promotional measures
- the need to define health safeguards that are technically sound, economically feasible and socially acceptable.

The scope of the HIA

- Geographical and time boundaries for the HIA

  In the case of geographical boundaries, the scope may be extended beyond the project boundaries to include the catchment area and the area downstream from the project, and areas from which migrants originate should also be considered. The time horizon for the impact assessment needs clear definition.

- Vulnerable communities (including those formally or informally migrating into the project area).

Activities to be carried out by the consultant

- Careful study of the project documents.
- Collection and analysis of relevant, existing health data from Government and Non-Governmental institutions, complemented where necessary and feasible through field surveys employing appropriate sampling techniques.
- Identification of different health hazards within the geographical boundaries of the project
- Determination of community, environmental and institutional risk factors.
- Identification of health opportunities.
- Formulation of health risk management measures (alternative interventions/mitigating measures at different project stages with a justification, including changes in design, in project operation and improvements in the health services). Such measures should pay due regard to community participation, gender issues and social equity.
- Appropriate economic evaluation of alternative risk management measures.
- Provision of indicators in the problem areas for specific diseases needing special attention and in-depth studies.
- Preparation of an HIA report, containing, as the output of the exercise, a health impact statement.

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