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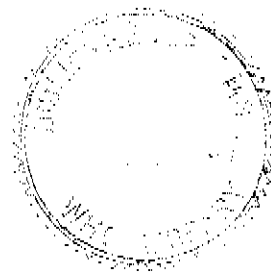


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UNEP

JOINT WHO/FAO/UNEP PANEL OF EXPERTS
ON ENVIRONMENTAL MANAGEMENT FOR VECTOR CONTROL



ANNUAL REPORT

1986/1987

PEEM Secretariat
World Health Organization
Geneva, August 1987

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WHO/FAO/UNEP PANEL OF EXPERTS
ON ENVIRONMENTAL MANAGEMENT FOR VECTOR CONTROLANNUAL REPORT 1986/87CONTENTS

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1. INTRODUCTION

Looking back on the PEEM activities during the 1986/87 period, it can be said without exaggeration that it was a "thematic" year in which all major events revolved around the central theme of agriculture.

During the first half of this period the secretariat was mainly occupied with the preparations for the workshop on research and training needs in the field of integrated vector-borne disease control in riceland agro-ecosystems of developing countries (and thank you again Professor Olsen for formulating this succinct title). The workshop itself was a revealing experience to many. It de-mythitized several ideas which were rather widely accepted among vector control specialists (such as intermittent irrigation as a universal remedy for vector problems in rice), and it led to the identification of a new target group for awareness creation concerning environmental management for vector control: the agronomists.

During the second half of the period under review, the 7th PEEM meeting required intense preparations. With a technical discussion focusing on the broad subject of agricultural development and agricultural practices, and with a larger number of working papers than ever before, the Panel's output this year is likely to be a milestone in the development of intersectoral collaboration between health, agriculture and environment.

The 1986/87 period was also a period of harvest, with many of the activities initiated by the Panel producing tangible results. This shows in the number of publications reported in this document to have become available, and it shows in the research reports received by the secretariat.

The increase in activities unfortunately also means an increased workload for the secretariat, which, incidentally, has improved its internal coordination effectively this year through more frequent communications. Steps have been taken towards solving the manpower constraints faced by the secretariat. This will hopefully lead to a continued increase in Panel recommended activities being implemented by the secretariat the coming year.

2. MEMBERSHIP STATUS

The term of membership of the following members expired during the 1986/87 period and was not renewed:

Mr E. Gartrell, USA
Dr Koentjaraningrat, Indonesia
Professor V. Ramalingaswami, India

Membership of the following members was renewed.

Professor D.J. Bradley (WHO, UK)
Dr R.H. Brooks (UNEP, USA)
Professor A.M.A. Imevhore (previously UNEP, now WHO)
Dr B.H. Kay (WHO, Australia)
Dr R.J.H. Kruisinga (WHO, Netherlands)
Professor Lu Bao Lin (UNEP, China)
Dr R. Zeledon (UNEP, Costa Rica)

Five new Panel members were designated:

Dr Awash Teklehaimanot, Head, Malaria and other Vector-borne Diseases Control Service, Ministry of Health, Addis Ababa, Ethiopia (by WHO)

Dr P. Carnevale, Chief of the Entomology Section, ORSTOM, Bobo-Dioulasso Burkina Faso (by WHO)

Mrs G. Knight, General Manager, Urban Development Corporation, Kingston, Jamaica (by UNEP)

Mrs G. Peralta, Head, Special Projects Group, National Environmental Protection Council, Quezon City, Philippines (by UNEP)

Professor Santasiri Sornmani, Dean, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand (by WHO)

As a result of these mutations, the Panel has at this moment 35 members, of whom 16 have been designated by WHO, 9 by FAO and 10 by UNEP.

3. MEETINGS

3.1 The sixth PEEM meeting

The sixth meeting of the Panel was held from 8 to 12 September 1986 at the headquarters of the World Health Organization in Geneva. The meeting was attended by thirteen Panel members, five representatives from other organizations, among which two PEEM collaborating centres, three temporary advisers and fourteen secretariat members, including a representative from the WHO Regional Office for Europe.

The Panel reviewed the progress made during the period 1985/1986, and adjusted its programme of work. Special attention was given to the production of the Panel's technical publications, progress in which was considered less than satisfactory. As a result, a revised PEEM publication programme was prepared. Two days of the meeting were dedicated to the technical discussion, and conclusions and recommendations emerging from this discussion were formulated on the last morning of the meeting. The Panel also approved its programme of work for 1986/1987, and it endorsed the recommendations by the Steering Committee.

3.2 Secretariat meetings

Two secretariat meetings were held during the period under review: the 16th meeting took place on 12 September 1986 at WHO headquarters, Geneva, and the 17th meeting on 15 March 1987 in Manila, Philippines. The main topics discussed at these meetings include the implementation of the Panel's programme of work, selection of new Panel members and financial matters.

3.3 Steering Committee meetings

A new Steering Committee was installed during the sixth PEEM meeting, and the Committee now consists of Dr S.I. Bhuiyan (Bangladesh), Professor D.J. Bradley (UK), Dr R.H. Brooks (USA), Dr R.J.H. Kruisinga (Chairman, Netherlands) and Dr R. Zeledon (ex-officio, Costa Rica). The seventh meeting of the Steering Committee consisted of several sessions held during the week of the 6th PEEM meeting, of the outgoing and in-coming members. The eighth meeting was held at the WHO Regional Office for the Western Pacific, on 16 and 17 March 1987. At this meeting, the Steering Committee considered in particular the training component of the Panel's programme of work. Conclusions and recommendations resulting from these meetings are submitted to the Panel in the report of the Steering Committee, document PEEM/7/87.5.

3.4 Informal Consultation

An informal consultation on the preparation of a curriculum and syllabus on disease vector management in water resource development projects for inclusion in engineering courses was organized by the Planning Management and Operations Unit of WHO in collaboration with Silsoe College in the UK. The consultation was held from 1 to 5 September 1986. On the basis of eight working papers the seven participants discussed the knowledge requirements of engineers in the field of vector-borne diseases and their control, the contents of courses of varying length for inclusion in engineering course curricula, approaches towards the development of syllabi (including case studies) and alternatives for training of already practising engineers in this field. As a result of these discussions a detailed proposal for a curriculum and a guideline for syllabus preparation was prepared.

3.5 Workshop at IRRI

The workshop on research and training needs in the field of integrated vector-borne disease control in riceland agro-ecosystems of developing countries was held from 9 to 14 March 1987 at the International Rice Research Institute in Los Banos, Philippines. The workshop was jointly sponsored by the International Rice Research Institute, the USDA Riceland Mosquito Management Program S122, and by WHO (partly from a special USAID grant), FAO and UNEP through PEEM. Fifty seven participants from 16 countries attended the workshop, among whom four Panel members, and representatives from four PEEM collaborating centres. Twenty-two working papers were presented in three technical sessions, and a poster session concluded the first part of the workshop. During the second part three working groups addressed "research as a basis for control", "intervention research toward the development of control methods" and "training needs: subject matter, target groups and institutions", respectively. The results of these deliberations were adopted by the workshop in a plenary session and are presented in its conclusions and recommendations.

3.6 Workshop on health risk assessment

A workshop on the assessment of human health risks in irrigation and other water resource development projects was organized by the World Bank in its Paris office on 27 and 28 July 1987. Fourteen participants, among whom a Panel member and the WHO PEEM secretariat member, focused their discussions on subjects in three main areas: (a) general considerations, addressing the question "why health risk assessment?" and describing the characteristics of methods developed, their potential and their limitations; (b) review of the health risk assessment component of nine country studies carried out in the World Bank project "Options and investment priorities in irrigation development", and (c) consequences of health risk assessment for the implementation of health safeguards and disease intervention measures in irrigation projects. A report with the conclusions of this workshop will be published in a future issue of "Parasitology Today".

4. PUBLICATIONS

4.1 Publications during the period under review.

*Publication and distribution of the report of the sixth meeting.

The report of the sixth PEEM meeting was published in January 1987. Following the Panel's recommendation at its fifth meeting, its lay-out was modified in that the technical discussion section now constitutes the first part of the report and thus is presented in a more prominent way.

Automated distribution, using a special mailing list, was carried out as follows:

6 copies to each of the 35 Panel members

796 copies for circulation in WHO headquarters and the Regional Offices, and through the Regional Offices to WHO Country Representatives, ministries of health and UNDP ResReps.

800 copies for circulation in FAO headquarters, and to FAO Regional Offices, country representatives and through these to ministries of agriculture, ministries of water resource development and national irrigation boards.

415 copies for circulation in UNEP headquarters, and to UNEP Regional Offices and through them to ministries of the environment.

120 copies distributed by kind courtesy of the International Commission for Irrigation and Drainage (ICID) to their national committees.

100 copies distributed by kind courtesy of the International Commission on Large Dams (ICOLD) to their national committees

15 copies to other UN Organizations

36 copies to development banks and bilateral donor agencies

97 copies to interested individual and institutions, including the collaborating centres.

*The PEEM Newsletter

During the period under review two issues of the Newsletter were published; two others, one of which a special issue on the riceland vector workshop, are under preparation. The collaboration with World Water in the production of the Newsletter continued satisfactorily but the workload of the secretary is becoming a limiting factor to its regular publication. With the possible introduction of micro-computer programmes for desktop publishing in the Division of Vector Biology and Control next year, the production of newsletters may become more efficient, and simultaneous publication of the English, French and Spanish versions will become feasible. Nevertheless, Panel members' contributions to the newsletter would seem to be another suitable way of taking some pressure off the secretariat and, at the same time, improve the quality of the newsletter.

The distribution of the newsletter was further improved. Firstly, the master mailing list in WHO was checked against the FAO mailing list to identify and eliminate possible overlap. Also, following a recommendation by the Panel last year, a circular letter was sent to all members asking for their assistance in improving the mailing list. Out of thirty three Panel members only twelve reacted, but those who did reply often sent extensive lists of names of institutions, in particular of engineering training institutes.

The latest status report of the mailing list was prepared in June 1987 and shows that 2105 copies of the English version, 716 copies of the French version and 542 copies of the Spanish version are being despatched.

*Proceedings of the workshop on irrigation and vector-borne disease transmission (Sri Lanka, October 1985).

The proceedings were published by the International Irrigation Management Institute (IIMI) in Sri Lanka in December 1986. The secretariat purchased 250 copies of these proceedings, which were distributed to all Panel members, to the PEEM collaborating centres, to FAO and UNEP, at WHO headquarters and to the WHO Regional Offices, and, through the official channels, to the national authorities in Sri Lanka. Some fifty copies were retained at the secretariat to meet requests from individuals and institutions.

*Conclusions and recommendations of the workshop on research and training needs in the field of integrated vector-borne disease control in riceland agro-ecosystems of developing countries (Los Banos, 9-14 March 1987).

The preliminary workshop proceedings were published by the International Rice Research Institute in June 1987 and the PEEM secretariat received 1,000 copies. Distribution to Panel members, PEEM Collaborating Centres, the Riceland Mosquito Management Group and within WHO, FAO and UNEP has meanwhile taken place. Distribution of some 400 copies to relevant research institutions and donor agencies is under preparation.

*Guidelines for forecasting the vector-borne disease implications in the development of a water resource project.

In December 1986, Dr M.H. Birley, the author of the guidelines, visited Zambia, where he tested the practical value of the proposed health risk assessment methodology. His visit coincided with that of the World Bank team of consultants, carrying out the second phase of studies on options and investment priorities in irrigation development. These studies include an explicit health risk assessment component. Publication of Dr Birley's assignment report is awaiting clearance by the Zambian authorities. The report suggests a number of changes to the originally proposed methodology (in particular the scoring system of overall risks for any single disease was found to be unsatisfactory) and it contains some actual risk assessments of planned projects.

The guidelines were modified on the basis of this field test, and published in their preliminary draft version in May 1987. The purpose of this pre-publication is to elicit a response from professionals in the field for further improvement of the document before its final publication. It was therefore given a limited distribution for which a special mailing list was composed with some 160 specialists in tropical medicine and irrigation engineering. Panel members and collaborating centres have also received copies and the document is being circulated in the three organizations.

*Report of an informal consultation on proposed curriculum and syllabus on disease vector management in water resource development projects for inclusion in engineering courses (Silsoe, 1-5 September 1980).

This report was produced by Silsoe College for the World Health Organization and was published in July 1987. It has been given limited distribution to all Panel members and PEEM Collaborating Centres, within the three organizations and to some one hundred selected universities and engineering schools. After adequate field testing, the document will be revised where necessary and possibly be published as a formal WHO publication.

4.2 Articles

Several articles covering PEEM activities, or reviewing the outcome of PEEM meetings, were published during the 1986/87 period. WHO's Weekly Epidemiological Record 61: 45, of 7 November 1986, published an introduction on

PEEM. The article "Managing the environment for the control of disease vectors" appeared in the WHO Chronicle 40:6 in December 1986. "Control of dengue vectors: Singapore's success story" (World Health Forum 8: 1987), was adapted from an article in the PEEM Newsletter.

The technical discussion section of the report of the fifth PEEM meeting (Environmental impact of population resettlements and its effect on vector-borne diseases) was reprinted in FAO's biannual publication Land Reform, Land Settlement and Cooperatives, no. 1:2 (1986). And, lastly, the secretary and Dr A. Mills (London School of Hygiene and Tropical Medicine) discussed the key findings at the sixth PEEM meeting in the article "Financial and economic aspects of environmental management for vector control" which appeared in Parasitology Today (1987)

4.3 Progress in the publication programme

Of the documents listed in the revised PEEM publication programme, and not mentioned in the previous section, the guidelines for incorporation of environmental management and other health safeguards in water resource development projects are undergoing a drastic re-write, the first draft of which is expected to be submitted early 1988. No further communication was received from the School of Engineering of Anna University, Madras, so that the preparation of a report on the evaluation of the incorporation of a health component in engineering courses is further delayed. This activity seems to have been overtaken by other events, notably the informal consultation at Silsoe College and it is probably preferable to now focus on the field testing of the curriculum and syllabus guidelines developed in this meeting. In collaboration with WHO's Information and Education for Health Division so far two drafts of the PEEM brochure have been produced, but the text is still not satisfactory. Dr Kay prepared the second draft of a case studies document on environmental management for vector control, which is currently under review. The possibility has been discussed to make a complementary set out of the brochure and the case studies document. A selection of working papers of previous PEEM technical discussions is practically print-ready. The final reports of the studies in Nigeria and Sri Lanka will be published in a condensed form as articles in future issues of the newsletter. The collaboration with Dr Jewsbury on the preparation of a position paper on the feasibility of environmental management measures under different ecological conditions has come to an end and the Panel will have to decide whether it wants to approach other authors for this paper, or delete it from its publication programme. Instead of complete deletion, it is also possible to propose this to the Steering Committee as a title to be considered for a future technical discussion.

5. ESTABLISHMENT OF AN INTERNATIONAL INFORMATION SYSTEM

5.1. Collaborating Centres

The period of designation for three PEEM collaborating centres expired during the period under review, and two of these (TVA, Knoxville and ETH, Zurich), are now in the process of redesignation. As concerns the redesignation of the third one (the Ross Institute, London), this is part of a proposal the Steering Committee will present to the Panel in its report to the meeting (PEEM/7/87.5). Designation procedures have started for the International Irrigation Management Institute (IIMI) in Sri Lanka.

The following can be reported on activities of the Collaborating Centres during 1986/87 - the Institute for Land Improvement and Water Management, ETH, Zurich, finished the visual training aids for courses in environmental management. The Institute supported the participation of one of its staff in the workshop at IRRI. This staff member is currently carrying out field work at

Ifakara, the Tanzanian station of the Swiss Tropical Institute, to assess the effectiveness of engineering improvements of natural water courses for schistosomiasis control. Preparations have started for a training seminar on environmental management which the Institute will organize for ETH students and practising engineers in the first half of 1988. The Ross Institute in London provided valuable expertise for the technical discussion at the sixth Panel meeting, and for the subsequent preparation of the report. Working papers were contributed for the sixth and seventh Panel meeting, and for the workshop at IIRI, in which Professor Bradley participated with two other staff of the London School of Hygiene and Tropical Medicine. The former, in his function of member of the Steering Committee, also prepared an appraisal of the workshop, attached as an annex to the Committee's report. For IDRC, Canada, Prof. Bradley visited Nepal and advised on improvements of the project proposal for environmental management for malaria vector control, in principle endorsed by the Panel in 1985. The Tennessee Valley Authority collaborated effectively in the review of draft documents. Preparations were made for one of its staff members to participate in a training seminar in Nigeria, as a member of the faculty, but this participation regrettably did not materialize in the end, mainly due to failing communications. The International Institute for Land Reclamation and Improvement continued with the preparation of the guidelines for incorporation of environmental management and other health safeguards in water resource development projects. The third draft of these guidelines is currently being revised. Activities in the field of training include a health component in ILRI's international drainage course, and the presentation of lectures on health in the course "Sanitary engineering" of the International Institute for Hydraulic and Environmental Engineering in Delft. A new initiative is the review of pre-war literature on environmental management for vector control in (then) the Dutch East Indies, with the objective of preparing a compilation of this material in English. A member of ILRI's staff participated in the workshop at IIRI, for which he contributed a working paper. Collaboration with the International Rice Research Institute focused entirely on the IIRI/PEEM/USDA riceland vector control workshop. The workshop's conclusions and recommendations will provide a basis for continued collaboration between PEEM and IIRI for several years to come. The secondment of a WHO Associate Professional Officer will further strengthen this collaboration. PEEM, IIRI and USDA/RMMP (Professor J.K. Olson) will also jointly develop training activities, in follow-up of the workshop's recommendations.

5.2. National water resources development coordination boards

The committee for Intersectoral Collaboration in Ethiopia continued its activities in health risk assessment of water resource development. It also developed a detailed project proposal for malaria and schistosomiasis control through environmental management in the Wonji Sugar Estate. The new UNEP designated Panel member in the Philippines is interested in promoting effective intersectoral linkages in her country. And from Sri Lanka it was reported that on the instructions of the Prime Minister an Interagency Committee for the Control of Vector and Nuisance Mosquitos has been established under the chairmanship of Dr R.H. Wickramasinghe of the Central Environmental Authority.

5.3. International Reference Centre for Environmental Management (IRCEM)

The establishment of the IRCEM in WHO remains, for the time being, an unachieved objective. The necessary computer hardware could not yet be purchased, because of financial constraints. However, even if this had become available, lack of manpower for data-input would have been another problem. These two constraints will hopefully be overcome during the budget biennium 1988/1989, when it may be possible to purchase the hardware. To solve the manpower problem in this connection (and for general strengthening of the

secretariat) procedures have started to obtain the services of an Associate Professional Officer.

6. RESEARCH ACTIVITIES

6.1. PEEM supported research

The developments in research activities supported by the three participating organizations and implemented through PEEM, were as follows:

- studies on the nature and magnitude of the vector-borne disease implications of small-scale water resource development projects, in Nigeria and Sri Lanka.

Both studies were finished during the period under review and final reports were submitted by the principal investigators. The report from Nigeria was circulated in draft form and was revised based on the comments received. Similarly, the report from Sri Lanka is currently being revised. The inventories and research findings will be of most interest to the local authorities, and therefore do not warrant a wide distribution outside of the two countries. However, it has been proposed to present the findings in a condensed fashion in an article in the Newsletter, indicating that copies of the final reports are available from the PEEM secretariat to all who are interested.

- a study on the effect of Azolla cultivation on the mosquito fauna in rice fields.

Professor Lu Bao Lin finished the first part of this research project and submitted a final report in which the outcome of laboratory experiments were communicated. The experiments dealt with the effect of Azolla coverage on different stages of the life-cycle of Culex tritaeniorhynchus and Anopheles sinensis and the possible toxicity of the symbiont to mosquito larvae. Following the promising results of the first phase, a proposal for the continuation of this project for a two-year period has been submitted by Professor Lu, taking the investigations a step further toward the role of Azolla in the mosquito ecology when applied under actual field conditions.

- a demonstration project of community-based environmental management for vector and rodent control in Saint Lucia.

The first stage of this demonstration project was carried out in the communities of Ti-Rocher and Bocage, just outside of Saint Lucia's capital Castries. The department of Environmental Health of the Ministry of Health, Housing and Local Government first mobilized the community, revived dormant community health committees, and trained volunteers in monitoring techniques and environmental management measures. This was followed by an intensive clean-up campaign in both communities, with the community schools as centres of activity and supported by a general health education programme. Refuse collection, cleaning of premises and the building of a playground by filling a swampy area with garbage and covering it with soil were some of the components of the campaign which was accompanied by all sorts of incentives. At the end of a one-year period, the most tangible achievement was that of bringing down the Aedes aegypti house index from 45 to zero. A final report of the first phase and a proposal for continuation of the project have been submitted to the secretariat. The proposed next stage will include an expansion to other communities. The possibilities will also be studied of integrating this vector control approach into the island-wide primary health care project supported by the Kellogg Foundation.

- a study of the feasibility of an Expert System approach in the forecasting of vector-borne disease implications of water resource development.

Expert Systems are knowledge-based decision making tools, which are a tangible result of research in the area of artificial intelligence, and which attempt to capture, in a computer, expert knowledge in a form that makes it accessible and useful to non-experts. Exploration of possibilities for their application in forecasting exercises was therefore considered suitable as a follow-up to the development of the guidelines. As a first step, the development of a prototype Expert System was approved and carried out by Dr M.H. Birley. The result has been forwarded to the WHO Division of Information Systems Support, which is currently reviewing it. A proposal has been prepared and submitted by Dr Birley to continue with the development of this Expert System. The prototype has been presented at a seminar organized by Hydraulics Ltd in the U.K., where it raised the interest of participating engineers.

6.2. PEEM recommended research

Of the two research projects endorsed by the Panel at its fifth meeting, the study on the effectiveness of environmental management for malaria vector control in Nepal has been reviewed by Professor Bradley at the request of IDRC Canada. Submission of a revised proposal by the Nepalese authorities is awaited by that Organization. No progress can be reported concerning the other project, environmental management for the control of the vectors of lymphatic filariasis in northwestern Bangladesh.

At the sixth meeting the Panel reviewed and endorsed another two proposals for research. The first one concerned a study on the feasibility of the preparation of a health-risk map for Africa using digitized data, and the Panel recommended that the two interested parties, Dr Birley of the Liverpool School of Tropical Medicine and Mr Thomas of FAO, further explore the value and feasibility of this activity, but this seems to have stagnated after an initial follow-up. The second proposal, the testing of expanded polystyrene beads for Culex quinquefasciatus control in Zanzibar is meanwhile being implemented. Dr Curtis has independently obtained support from the British Overseas Development Agency for this project.

6.3 Some considerations on the research component of the Panel's programme of work

The Panel's role in the promotion of research was defined at the fifth meeting in Bangkok (see report of the fifth meeting, page 19). Following the IRR/PEEM/USDA workshop on riceland vector control it has been suggested that PEEM should function as a technical clearing house for research proposals formulated on the basis of the workshop's recommendations. If the Panel accepts this role, it will have to define its mechanics. The Panel can of course continue discussing proposals at its annual meetings, but it can also defer this agenda item to the Steering Committee, or it can establish a separate research group consisting of Panel members with a strong basis in research and representing the various disciplines involved. Such a research group could meet separately (which would obviously have financial implications) or its members could comment on proposals by correspondence. A technical clearing-house function is still within the limits of the scope of the research component of the Panel's activities, but the practical implications of accepting it (i.e., an increased workload for secretariat and Panel members) should be considered.

7. TRAINING ACTIVITIES

The achievements in the training component of the Panel's programme of work were extensively discussed by the Steering Committee at its 8th meeting, and the Committee's conclusions will be communicated to the Panel in its report (document PEEM/7/87.5).

Progress in training activities under implementation with the Panel's support is as follows:

- Preparation of visual training aids. A rapid exchange of drafts and comments between the Collaborating Centre in Zurich and the secretariat in Geneva, and review of the slides and text of the accompanying brochures by the Steering Committee was followed by the finalization of the visual training aids. They will now be further refined and adapted by the secretariat in collaboration with the training officer in WHO's Division of Vector Biology and Control. Early 1988 they are expected to become available on the same conditions as other visual training aids marketed by VBC.
- Development of curricula/syllabi on health impacts of water resource development for inclusion in engineering courses. Following the informal consultation at Silsoe College and the publication of the proposed curricula and guidelines for syllabus development, the next step will be field testing of the curricula by selected engineering schools. The Panel's guidance will be sought in the development of a standard evaluation method for the curricula, both by teaching staff and students.
- Strengthening of engineering and agricultural education institutions in environmental management for disease vector control. The principal investigator of this activity informed the secretariat he would be abroad for the first eight months of 1987, and since then no further progress was reported. It is suggested to ask Dr Pitchai to prepare the final report on this activity and use it as a case study in the technical discussion of the 8th Panel meeting.

Progress in training activities not receiving direct PEEM support, is as follows:

- Courses on environmental impact assessment for water resource development projects in the French and in the Portuguese language. The WHO Regional Office for Europe has been following up the recommendation by the Panel to organize these courses. The PEEM secretariat has established a direct contact with Professor Lobato de Faria in Lisbon, and possibilities for support by other Regional Offices of participants from francophone countries for the course in French are being explored. The implementation of this recommendation is proposed in the Panel's Programme of Work 1987/88 as a global activity organized jointly by WHO/HQ and EURO.
- training seminar for managers of water resource projects in Nigeria. This seminar was held in March 1987, but no further details were received about its outcome.

8. MISCELLANEOUS

8.1 Implementation of the Panel's recommendations

As a result of the technical discussion on financial and economic aspects of environmental management, the Panel formulated two specific recommendations. The first one, which states that environmental management measures should be considered in the financial appraisal of water resource development projects, addresses multi- and bilateral donor agencies and governments. The secretariat can therefore do little else but publicize the recommendation, in the hope that these agencies and governments will adopt the appropriate policies. However, the survey on the policies and activities of development banks and multi- and bilateral donor agencies with respect to the incorporation of health impact assessments and health safeguards into water resource development projects may provide a good opportunity to promote the recommendation. This survey was not carried out, as planned, in the 1986/87 period for a number of reasons, but remains part of the Panel's programme of work.

The second recommendation, stating that cost-effectiveness analysis should be used to identify the most appropriate means of vector control, and that cost-effectiveness studies should adopt a standard methodology, has been followed up by the secretariat. Dr A. Mills, health economist at the London School of Hygiene and Tropical Medicine has been asked to prepare a proposal for the preparation of guidelines on cost-effectiveness analyses by ministries of health and vector control organizations, and this proposal is submitted for the Panel's considerations in document PEEM/7/87.7.

8.2 Contacts with other organizations

*the World Bank - Contacts with the World Bank continued during the 1986/87 period, in particular with reference to the project "Studies on options and investment priorities in irrigation development". Dr Vogel (Royal Tropical Institute, Amsterdam), consultant for health impact assessment in the second phase of this project, visited the secretariat several times in preparation for his country visits. The project leader, Dr José Olivares (World Bank, Washington), participated in the workshop at IRRI. As already reported, the World Bank organized a two-day workshop on health risk assessment, and the WHO secretariat member and Panel member Dr Birley were among the participants.

The project "Options and investment priorities in irrigation development" has come to an end, and new interfaces between the activities of the Bank and of PEEM will have to be identified in order to continue and further strengthen the contact.

*Fédération Internationale des Ingénieurs Consultantes (FIDIC). In accordance with the Panel's recommendation, contacts with FIDIC were re-established, through the ex-PEEM member Mr Frick-Meyer, president-elect of this federation. Mr Frick-Meyer was keen on collaborating towards the implementation of the Panel's suggestion to incorporate environmental management for vector control in the codes of practice for civil, irrigation and agricultural engineers. He would raise the issue at the forthcoming FIDIC meeting. He also proposed a member of FIDIC's Executive Board as a candidate for Panel membership.

9. FINANCIAL REPORT

As was reported in last year's Annual Report, the three sponsoring agencies each fulfilled their 1986 commitment by contributing US\$20,000. After the 6th Steering Committee meeting, an amount of US\$49,522.10 was left available for the organization of the sixth Panel meeting. The costs of the sixth meeting added up to an amount of US\$58,801.49, so that an overall deficit of US\$9279.39 was carried over to 1987.

The cost of the 8th Steering Committee meeting in Manila amounted to US\$10,106.82, so that the sum available for the seventh Panel meeting (i.e., the sum remaining after the deficit and the Steering Committee meeting expenditure have been deducted from the contribution for 1987 of US\$60,000) is US\$40,613.79. The cost estimate for the meeting remains below this amount.

For the organization of the workshop at IRRI, WHO contributed US\$20,000 (i.e., US\$10,000 from the VBC regular budget, and US\$10,000 from an AID grant to VBC), FAO US\$10,000 and UNEP US\$11,500 (i.e., US\$6500 to support participants and US\$5000 for the proceedings). Support for fifteen participants to attend the workshop amounted to US\$35,316.32, and for the purchase of the preliminary and the final proceedings by PEEM US\$6000 has been obligated. These amounts exclude the travel and per diem costs of the PEEM secretariat members.

Extra contributions received from the three sponsoring agencies include:

- FAO : US\$4,000 for the field testing of the forecasting guidelines in Zambia
US\$10,000 for the publication of a document containing a selection of working papers of previous PEEM meetings
- UNEP : US\$10,000 for PEEM publications : guidelines and manuals
- WHO : US\$3,000 for the development of a prototype Expert System
US\$10,000 for continuation of the St. Lucia project
US\$3,000 for continuation of Azolla research in China.

The financial input by IRRI and the USDA/RMMP for the organization of the workshop deserve mentioning as contributions toward PEEM activities by other organizations.

The PEEM Newsletter allotment is US\$1,641.39 in the red, due to currency fluctuations (the contract with World Water is in £ sterling).

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