

1996-1997 Progress Report

SUMMARY OF PROJECT

The International EMF Project is intended to provide independent scientific assessment of health effects from exposure to EMF (0-300 GHz); identification of gaps in knowledge requiring further research in order to obtain high quality scientific information that leads to improved health risk assessments; encouragement of a focused, high quality research agenda; formal WHO/IARC health risk assessments after this research is completed; encouragement of internationally acceptable standards for EMF device emissions and exposure limits; information on risk perception, risk communication, risk management of the EMF issue; advice for national programmes and non-governmental institutions; and brochures and fact sheets on various topics of interest on EMF emitting devices and health. Fact sheets will be available on the Project home page.

This progress report provides an update of Project achievements and activities for the period June 1996 to October 1997.

INTRODUCTION

This is the second progress report for the International EMF Project and follows the second International Advisory Committee (IAC) meeting held at WHO in Geneva 2-3 June 1997. Progress reports are distributed annually to all contributors to the Project. Copies of this and future reports of activities are provided on the WWW home page for the Project at: <http://www.who.ch/emf/>.

The International Commission on Non-Ionizing Radiation Protection (ICNIRP), the formally recognized non-governmental organization working with WHO on non-ionizing radiation (NIR) protection, is supporting the major scientific effort needed to complete the Project objectives. Three Standing Committees (Epidemiology, chaired by Prof. A. Ahlbom; Biology, chaired by Dr T. Tenforde; and Physics and Engineering, chaired by Prof. M. Grandolfo) have been formed by ICNIRP to assist with the extensive process of scientific review of research results. This effort is being supported by WHO collaborating institutions in France, Germany, Japan, Sweden, the UK and the USA. At the second meeting of the IAC, progress on the various activities, publications and scientific work were discussed. A copy of the minutes of the IAC meeting is available on the Project home page or from the Project Secretariat.

ORGANIZATIONAL STRUCTURE

The Project has a management advisory arm, the IAC, and a scientific arm, composed of ICNIRP and WHO collaborating institutions. Activities of both arms are coordinated and facilitated by the WHO Secretariat. The IAC:

1. Provides a forum for a coordinated international response on the health concerns raised by exposure to EMF fields.
2. Reviews scientific information related to public and occupational health, and environmental management of the EMF issue.
3. Recommends research in areas required for improved health risk assessments.
4. Provides oversight on the conduct of the Project.

5. Reviews outputs from the Project.

COLLABORATING ORGANIZATIONS

International

Since the first IAC meeting, the International Electrotechnical Commission and the North Atlantic Treaty Organization have joined as partners in the Project. Activities of all international organizations participating and collaborating with WHO in the Project are described below:

- International Commission on Non-Ionizing Radiation Protection (ICNIRP)
- International Agency for Research on Cancer (IARC)
- International Labour Office (ILO)
- International Telecommunication Union (ITU)
- European Commission (EC)
- International Electrotechnical Commission (IEC)
- United Nations Environment Programme (UNEP)
- North Atlantic Treaty Organization (NATO)

ICNIRP is an independent scientific commission established by the International Radiation Protection Association (IRPA) to advance non-ionizing radiation (NIR) protection for the benefit of people and the environment. It provides science-based guidance and recommendations on protection from NIR exposure, develops independent international guidelines on limits of exposure to NIR and represents the radiation protection professional world-wide through its close relationship with IRPA. ICNIRP is the formally recognized non-governmental organization in NIR for WHO and ILO. For further information on EMF activities of ICNIRP please contact: Mr R. Matthes, Scientific Secretary, ICNIRP, C/- Bundesamt für Strahlenschutz, Institut für Strahlenhygiene, Ingolstädter Landstraße 1, D-85764 Oberschleißheim, Germany. Tel:+49 89 31603288, Fax:+49 89 316 03289, [E-mail RMatthes@bfs.de](mailto:RMatthes@bfs.de)

IARC studies the carcinogenic effects of radiations as a function of exposure pattern, radiation type, and environmental effect modifiers. The aim of IARC's work is to strengthen the bases of radiation protection and to increase our understanding of biological mechanisms of carcinogenesis. For further information on EMF activities in IARC please contact: Dr E Cardis, Head, Programme on Radiation and Cancer, International Agency for Research on Cancer, 150, Cours Albert Thomas, F-69372 Lyon, Cedex 08, France, Tel:+33 4 72 738 508, Fax:+33 4 72 738 575, [E.mail: Cardis@iarc.fr](mailto:Cardis@iarc.fr).

ILO seeks to promote social justice and internationally recognized human and labour rights. It has published documents related to electromagnetic field exposure and occupational health in the ILO Occupational Health and Safety series. For more information about EMF activities in ILO please contact: Mr S. Niu, Occupational Safety and Health Branch, Working Conditions and Environment Dept., International Labour Office, 4, Route des Morillons, CH-1211 Geneva 22, Switzerland, Tel:+41 22 799 6716, Fax:+41 22 799 68 78. **ITU** promotes the development and efficient operation of telecommunications facilities. As the international organization responsible for advising

national governments and industry on telecommunications, ITU is aware of the controversy surrounding the possible health effects of EMF and has established a working committee to compile appropriate information on this subject. ITU has much information on current and future communications systems that will greatly assist the EMF Project. For more information on ITU activities in EMF contact: Mr Th. Irmer, Director, Telecommunication Standardization Bureau, International Telecommunication Union, Place des Nations, CH-1211 Geneva 20, Switzerland Tel:+41 22 730 5111 (5870), Fax:+41 22 733 7256 (5853), [E.mail: senuma@itu.ch](mailto:senuma@itu.ch).

The **EC** currently has many activities related to EMF. These involve the following Directorates General: Employment, Industrial Relations and Social Affairs (DG V); Science, Research and Development (DG XII), and Telecommunications, Market Information and Research Exploitation (DG XIII). DG V has supported publications by ICNIRP on EMF protection for many years. DG XIII is interested in research on possible health effects of RF fields, especially from those emitted by mobile telephones. In addition, DG XIII supports communications among European scientific researchers through the COST 244 initiative entitled "Biomedical effects of electromagnetic fields". Within this forum European scientists communicate their research results, suggest research needs, and discuss the results of research through special meetings. For more information on EMF activities in the EC please contact: Mr G. Gouvras, Head of Unit, European Commission, Directorate General V, Employment, Industrial Relations and Social Affairs, Bft. EUFORUM, Bureau 3174, Rue Robert Stumper, Gasperich, L-2920, Luxembourg, Tel:+352 4301 33465 Ext. 43011, Fax:+352 4301 33539, [E-mail georgios.gouvras@lux.dg5.cec.be](mailto:georgios.gouvras@lux.dg5.cec.be).

The **IEC** promotes international co-operation on all questions of standardization and related matters, such as the assessment of conformity to standards, in the fields of electricity, electronics and related technologies. It provides a forum for preparation and implementation of consensus-based voluntary international standards, facilitating international trade in its field and helping to meet expectations for an improved quality of life. IEC publishes international standards and technical reports; the international standards serve as a basis for national standardization and as references when drafting international tenders and contracts. Among other important IEC publications is the IEC Multilingual Dictionary of Electricity, Electronics & Telecommunications, which is based on the International Electrotechnical Vocabulary (IEV) database, and informative technical booklets known as Technology Trend Assessments (TTAs). These are a response to the need for global collaboration on standardization questions in the early stages of technological innovation and are designed to show the state of the art or trends in emerging fields of technology. For more information on the IEC please contact: Mr A.M. Raeburn, General Secretary, International Electrotechnical Commission, 3, rue de Varembe, Case postale 131, 1211 GenŠve 20, Switzerland, Tel:+41 22 919 02 11, Fax:+41 22 919 03 00.

UNEP provides leadership and encourages partnership in caring for the environment by inspiring, informing and enabling nations and peoples to improve their quality of life without compromising that of future generations. UNEP has jointly sponsored environmental health criteria monographs on electromagnetic fields with the WHO and IRPA/ICNIRP. More information about UNEP can be obtained from: Dr H. Gopalan, Programme Officer Environmental Health, United Nations Environment Programme, P.O. Box 30552, Nairobi, Kenya, Tel:+254 2 62 32 46, Fax:+254 2 22 6890 or 6886.

NATO: The North Atlantic Treaty Organization's "Third Dimension" seeks to encourage interaction between peoples, to consider the challenges facing our modern society and to foster development of Science and Technology. NATO continues to encourage and support scientific projects concerning Non-Ionizing Radiation (NIR) effects on personnel. Protection of personnel through development of safety standards is an ongoing activity of two NATO Military Agency for Standardization (MAS) working parties. The General Medical and the Radio and Radar Hazards Working Parties have both recognized the need for continued research and communication of the scientific knowledge on NIR biological and health effects and formally established liaison with the WHO EMF Project in June 1997. The NATO Research and Technology Organization (R&T O) AC(243 Panel 8 began a three-year project on "Health Effects of Non-Ionizing Radiation in the Military Setting" in September 1997. The broad multinational composition of both the WHO EMF Project and the NATO activities in NIR should enhance international interaction and facilitate coordination of research agendas for NIR. For more information about NATO activities in EMF contact: Dr B. Jon Klauenberg, NATO Technical Liaison for NIR, United States Air Force Research Laboratory, Human Effectiveness Directorate, Directed Energy Bioeffects Division, Radio Frequency Radiation Branch, 8308 Hawks Rd, Brooks Air Force Base, TX 78235-5324, USA Tel: +1-210-536-4837, Fax: +1-210-536-3977, [E-mail:b.jon.klauenberg@aloeer.brooks.af.mil](mailto:b.jon.klauenberg@aloeer.brooks.af.mil)

WHO collaborating institutions

Independent scientific agencies collaborating with WHO on the International EMF Project are:

NRPB: National Radiological Protection Board Chilton, Didcot, Oxon, OX11 0RQ, United Kingdom

BfS: Bundesamt für Strahlenschutz, Institut für Strahlenhygiene Ingolstadt, Landstrasse 1, D-85764 Oberschleissheim, Germany

KI: Karolinska Institute, Institute of Environmental Medicine, Epidemiology Division Box 210, S-171 77 Stockholm, Sweden

FDA: Food and Drug Administration, Division of Life Sciences, Center for Devices and Radiological Health 5600 Fishers Lane, Rockville, Maryland, USA

NIEHS: National Institute of Environmental Health Sciences, Box 12233, Research Triangle Park, North Carolina 27709, USA

NIOSH: National Institute of Occupational Health, Physical Agents Effects Branch Division of Biomedical and Behavioral Science, Mailstop R-44, 4676 Columbia Parkway Cincinnati, Ohio 45226-1998, USA

NIES: National Institute for Environment Studies, Environmental Risk Research Division 16-2 Onogawa, Tsukuba City, Ibaraki, 305 Japan

Current list of interested countries (to June, 1997).

Argentina, Australia, Austria, Bahrain, Belgium, Brazil, Bulgaria, Canada, China, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Hungary, Indonesia, Iran, Ireland, Israel, Italy, Japan, South Korea, Kuwait, Luxembourg, Malaysia, Malta, Mexico, The Netherlands, Norway, New Zealand, Poland, Russian

Federation, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, United Arab Emirates, United Kingdom, United States of America.

SECRETARIAT

The Project is managed from the WHO Office of Global and Integrated Environmental Health, Geneva by Dr M. H. Repacholi. The Secretariat facilitates all activities and provides regular reports to the International Advisory Committee and contributors to the Project. WHO Regional Offices participate where possible and facilitate communications with countries in their regions.

SCIENTIFIC WORK

The scientific work of the Project is conducted by independent scientists and research institutions, and ICNIRP in conjunction with WHO collaborating institutions.

SCIENTIFIC REVIEW MEETINGS

The Project holds scientific review meetings covering the low and high frequency electromagnetic fields. The objectives are to:

- review the status of the science;
- identify gaps in knowledge requiring further research for improved health risk assessments;
- promote focused research in the areas identified above, and
- advise on generic protocols for this research.

International seminars are held where leading scientists present status reports on dosimetry, in-vitro, in-vivo and human studies. Scientists having a wide range of expertise in appropriate areas are also invited to participate in panel discussions on each of these topics. The presentations and discussions are open to all interested persons and information recorded by rapporteurs during the meeting. Independent scientists participating in the meeting are also invited to participate in closed working groups to complete a report covering the objectives stated above.

Outputs from the meetings are:

- a. Proceedings of the scientific meeting published by ICNIRP;
- b. Working group reports published in a scientific peer-reviewed journal, giving the status of the science, gaps in knowledge needing further research and a prioritized research agenda.

RF fields scientific review meeting:

An international seminar entitled *Biological effects of non-thermal pulse and amplitude modulated RF electromagnetic fields and related health hazards* was held in Munich-Neuherberg at the Bundesamt für Strahlenschutz from 20 to 22 November 1996. The seminar was sponsored jointly by the World Health Organization (WHO), the International Commission on Non-Ionizing Radiation Protection (ICNIRP), the German Federal Ministry of Environment, Nature Protection and

Nuclear Safety, and the Austrian Ministry of Health and Consumer Protection. It was concluded that, although hazards from exposure to high-level (thermal) RF fields were established, no known health hazards were associated with exposure to RF sources emitting fields too low to cause a significant temperature rise in tissue. Biological effects from low-level RF exposure were identified needing replication and further study. These included:

In vitro studies of: cell kinetics and proliferation effects; effects on genes; signal transduction effects and alterations in membrane structure and function; and biophysical and biochemical mechanisms for RF field effects.

In vivo studies should focus on the potential for cancer promotion, co-promotion and progression, as well as possible synergistic, genotoxic, immunological, and carcinogenic effects associated with chronic low-level RF exposure. Research is needed to determine if low-level RF exposure causes DNA damage or influences central nervous system function, melatonin synthesis, permeability of the blood brain barrier, or reaction to neurotropic drugs. Reported RF-induced changes to eye structure and function should also be investigated.

Epidemiological studies should investigate:

- **the use of mobile telephones with hand-held antennae and incidence of various cancers;**
- **reports of headache, sleep disturbance and other subjective effects that may arise from proximity to RF emitters. Laboratory studies should be conducted on people reporting these effects;**
- **cohorts with high occupational RF exposure for changes in cancer incidence;**
- **adverse pregnancy outcomes in various highly RF exposed occupational groups; and**
- **ocular pathologies in mobile telephone users and in highly RF exposed occupational groups.**

Studies of populations with residential exposure from point sources, such as RF broadcasting transmitters have caused widespread health concerns among the public, even though RF exposures are very low. Recent studies suggesting an increased incidence of cancer in exposed populations should be investigated further.

A European Commission Expert Group reviewed the literature relating possible health consequences of RF exposure from radiotelephone use (EC, 1996). Their conclusions on health consequence and research needs are broadly in agreement with the report from the scientific review of WHO/ICNIRP held in Munich, 1996.

Research recommended in this report will now be encouraged and the results followed closely. One of the goals of the International EMF Project is to ensure that high quality research is conducted so that the results can contribute unambiguously to the database of scientific knowledge that is used in making health risk assessments. It was recommended that independent scientists join independent research review panels to assess proposed research projects, advise on the best researchers to conduct the studies, monitor progress of studies, provide advisory

first-stage review of the research results, and urge that the results are published by the researchers.

The final report for the RF meeting in Munich will be published in the first issue of 1998 of the *Bioelectromagnetics* journal. The reference publication is: Repacholi, M.H. (ed.) *Low-level exposure to radiofrequency fields: Health effects and research needs. Bioelectromagnetics (1998) 19: 1-19.*

Static and ELF fields scientific review meeting:

An international seminar entitled *Biological effects of static and ELF electric and magnetic fields and related health hazards* was held in Bologna from 4 to 6 June 1997. The seminar was sponsored jointly by the World Health Organization (WHO), the International Commission on Non-Ionizing Radiation Protection (ICNIRP), the German Federal Ministry of Environment, Nature Protection and Nuclear Safety, Japanese Ministry of Health and Welfare and the Swiss Federal Office of Public Health.

It was concluded that, while health hazards exist from exposure to ELF fields at high field strengths, the literature does not establish that health hazards are associated with exposure to low-level (environmental) fields. Similarly, exposure to static electric fields at levels currently found in the living and working environment or acute exposure to static magnetic fields at flux densities below 2 T, were not found to have demonstrated adverse health consequences. However, reports of biological effects from low-level ELF-field exposure and chronic exposure to static magnetic fields were identified that need replication and further study for WHO to assess any possible health consequences. Static electric fields have not been reported to cause any direct adverse health effects, and so no further research in this area was deemed necessary.

The final report will be submitted to the journal *Bioelectromagnetics*, as was the report of the Munich meeting on low-level RF fields.

Electromagnetic fields research in Eastern Europe

Much of the research conducted in the former Soviet Union is published in Russian and generally unavailable or unseen by scientists in other countries. The International EMF Project values the contributions from these scientists and needs to have it evaluated along with the rest of the world's scientific literature. An international seminar will be held in Moscow from 18 to 22 May 1998, to allow Eastern European scientists to give a summary of their work covering the frequency range 0-300 GHz. It is also intended that rationales for current EMF standards be explained. Especially important will be the scientific basis of the recently published standard for mobile telephones. The seminar will be coordinated in collaboration with Prof. Nikolay Izmerov, Director of the Russian Academy of Medical Science's Institute of Occupational Health, Professor Nikolay Bochkov, Vice-President, Department of Medical Genetics, Moscow Medical Academy, and Professor Yuri Grigoriev, General Director of the Centre of Bioelectromagnetic Compatibility within the Institute of Biophysics. More information on this meeting will be provided on the Project home page.

RISK ISSUES AND HEALTH POLICY MEETINGS

People perceive the risks of EMF exposure as an unknown hazard, and at a much higher level of risk than those for which they are familiar. Provision and communication of easily understood information on how people perceive EMF risks, the basis for their concerns about EMF exposure, and outlining a programme of EMF risk management may assist in alleviating people's concerns and reducing the gap in risk perception among the public, scientists, governments and industry. In addition, governments not having programmes in this area, and being confronted with concerns about possible EMF-induced health risks, need guidance on possible public and occupational health policies to adopt. Thus, a resource such as EHC monographs on risk perception, communication and management of EMF will support and enhance existing national programmes dealing with this vexing issue.

An international seminar was held in Vienna, from 22 to 23 October 1997 to discuss application of risk perception and risk management to EMF fields. This was followed by working group meetings to complete reports on this topic. Drafts of these documents will be completed by specialists from the areas of public health, media, psychologists and risk management. It is intended that cultural differences be fully addressed and so representatives with a wide range of ethnic backgrounds will be invited to participate in the development of the drafts. The publication from this activity will include an EHC on the science of risk perception, risk communication and risk management. This document will address EMF risk issues and will include recommendations for governments and other institutions on policy for managing the EMF issue.

PERCEPTION OF HAZARD

At the IAC meeting held in May 1996, it was recommended that there should be a separate study conducted on health effects that a person experiences when they perceive there is a health risk from EMF exposure. Such psychosocial health effects can be experienced in many forms and much data has already been accumulated following the effects reported by residents in areas contaminated by the Chernobyl accident. Depending on the amount and quality of data that can be obtained, a separate publication may be possible. Further research could then be undertaken to provide more information on these effects and how they should be managed. A WHO Collaborating Centre on Psychosocial Medicine has been contacted to assist with this activity. It is expected that a review of the data on perception of EMF hazards will be conducted to determine if further action is needed. It is expected that this review will be completed in 1998, and recommendations made for further action.

The European Commission, Directorate General V, contracted a panel of experts to investigate the occurrence of electromagnetic hypersensitivity across Europe. The relevant scientific literature was reviewed and reports of symptoms or adverse health effects were analysed. The expert group made recommendations to the EC on the status of this field and what action was necessary to alleviate the problem. The publication is: Possible health implications of subjective symptoms and electromagnetic fields. A report prepared by a European group of experts for the European Commission, DG V. U Bergqvist and E Vogel eds. Arbete och H,lsa 1997: 19. The publication is in English and is available from Dr U Bergqvist, National Institute of Working Life, Department of Occupational Medicine, Ekelundsv,gen 16, S-171 84 Solna, Sweden. This publication will be used as a basis for the WHO report.

ENVIRONMENTAL HEALTH CRITERIA REVIEWS

The International EMF Project will publish EHC reviews of the scientific literature on RF, ELF and static fields towards the end of the 5-year programme. These publications have been timed to allow the research identified by the scientific review meetings to be completed so that the results can be incorporated before the final EHC publication. During the focused research period, earlier reports will be reviewed by expert groups using scientific assessment criteria identified in Repacholi and Cardis (1997). Since in-depth reviews will take some years to complete, working groups will commence as soon as possible.

EHC publications are the result of in-depth critical reviews conducted through independent, scientific peer-review groups on various topics related to exposure of people, biological systems and the environment. The reviews will build on excellent reviews already completed and concentrate attention on the major research works already published, as well as the more recent literature. Reviews will be conducted of the peer review literature, however reports and other publications of well conducted research not in the peer review literature will also be considered. Conference abstracts will not be considered.

The basis for evaluating any health risk from exposure to EMF will be conducted using the established methods identified by IARC in their programme for assessing carcinogenesis from exposure to any physical or chemical agents. This has been elaborated in a paper by Repacholi and Cardis (1997).

Draft reviews of the physics/engineering, biology and epidemiology will be prepared by ICNIRP in conjunction with WHO collaborating institutions. When they are completed they will be sent to various agencies, institutions and individual scientists for review. Once comments have been incorporated, a combined report will be subjected to a formally constituted Task Group meeting. Membership of these Task Groups are approved by the Executive Director (Health and Environment) of WHO and will comprise representatives of the drafting committees and experts appointed by speciality, range of views, gender and geographical distribution. Following technical editing, the final document will be reviewed by the International Advisory Committee and then published as an EHC monograph by WHO.

HOME PAGE

Over the past year, a home page on the Internet world wide web has been established at the address <http://www.who.ch/emf/>. It provides details about the organization and scientific structure of the Project, an update on current events, copies of news releases and reports of IAC and scientific meetings, publications and their availability, and details of future meetings.

BROCHURE

A simple brochure will be published, written in lay terms, in which the Project and its activities will be described. This has not yet been prepared, but is scheduled to be completed before the end of 1997.

INFORMATION SHEETS

A series of brochures and WHO fact sheets have been drafted that provide general information about EMF. The topics include the health effects from exposure to: NIR, RF fields, mobile phones, mobile telephone base stations, radars, ELF fields, static magnetic fields and video display units (VDUs). It is expected that these will be available before the end of 1997. WHO fact sheets will be available on the Project home page.

NEWS RELEASES

A news release from WHO on the Project was issued in June 1996 and a further release was made in October, 1997 following the meeting in Vienna on "Risk perception, risk communication and its application to EMF exposure." Further details can be obtained from the Programme Manager, Health Communications and Public Relations, WHO, Geneva, Tel: +41 22 791 2532. Fax: +41 22 791 4858. All WHO press releases can be obtained on the Internet on the WHO HOME PAGE <http://www.who.ch/>

FINANCIAL SUMMARY

Financial support for the Project has been received from the governments of: Austria, Australia, Canada, Germany, Hong Kong, Ireland, Japan, New Zealand, Slovenia, Sweden, Switzerland and the United Kingdom. Many other governments are in the process of obtaining funds for continuing Project activities. A [summary of the funds collected and expended](#) to date and requirements of the Project is attached as Annex 1.

REFERENCES

EC (1996): Public health and safety at work, non-ionizing radiation: sources, exposure and health effects. McKinlay AF (ed) Directorate General V, Employment, Public Relations, and Social Affairs, Luxembourg: European Commission.

EC (1997) Possible health implications of subjective symptoms and electromagnetic fields. A report prepared by a European group of experts for the European Commission, DG V. U Bergqvist and E Vogel eds. Arbete och H,lsa 1997: 19.

The publication is in English and is available from Dr U Bergqvist, National Institute of Working Life, Department of Occupational Medicine, Ekelundsv,gen 16, S-171 84 Solna, Sweden.

Repacholi MH, Cardis E (1997): Criteria for EMF health risk assessment. Radiat Prot Dosim 72: 305-312 (1997).

Repacholi, M.H. (ed.) (1998) Low-level exposure to radiofrequency fields: Health effects and research needs. Bioelectromagnetics 19: 1-19.

Munich RF Meeting Report:

Repacholi, , and Greenebaum, B. (eds). (1998) Interaction of static and extremely low frequency electric and magnetic fields on living systems: health effects and research needs. To be submitted to Bioelectromagnetics.(to be submitted).

Bologna meeting report

[FOR FURTHER INFORMATION](#)

ANNEX 1 FINANCIAL STATEMENT

Statement of income and expenditure as at 19 May 1997

	US\$	US\$
Income received at WHO	660 477	
Expenditure		
Salaries (to end of 1997)		346 287
Secretarial support		119 327
Travel (WHO staff and others)		31 373
Work contracts		32 613
Consultants		23 972
Miscellaneous (postage, audiovisual & computer supplies, etc.)		8 720
Publications		1 800
Programme Support Costs		24 385
	<hr/>	<hr/>
	660 477	588 477
Uncommitted balance		
72 000		
Funds pledged (approx.)		1 360 000
Total funds pledged or received		2 020 477
Funds needed for 5-year project		3 330 000
May 1997 shortfall		1 309 523
May 1996 shortfall		2 130 000