



REPORT OF THE EIGHTH MEETING OF THE WHO PROGRAMME ADVISORY GROUP
ON THE PREVENTION OF BLINDNESS

Baltimore, 14-17 March 1989

INTRODUCTION

The Eighth Meeting of the WHO Programme Advisory Group on the Prevention of Blindness was held at the Dana Center, International Center for Epidemiologic and Preventive Ophthalmology, Wilmer Institute, Johns Hopkins Medical Institutions, Baltimore, USA, from 14 to 17 March 1989. The convening of the meeting at this institution was in response to an invitation issued earlier to mark the occasion of the centennial celebration of the founding of the Johns Hopkins Medical Institutions.

The meeting was attended by 11 of the 12 members of the Advisory Group, a representative of the World Bank and several executives of the international nongovernmental organizations collaborating with the WHO Programme for the Prevention of Blindness. The secretariat included Regional Advisers from five WHO Regional Offices in addition to headquarters Programme staff. The list of participants is attached as Annex 1.

The opening ceremony for this meeting included addresses by Dr A. Patz, Director of the Wilmer Institute, Dr D. A. Henderson, Dean of the School of Public Health, and Dr R. A. Ross, Dean of the School of Medicine.

Professor A. Sommer, from the host institution, was unanimously requested to serve as Chairman, and Dr S. Basurto de Garcia was appointed Vice-Chairman. Dr H. Faal acted as Rapporteur. The agenda was adopted without modification, and is attached as Annex 2.

1. REVIEW OF ACTIVITIES AT THE GLOBAL LEVEL

1.1 General overview

In general, the WHO Programme for the Prevention of Blindness (PBL) continued to expand its activities during the 1987-1988 biennium. The target laid down in the Seventh General Programme of Work of WHO, that there should exist national blindness prevention programmes in 60 countries by 1989, will be reached as scheduled. According to the information available, the global distribution of these programmes is as follows:

- African Region	: 16 countries
- Region of the Americas	: 15 countries
- Eastern Mediterranean Region	: 9 countries
- European Region	: 3 countries
- South-East Asia Region	: 10 countries
- Western Pacific Region	: 9 countries
Total	: 62 countries

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Worldwide, there is still a growing interest in the issue of blindness prevention, and in the PBL Programme. On the other hand, the economic recession seems to have severely affected the availability of national resources for health care in an increasing number of developing countries. Thus, the relatively low priority given to blindness prevention in some countries should be seen against this background and should not necessarily be regarded as a lack of interest. It is fortunate, in the present serious economic situation of developing countries, that the activities and resources of the several nongovernmental organizations collaborating with the PBL Programme show a steady increase.

Efforts to mobilize extrabudgetary resources have been made, but with limited success. As in previous years, the PBL Programme continued to receive support from the Japan Shipbuilding Industry Foundation through the Sasakawa Health Trust Fund, but the future of such funding is uncertain. There are ongoing projects with support from the Arab Gulf Programme for United Nations Development Organisations (AGFUND) in nine countries in the Region of the Americas, and in six countries in the South-East Asia Region. UNDP is also providing some support to the latter. At the global level, continued support is being provided by the National Institutes of Health/National Eye Institute (NIH/NEI), USA, to strengthen applied research within the PBL Programme. A major grant has also been received from the Edna McConnell Clark Foundation for the implementation of a simplified trachoma grading system in selected countries.

The overall staff situation is still unsatisfactory, with a heavy workload but lack of staff time in headquarters and in the African, Eastern Mediterranean and Western Pacific Regional Offices. This situation not only limits present programme activities; it also has serious repercussions on the capacity of the Programme to mobilize additional funds, in view of the work involved in the proper execution of projects. A further growth of programme activities cannot be expected unless additional manpower is included in new project proposals.

1.2 Meetings and programme documentation

At the global level, the following meetings were arranged during 1987 and 1988:

- The Seventh Meeting of the WHO Programme Advisory Group on the Prevention of Blindness, which took place at the WHO Regional Office for the Eastern Mediterranean in Alexandria from 16 to 19 March 1987.
- A working group on the "Finalization of the WHO/PBL Eye Examination Record", which met in Geneva in October 1987.
- A symposium on ocular leprosy, which was held at the WHO Collaborating Centre for the Prevention of Blindness at the International Centre for Eye Health, London, from 21 to 23 September 1987, in collaboration with the Francis I. Proctor Foundation for Research in Ophthalmology, San Francisco, also a WHO Collaborating Centre for the Prevention of Blindness.
- A working group on "The development of managerial skills in blindness prevention programmes", which was convened in Geneva from 13 to 16 June 1988.
- A working group on "Development of educational material on cataract", which was held in Tunis, Tunisia, on 12 and 13 November 1988.
- An interregional meeting on the "Management of corneal blindness within primary health care systems", which was organized from 14 to 17 November 1988 in Tunis, Tunisia.

In addition to the reports of the above-mentioned meetings, other recent programme documentation included fact sheets on trachoma and on cataract, as well as an update of the global data bank on blindness. The WHO magazine *World Health* devoted its entire May 1987 issue to the theme "Save sight", with articles on blindness prevention.

1.3. Collaboration with Regions and other programme areas

A number of programme activities have been undertaken in collaboration with the WHO Regional Offices, and also with other WHO programmes.

In the African Region, two seminars were conducted on the prevention of blindness, for French- and English-speaking countries. Both seminars were supported by funds from the Japan Shipbuilding Industry Foundation; these have also been available for specific support to national programmes in a few selected African countries.

Other collaborative activities include preparatory missions and work on the development of a national programme in Togo as a follow-up to previous field surveys on blindness and a population-based survey in the Republic of the Congo.

In the Region of the Americas, the PBL Programme Manager participated in the annual meeting of the Inter-Agency Coordinating Group promoting Eye Care Caribbean in October 1988.

With regard to the Eastern Mediterranean Region, collaborative activities included a scientific working group on primary eye care held in Amman, Jordan, in December 1987, and on-site visits and an evaluation of the national blindness prevention programme in Tunisia.

In the European Region, a consultation on the prevention of visual disability was organized in Brussels, Belgium, in April 1988. Other activities included visits to Malta and Turkey, in view of the development, respectively, of a glaucoma control scheme and a population-based survey on blindness.

In the South-East Asia Region, there was joint input for a meeting on evaluation of training schemes in blindness prevention, which took place in Korat, Thailand, in November 1987.

In the Western Pacific Region, the development of national programmes in several countries was supported. The availability of funds from the Japan Shipbuilding Industry Foundation has made possible a considerable increase in programme activities in this Region over the last two years.

The PBL Programme has, as in previous years, collaborated with the unit of Nutrition concerning xerophthalmia and its control. Work is also continuing on a collaborative basis with the Leprosy unit, concerning the prevention of visual loss from leprosy.

Collaboration has continued with the Onchocerciasis Control Programme in West Africa, in relation to the ophthalmological evaluation of the impact of vector control. The main event in the field of control of onchocerciasis has, however, been the availability of a new drug, ivermectin, as from late 1987. During 1988, the PBL Programme has been involved in a number of consultations not only within WHO, where the Programme forms part of an ivermectin in-house committee, but also with Merck, Sharp & Dohme (MSD), and with some nongovernmental organizations. The National Eye Institute in Bethesda, USA, hosted two consultations in 1988 on ivermectin, with the participation of several nongovernmental organizations, representatives of MSD and other advisers.

1.4 Collaboration with nongovernmental organizations

Work has proceeded on the elaboration and dissemination of training aids in eye care, in collaboration with nongovernmental organizations, as follows:

- Finalization, with the help of Helen Keller International Inc. (HKI), of a booklet and of three new posters on cataract, primary eye care skills and the general promotion of eye health.
- Reprinting of the poster on "Primary Eye Care", previously developed in collaboration with the International Eye Foundation. More than 95 000 copies of this poster have now been printed in 14 different languages.

The PBL Programme also participated in meetings arranged by collaborating nongovernmental organizations, namely:

- Annual meeting of the International Organization against Trachoma, Paris, May 1987.
- Second Meeting of the Consultative Group of Nongovernmental Organizations to the WHO Programme, held in Nairobi, Kenya, March 1988.
- Second General Assembly of the World Blind Union, held in Madrid, September 1988.
- Annual meeting of the Inter-Agency Coordinating Group promoting Eye Care Caribbean, held in Port of Spain, Trinidad and Tobago, October 1988.

1.5 Research

The existing network of WHO Collaborating Centres for the Prevention of Blindness has continued to carry out training and applied research in the field of blindness prevention. The most recently designated Collaborating Centre (1987) is the Institute of Ophthalmology in Beijing, People's Republic of China. Reference is made to the separate short reports submitted by the Collaborating Centres for this meeting, which are annexed to this report (Annex 3).

The National Institutes of Health/National Eye Institute (USA) have continued to provide support under a contract for strengthening of the WHO Programme, focusing on applied research in specific fields. The Edna McConnell Clark Foundation has made available a grant for the development of training material and introduction of a simplified trachoma grading scheme in selected endemic countries.

1.6 Discussion

When discussing the development of the global Programme, it was felt that there was a need to consider in more detail in what proportion of countries and populations blindness constituted a public health problem. It was pointed out that, even in relatively developed countries, there were particularly vulnerable groups, such as homeless and displaced people. In view of the new target for the PBL Programme in the Eighth General Programme of Work of WHO, requiring the establishment of national blindness prevention programmes in all countries where blindness constituted a public health problem, it was suggested that a small working group should look into the implications of this target, in terms of number of countries and populations concerned.

The need for more permanent staff in the Programme was highlighted by the Group, particularly the need for full-time Regional Advisers for PBL in the African Region and the Region of the Americas. The successful programme development in the South-East Asia Region bears witness to the potential for mobilization of support, provided the required staff input is available. It was proposed that, in some Regions, the use of consultants on a regular basis might be an appropriate formula to strengthen the Programme and relieve some of the workload for the Regional Advisers.

The Programme has accumulated an increasing amount of documentation and it was felt that a list, in the form of a pamphlet, of all available publications, reports and educational material would be useful. Such a pamphlet might also be publicized through the IAPB¹ Newsletter and disseminated through both WHO and nongovernmental channels.

The need to pursue the promotion of managerial skills for programme development was strongly emphasized by the Group. This issue is of critical importance in many countries, and it was felt that further efforts should be made by the Programme in its collaboration with Regional Offices and countries to arrange national, intercountry or regional workshops and seminars for development and training in managerial skills for blindness prevention programmes. Work on this has been initiated in some Regions and countries and should be expanded to other areas as needed.

2. REVIEW OF REGIONAL ACTIVITIES

The presence of the Regional Advisers for the Prevention of Blindness from each of the WHO Regions (except Europe) was appreciated and provided a welcome opportunity for sharing of experiences and insights.

It was repeatedly stated that the Regional Offices had not always been kept adequately informed of developments in national programmes and in particular of the results of surveys, nongovernmental projects or the activities of WHO Collaborating Centres.

2.1 The African Region

The prevalence of blindness in the African Region has been estimated to be 1.2%. It is therefore acknowledged that about 5 000 000 people suffer from this disability, while another 5 000 000 are afflicted by severe visual handicap. This trend has been confirmed by the national population-based surveys carried out in the Congo and Togo last year. Other, more limited surveys were also carried out in Botswana, Burundi, Central African Republic, Chad, Gabon, Lesotho, Mozambique and Zaire.

The major causes of visual disability are cataract, onchocerciasis, trachoma, glaucoma and vitamin A deficiency. Cataract alone accounts for over 2 900 000 blind persons or 58% of all blindness.

The WHO Onchocerciasis Control Programme in West Africa has registered satisfactory progress through its vector control activities. However, the disease still presents a major public health problem in the untreated areas. It is expected that the recent availability of the new drug Mectizan® (ivermectin) will improve the situation.

Trachoma remains a major problem in most countries of the Region. Vitamin A deficiency is increasingly being acknowledged as a major cause of blindness in drought-affected countries of the Sahel as well as the eastern and southern parts of Africa. The situation regarding glaucoma is not clearly known.

The paucity of ophthalmologists and auxiliary ophthalmic personnel constitutes a major constraint in the endeavours to formulate and implement realistic programmes. Lack of finance and other resources is another major drawback.

The number of ophthalmologists in the Region is estimated at one per million population. Most of these are expatriates who are rendering curative and sight restorative services in the urban centres. In some countries, notably those of southern and East Africa, eye care services are being provided by ophthalmic medical assistants mainly at provincial and district levels.

¹ International Agency for the Prevention of Blindness.

To overcome these constraints, the need to reorientate policies and give special emphasis to the training of auxiliary eye personnel was recognized and strongly recommended by the subregional seminar on prevention of blindness held in Bujumbura from 2 to 6 November 1987. This seminar was followed by the Subregional Workshop on Manpower Development for Blindness Prevention in Africa, which was held in Accra, Ghana from 5 to 8 July 1988.

The Auxiliary Training Institute at Lilongwe (Malawi) continues to train ophthalmic medical assistants from different parts of the Region. One hundred and fourteen auxiliary eye personnel have so far undergone training in the Institute, partly through the WHO Fellowships programme. Several others are benefiting from the WHO Fellowships programme in training as ophthalmologists in the countries of the Region and abroad. The African Institute of Tropical Ophthalmology (IOTA) in Bamako has been receiving WHO assistance in support of its training activities. The training of ophthalmic nurses, and more recently of ophthalmologists, is being conducted at the Institute which is the sole WHO Collaborating Centre for the Prevention of Blindness in the African Region.

The recent availability of extrabudgetary funds has made it possible for WHO to procure and supply drugs and equipment for a number of countries. Activities in these countries also depend to a considerable extent on the support of those nongovernmental organizations involved in the field of blindness prevention in the Region. The importance of the role played by these nongovernmental organizations is fully recognized and appreciated by the Member States and WHO.

To date, 16 countries have already established national programmes and committees for the prevention of blindness. Others are following suit.

The following salient points emerged from the discussion :

- An inventory of all the training institutes should be taken and made available to all interested parties.
- The list of ophthalmologists working in the African Region should be updated.
- The report of the Accra meeting dealing with training of different categories of health personnel was appreciated; the Group suggested that the term "community health worker" should be used instead of "primary eye worker".
- The initiative of training of cataract surgeons, who are not ophthalmologists, was fully endorsed by the Group.
- The need for more ophthalmic medical assistants and cataract surgeons was highlighted.

2.2 The Region of the Americas

A gross estimate may be made from available data that in 1984 the number of blind in Latin America was between 1 760 000 and 2 315 000.

While cataract, diabetes, glaucoma and trauma may affect large segments of the population in all the countries, certain communicable diseases such as trachoma and onchocerciasis are restricted to limited areas.

There are social and economic problems which have to be faced as a multisectoral challenge, such as xerophthalmia in the case of malnutrition.

The Region of the Americas shows remarkable differences between and within countries in terms of epidemiological patterns of morbidity and development of health services. This situation is reflected in the policies, programmes and priorities of national health

plans and eye care programmes. As a result of joint efforts by the Pan American Health Organization (PAHO), national governments, nongovernmental organizations and the Pan American Association of Ophthalmology, seven countries of Latin America and the majority of the Caribbean Islands had, by the end of 1987, established prevention of blindness programmes in their ministries of health. This represents 50% or more of the countries of the American Region. The expansion of the programme will necessitate mobilization of a wide range of resources, both nationally and internationally. More specifically, efforts will be made to establish links with the nongovernmental organizations active in this field.

Training of personnel is the responsibility of national programmes, but PAHO provides technical cooperation and limited supplies and materials. These have included filmstrips and audiovisual aids on ocular health to encourage the establishment of national eye care programmes, and manuals aimed at different levels of the primary health care system.

In the Region of the Americas, the Arab Gulf Programme for United Nations Development Organisations (AGFUND) has provided support to prevention of blindness programmes in the Caribbean (Grenada, Guyana, Haiti); Central America (Belize, El Salvador, Honduras, Nicaragua); and South America (Bolivia, Paraguay).

As part of the support that PAHO gives to Member States, the Regional PBL Programme has provided technical advice, at the planning and implementation stages of epidemiological research related to cases of blindness and eye disease, cataract, leprosy and glaucoma in Bolivia, Brazil, Chile, Guatemala, Peru and in some of the Caribbean Islands.

The particular conditions of the Region make it necessary to focus action on cataract, eye injuries and the provision of low-cost spectacles. To carry out this action, the WHO Regional Office for the Americas/PAHO is going to focus on subregionalization. In fact, North America, Central America, the Andean belt, the Southern Cone and the Caribbean seem to be "natural" subregions, each with characteristic geographical, population and socioeconomic conditions. The Regional Office has a capacity to mobilize the political will at the country level and to give logistic support to national/subregional programmes and to local projects.

The Region of the Americas has a special input through the Pan American Association of Ophthalmology (technical support) and is looking to improve the input from nongovernmental organizations actively working in this field throughout the Region, at both the technical and the financial level.

The Regional Office will improve its activities with regard to training of health personnel in eye care at the basic level and also in the dissemination of information, and will start supporting some joint prevention of blindness/deafness projects on an experimental basis. In order to carry out its five-year plan of action, the Regional Office needs financial support to appoint a Regional Adviser for the Prevention of Blindness on a full-time basis.

2.3 The Eastern Mediterranean Region

In many countries of the Region, an overburden of preventable and curable eye disorders causes a socially and politically unacceptable prevalence of visual impairment and blindness. Most of the conditions are due to communicable diseases and are related to environmental, socioeconomic and educational circumstances.

The overall prevalence rate of blindness in the Region decreased from 4% in endemic areas in 1980 to approximately 2.5% in 1988. The prevalence rate varies from country to country and also within the same country. For example in Tunisia the prevalence rate has been reduced from 4.5% to 2.8% and from 3.4% to 0.8% in two different parts of the country since 1979, and in Sudan from 4.4% to 1.5%.

Trachoma is still a common cause of visual loss in Afghanistan (12%), Somalia (30%), Sudan (28%) and Tunisia (4.2% of schoolchildren). Trachoma is also a known major cause of blindness in Morocco, Oman and the Yemen Arab Republic.

The other most important cause of blindness is cataract. Blindness due to cataract is common in Afghanistan (25%), Egypt (31.9%), Jordan (21.4%), Pakistan (60%) and Saudi Arabia (55%). With regard to blindness in children, congenital cataract (12.9%), retinitis pigmentosa and glaucoma are common in Jordan due to the large number of consanguineous marriages. These surveys have been carried out and, based on data available, reports prepared by WHO staff and consultants. There is a clear indication that, as a result of socioeconomic development and better health care services, the prevalence rate of trachoma is declining while cataract is becoming a major eye health problem.

Other less statistically prominent causes of blindness include onchocerciasis, which is a particularly serious health problem in southern Sudan.

Xerophthalmia and keratomalacia due to vitamin A deficiency have been reported to be common in children in Afghanistan (2.5%). The surveys conducted recently in Djibouti showed that up to 25% of children living in rural areas and 35% in urban areas have xerophthalmia due to vitamin A deficiency.

A preliminary survey has indicated that roughly 15-20% of schoolchildren in many countries have refractive errors and are in need of spectacles.

The Regional PBL activities focused on cooperation with Member States in promoting the planning and implementation of national programmes for the prevention of blindness.

Primary eye care is recognized as the key strategy for blindness prevention and the delivery of eye care services in countries of the Region and in the WHO collaborative programme with Member States. The development of a primary health care approach to the prevention of blindness has, over the last few years, been one of the major achievements of the WHO Programme in its collaboration with Member States. The integration of primary eye care as part of a primary health care programme has already started in Oman, Somalia, Sudan and the Yemen Arab Republic.

WHO staff and consultants visited many countries of the Region to assist in the formulation or updating of national programmes and plans of action for prevention of blindness.

In the framework of WHO activities for health manpower development in the field of blindness prevention, short- and long-term courses and workshops for training different categories of health personnel for eye care have been conducted in several countries of the Region. In addition, WHO fellowships were awarded to ophthalmologists for training in the field of public health ophthalmology.

Efforts have been made to train opticians and hospital refractionists for screening children's eyesight to detect refractive errors. Support was also extended to facilitate the provision of low-cost spectacles to needy children. Pakistan and Jordan are two countries where this activity is progressing satisfactorily.

The Regional PBL Programme has collaborated closely with international and nongovernmental organizations in the promotion and development of training programmes, eye care services and field research. Collaboration is maintained with Christoffel Blindenmission (CBM) and the World Blind Union (WBU) in Somalia, Helen Keller International (HKI) in Morocco and the United Nations Development Programme in Jordan (establishment of a cytogenetic laboratory).

2.4 The European Region

There is no specific programme or budget for the prevention of blindness in the European Region, but certain activities have been undertaken with extrabudgetary financial support, or in collaboration with the global Programme. A consultation on "Prevention of Visual Disability" was convened in Brussels in April 1988 at the invitation of the Belgian Government. The report of that meeting is available from the Regional Office for Europe under reference ICP/RHB/017. Other activities included the planning of a population-based assessment of glaucoma in Malta, as the first step of a feasibility study on the management of that disorder in specific population groups. Furthermore, a population-based survey in eastern Turkey has been planned and will be carried out in April-May 1989 as a research activity in collaboration with the global Programme.

2.5 The South-East Asia Region

Activities related to prevention and control of visual impairment and blindness are part of the health delivery system in all countries. In most countries these are within the context of national blindness prevention programmes, while in a few they are implemented on an *ad hoc* basis.

Among the constraints to programme planning, monitoring and evaluation, which are progressively being overcome, the lack of reliable epidemiological data in a number of countries has been a problem. Available data point to a prevalence rate of blindness ranging from 0.2% to 2%, and even higher in underserved areas in some countries. The pattern of blindness is uniform in most countries, with cataract accounting for over 50% of blindness and constituting the bulk of curable blindness.

The strategy for the delivery of eye care has been its integration into the primary health care delivery system - a strategy which is facilitated by the close linkages that exist between several elements of primary health care and the multifactorial causes of blindness. The restoration of sight to the cataract blind is being tackled energetically in most countries, with recourse to intensive outreach programmes wherever necessary and feasible.

The collaborative efforts of the Regional PBL Programme have as their objective the attainment of self-reliance in the provision of essential eye care to the populations of Member countries as part of primary health care. To this end, activities at the Regional and country levels have, *inter alia*, included the following:

- (i) Strengthening of the health care infrastructure, with emphasis on district-level planning and eye care delivery.
- (ii) Training of various categories of health and allied personnel in the concepts of primary eye care and reorientation and continuing education of personnel already involved in the provision of eye care.

A noteworthy feature has been the training, through the WHO Fellowships programme, of key personnel from a number of Member countries in public health ophthalmology and community eye health at two WHO Collaborating Centres for the Prevention of Blindness, namely the International Center for Epidemiologic and Preventive Ophthalmology in Baltimore and the International Centre for Eye Health in London respectively. In addition, several study tours and fellowships have been supported for exchange visits of both senior and middle-level eye care personnel to various centres within the Region.

- (iii) In strengthening the infrastructure, emphasis has already been placed on further strengthening and streamlining of mobile services and introduction of the concepts of quality assurance in outreach services. In areas where communication

difficulties were being overcome, great attention was paid to the establishment of "static" outreach services, which served as a cost-effective alternative to the mobile eye camp approach.

(iv) The establishment of national programmes continued to receive priority and two of the remaining three Member countries made policy commitments to developing national programmes for eye care and blindness prevention. Support was also provided for the review of national programme activities in some countries and for the assessment of unmet needs.

(v) The need to update epidemiological information on ocular morbidity and blindness was realized some time ago. Some of the data from countries in the Region were nearly 15 years old. Support was provided for major epidemiological studies, some on a national basis and others in more localized areas. The final outcome of these studies should be forthcoming shortly.

(vi) Apart from the support provided for the prevention and control of major blinding conditions, such as cataract, trachoma and xerophthalmia, increased attention has been paid to blindness from leprosy and to corneal infections. An Intercountry Workshop on Training of Trainers in Control of Blindness from Leprosy, held in Kathmandu, Nepal, from 12 to 15 October 1988, set in motion the preparation of educational material for use in the field by the patient, his family and community, and also by the health personnel involved. This material, which is in preparation, is expected to be field-tested in the next few months.

(vii) Progress in the development of low-cost spectacle projects at the national level has been slow. While provision exists under a UNDP-supported primary eye care project for development of such projects in selected Member countries, unforeseen local events and some delay in the recruitment of a consultant have retarded implementation. Nevertheless, considerable headway has been made in two countries.

(viii) Health systems research in blindness prevention programmes in Member countries has been promoted in respect of facilitating the identification of problems and seeking solutions to them. Such research has also involved the study of alternative approaches for the delivery of primary eye care.

Linkages with the Nutrition unit were strengthened in the context of the regional programme of xerophthalmia control. The Nutrition and Prevention of Blindness programmes jointly supported the Regional Meeting on Vitamin A held in Jakarta, Indonesia, in November 1988, and close collaboration with the Leprosy unit facilitated the holding of the Intercountry Workshop on Training of Trainers in Control of Blindness from Leprosy, held in Kathmandu.

The Regional PBL Programme also worked together with the Research and Health Manpower Development units in identifying areas for promotion of health systems research and the planning, development and evaluation of manpower training in Member countries.

Apart from the WHO regular budget provision in the 1986-1987 and 1988-1989 biennia, both at regional and country levels, support has also been received from the Arab Gulf Programme for United Nations Development Organisations (AGFUND), Christoffel Blindenmission, the Japan Shipbuilding Industry Foundation, through the Sasakawa Health Trust Fund, and UNDP. Support on a bilateral basis was provided by Antheri Hilfe e.V. (Federal Republic of Germany) for the programme in Bhutan, and by several international nongovernmental organizations and government agencies to individual Member countries in the South-East Asia Region.

A full-time position of Regional Adviser for the Prevention of Blindness at the Regional Office facilitated these developments through the formulation of appropriate project proposals for consideration by donor agencies.

2.6 The Western Pacific Region

Much of the blindness problem in the Western Pacific Region is preventable by applying simple technology as in other parts of the world. There is a wide range of estimated prevalences of blindness in the Region, but most of these are based on registers and institutional records. The need for more accurate population-based information in all countries on the prevalence and causes of blindness is therefore essential. With respect to developing countries, the inadequacy of trained staff and lack of facilities for training, treatment and rehabilitation further complicate the picture. During this period, it was observed that countries fall into three distinct groups: firstly, those that have effective national programmes or are able to act as a resource, namely Australia, Japan, New Zealand and Singapore; secondly, countries such as China, Fiji and Viet Nam, which have initiated national programmes and expanded their activities; and thirdly, countries where programmes exist but are not universal within the country, namely Malaysia, the Philippines and the Republic of Korea.

It was noted that the PBL Programme in the Region was making considerable progress and the main reason for this was attributed to the increased awareness of national health authorities. There was a moderate increase in regular budget funds in most countries.

In the discussion it was pointed out that the main problem remains the huge backlog of cataract, especially in China, where a reasonable estimate of 4-6 million cataract blind, in comparison with a reported average of around 50 000 operations/year, does not appear to be very promising. The political commitment of a target of 500 000 operations/year if implemented would be a very positive step. Some concern was expressed about the imbalance in the development of intraocular lens implants compared to intracapsular cataract operations, the persistent existence of couching in China and the support given to traditional medicine.

Satisfaction was expressed at the considerable progress achieved in the prevention of blindness programme in Viet Nam, which was noted as a good example where limited resources had contributed to a good national programme primarily due to the national commitment. Progress has also been noted in the national blindness prevention programme development in the Lao People's Democratic Republic.

Owing to diverse socioeconomic development in the Region, the PBL Programme would obviously have varying orientations in different countries, viz., low vision care, early diagnosis of preventable blindness in children, etc.

It was observed that there is considerable scope for technical cooperation among developing countries (TCDC) in the Region to support the PBL Programme. The Group noted that the regional workshop scheduled for April 1989 would look into the question of training in the Region.

3. REVIEW OF RECENT PROGRAMME DOCUMENTATION

In its review of programme documentation issued over the last two years, the Group made the following comments :

3.1 "Formulation and Management of National Programmes for the Prevention of Blindness" (PBL/84.3 Rev.1)

It was noted that this document, which is a revision of a previous PBL document, now provides a much more comprehensive and relevant overview of the planning and management aspects of national programmes. A working group, convened in Geneva in 1988, spent considerable time and effort in expanding the contents of the document, with very good results. The Group felt that this document would be of particular value in the future development of national programmes and therefore recommended that it should appear as a WHO publication; this would provide the visibility and distribution mechanism needed for

this kind of programme document. Furthermore, it was recommended that annexes be added to the document, such as parts of the existing publication *Methods of Assessment of Avoidable Blindness*, the report of the Task Force on Evaluation Mechanisms for Blindness Prevention Programmes and the recently finalized WHO/PBL Eye Examination Record with its coding instructions. It was agreed that the PBL secretariat would consult the Office of Publications of WHO with regard to the formula for issuing one comprehensive publication.

3.2 "Report on the Second Meeting of the Consultative Group of Nongovernmental Organizations to the WHO Programme for the Prevention of Blindness" (PBL/89.1)

The Group noted with appreciation this report, which provides much valuable information on the collaborative activities between the PBL Programme and the major international nongovernmental organizations working in the field of blindness prevention. The Minutes of the meetings of the Consultative Group of Nongovernmental Organizations complement the reports of the Programme Advisory Group, and there should continue to be close contact and exchange of information between the two parties.

During the course of this discussion, it was announced by the European-based nongovernmental organizations that they are making a joint effort to obtain funds for blindness programmes in developing countries from the European Community.

3.3 "Draft Report of the Working Group on Educational Material on Cataract" (PBL/89.2)

The issue of developing educational material on cataract and its management was discussed in detail by the Group. The draft report was considered to be useful, and it was agreed that the proposed material should reach a wide audience of decision-makers, health administrators, health personnel and the public. It was pointed out that field-testing and evaluation would be needed for the training aids on cataract recognition at the primary and first referral levels, in order to assess the value of recognition cards on cataract and treatable blindness.

3.4 "Consultation on Prevention of Visual Disability" (PBL/PVD-BRU/89.1)

It was noted that this report resulted from a meeting convened by the WHO Regional Office for Europe, and the Group expressed its appreciation of this initiative. The report was considered to be useful; some members pointed to the need perhaps to place even more stress on rubella vaccination as a preventive measure against congenital cataract, and the importance of habilitation of children with low vision.

3.5 "Report of the Interregional Meeting on Control of Corneal Blindness within Primary Health Care Systems" (WHO/PBL/89.16)

The Group noted with appreciation this comprehensive document on corneal blindness, which raised issues not previously dealt with, such as harmful eye practices and prevention of visual loss from leprosy, and which proposed new approaches to the management of corneal ulcers. It was felt that this report, together with the report of the interregional meeting on the management of cataract within primary health care systems, covered most of the essential concepts of the PBL Programme. It was therefore recommended that these reports be widely distributed.

The focus upon several common blinding diseases was appreciated, as was the unique value of interregional meetings, such as the one that had developed this report. These meetings facilitate collaboration at all levels, including between regional programmes. The Programme Advisory Group decried the apparent budgetary constraints preventing future meetings of this sort.

4. ACTIVITIES OF THE WHO COLLABORATING CENTRES FOR THE PREVENTION OF BLINDNESS

The reports of the WHO Collaborating Centres were discussed by the Group. The main activities comprised training and research. It was noted that, despite an active regional programme in the South-East Asia Region, there was at present only one Collaborating Centre in this Region. Members stressed the need to identify more leading centres and other potential but fledgling centres, particularly in the African and the South-East Asia Regions, for possible designation as Collaborating Centres and National Centres respectively. The need to enhance collaboration between existing Centres, and between the Collaborating Centres and National and Subregional institutions, was also identified in order to develop a network that would support the prevention of blindness programme in the different Regions. It was emphasized that it was imperative to keep the relevant Regional Office informed of collaborative activities between Collaborating Centres and Member States both within and outside the Region where the Centre is located. This would facilitate information-sharing between these Centres, nongovernmental organizations and WHO both at regional and global levels. As a further step to coordination, it would be useful to convene meetings between the Collaborating Centres, to consider matters of regional and interregional importance, but this would obviously have some budgetary implications. It was noted that major ophthalmological congresses or the IAPB General Assemblies might nevertheless provide opportunities to bring together the Directors of Collaborating Centres, even if only for short consultations.

The detailed reports of the Collaborating Centres are attached as Annex 3.

5. COLLABORATION WITH NONGOVERNMENTAL ORGANIZATIONS

The subject of the report introduced by the Chairman of the Consultative Group of Nongovernmental Organizations to the PBL Programme was that of the Group's support to the training of indigenous ophthalmic workforces in Africa, Latin America and the Caribbean, and Asia and the Pacific.

5.1 Introduction

The nongovernmental organizations in the Consultative Group are all members of the International Agency for the Prevention of Blindness and work closely with the WHO Programme for the Prevention of Blindness in the promotion and development of its objectives.

Despite considerable individual differences in size, financial resources and the nature and scope of their activities, these international nongovernmental organizations, based in North America, Europe and Australia, have achieved a close working relationship, which is reflected in the growing number of collaborative approaches to funding various components of national eye care programmes. They provide technical cooperation and direct services through government ministries, local nongovernmental organizations and community groups, and are united in having as one of their major priorities the training of indigenous ophthalmic workers at all levels of health care in developing countries. In these tasks, the members of the Consultative Group expend over US\$ 30 million annually.

5.2 Africa

5.2.1 Background

In July 1988, a WHO Subregional Workshop on Manpower Development for Blindness Prevention in Africa was held in Accra, Ghana. Over 17 countries were represented and contributed to a compilation of data which emphasized the following facts:

- The overall prevalence of blindness in Africa is more than 1%, with at least 5 million blind people, of whom 3 million have cataract, which is treatable.

- In most African countries, there is one ophthalmologist per million population; since most of them work in the few large cities, there is a great need to train ophthalmic personnel for eye care services in rural areas.

The categories of ophthalmic personnel already in service or undergoing training in some countries can be listed as follows:

- (a) Those trained in intraocular surgery:
 - ophthalmologists (3-4 years' training);
 - cataract surgeons (one year's training for selected ophthalmic medical assistants).
- (b) Full-time intermediate eye workers:
 - ophthalmic medical assistants (one year's training);
 - ophthalmic nurses/assistants (three months' - one year's training).
- (c) Integrated eye workers:
 - trained medical personnel (doctors, nurses, etc.);
 - community health workers/primary health care workers.

5.2.2 Experience to date

At the request of respective ministries of health, nongovernmental organizations are assisting in the development of training programmes for ophthalmic medical assistants in the following countries:

Kenya	from 1976	(ophthalmic clinical officers)
United Republic of Tanzania	from 1976	(assistant ophthalmic medical officers)
Malawi	from 1979	(ophthalmic medical assistants)
Ethiopia	from 1987	(ophthalmic medical assistants)
Uganda	from 1989	(ophthalmic medical assistants)

To date, over 250 ophthalmic medical assistants have been trained.

More recently, Kenya, Malawi and the United Republic of Tanzania have started a one-year training course for selected ophthalmic medical assistants in cataract surgery for blinding "senile" cataract.

5.2.3 Other training sponsored by nongovernmental organizations

Training programmes for ophthalmic nurses have been established with the Ministries of Health in Ghana, Sierra Leone and the United Republic of Tanzania. The Institute of Tropical Ophthalmology in Africa in Bamako, Mali, has training programmes for ophthalmologists (four years) and ophthalmic nurses for some francophone countries.

Short, in-service training courses, varying in length from three weeks to three months, have been run in Burkina Faso, Cameroon, The Gambia, Ghana, Sierra Leone and Zaire. In particular, a three-month in-service course, which has trained over 200 students from more than 15 African countries, has been operating in the United Republic of Tanzania since 1978.

Individual sponsorships for doctors to train in ophthalmology in Nairobi, Glasgow, Jerusalem and Harare have been granted by nongovernmental organizations.

Ophthalmologists and selected ophthalmic medical assistants have been sponsored to train in community eye health at the course in London and in public health ophthalmology at the course in Baltimore.

The experience gained in training ophthalmic medical assistants and cataract surgeons in East Africa has been positive and of great value in developing the ophthalmic workforce for blindness prevention programmes in the subregion. This experience now needs to be transferred to the situation in West Africa.

5.3 Latin America and the Caribbean

5.3.1 Background

International nongovernmental organization support to the training of ophthalmic personnel in the countries of Latin America and the Caribbean has been far more limited than that in Africa, but is beginning to expand, as reflected in the moves currently under consideration to support the post of Regional Adviser for the Prevention of Blindness at the WHO Regional Office for the Americas/Pan American Health Organization (PAHO) in the development of a major programme in collaboration with ministries of health and national nongovernmental organizations. A seminar on community eye care is scheduled to be held in Colombia in May 1989 for 15 ophthalmologists drawn from the Region.

Beginning with the Inter-Island Eye Service for the Eastern Caribbean, based in Barbados, the international nongovernmental organizations have collaborated with PAHO, the Caribbean Community (CARICOM), the ministries of health and the Caribbean Council for the Blind (CCB) in establishing Eye Care Caribbean through the work of the Inter-Agency Coordinating Group. The CCB's Prevention of Blindness Officer, sponsored by nongovernmental organizations, administers the Secretariat for Eye Care Caribbean.

Cataract is the leading cause of blindness in all countries of the Region and available data indicate the number of blind people to be in excess of 2 million.

5.3.2 Sponsored training of ophthalmologists, doctors, nurses and primary health care workers

As a consequence of the activities described above, continuous efforts by nongovernmental organizations have been concentrated over the past 10 years mainly in the Caribbean, with the single exception of Peru in Latin America.

In the Caribbean, most training has been of an in-service nature for doctors, nurses and primary health care workers in the majority of islands and extending to the mainland in Belize, Guatemala, Guyana and Honduras. Additionally, ophthalmologists have been trained for Belize, the Dominican Republic, Grenada and St Vincent, and nurses have attended the community eye health course in London.

In Peru, the national eye care programme has generated the training of doctors, ophthalmologists and "Sanitorios" in primary eye care and, more recently, the advent of a "cataract-free zone" has resulted in the training of auxiliary health teams for the campaign promoting the zone. Similar training has been sponsored for a "cataract-free zone" in Brazil.

In-service training for nurses and doctors has been sponsored in Bolivia, Brazil, Chile, Colombia and Ecuador.

5.4 Asia and the Pacific

5.4.1 Background

In common with Africa, the high prevalence of blindness in Asia, particularly in the subcontinent, has resulted in a situation where most nongovernmental organizations have been sponsoring eye care programmes and the training of ophthalmic personnel at all levels for more than 20 years. By contrast, involvement in the Pacific has been more recent and activities much more limited.

5.4.2 Categories of ophthalmic personnel

The scope of training sponsored by nongovernmental organizations covers that for ophthalmologists, cataract surgeons, ophthalmic nurses, ophthalmic technicians, dispensing opticians and low-vision technicians and, in primary eye care, doctors, nurses, leprosy workers and primary health care workers.

The main Asian centres used for such training are private trust hospitals in Karachi, Quetta and Taxila in Pakistan; Madurai, Manipal, Tiruchiripalli and Vellore in India; government hospitals in Bhutan, China (Beijing), Malaysia (Sabah and Sarawak), Nepal and Sri Lanka; and the national nongovernmental organization's Eye Infirmary and Training Complex in Chittagong, Bangladesh.

In-service training has been conducted in Fiji, Papua New Guinea and, more recently, the Solomon Islands. Ophthalmologists have been trained in North America, Australia, Europe and Japan.

One of the most significant examples of such training exists in the annual course for cataract surgeons and ophthalmic paramedical personnel run by the Eye Infirmary and Training Complex in Chittagong, Bangladesh. This course trains general practitioners for cataract surgery and paramedics to work with them in servicing the base eye hospitals and the eye camp work of the Bangladesh National Society for the Blind (BNSB). It started in 1979 and the course for general practitioners has been progressively extended in content and duration to the point where it is hoped that future graduates will be awarded a Diploma in Community Ophthalmology by the Chittagong University. In 10 years, the number of cataract operations conducted in BNSB eye camps has risen from 16 015 to 84 471.

6. MOBILIZATION OF RESOURCES

The Advisory Group participants discussed in depth the important issue of the further mobilization of resources for blindness prevention, particularly in support of national programme development. Whereas the nongovernmental organizations represented at the present meeting spend in total more than US\$ 30 million per year on the prevention of blindness, the WHO Programme operates a much more modest budget, in fact less than 10% of the nongovernmental organization resources, half of which comes from extrabudgetary sources. The main donors to the PBL Programme are the Japan Shipbuilding Industry Foundation (JSIF), the Arab Gulf Fund for United Nations Development Organisations (AGFUND), the National Institutes of Health (NIH) and, in the South-East Asia Region, the United Nations Development Programme. Contributions have also been received from some of the collaborating nongovernmental organizations in support of specific country activities.

With regard to bilateral funding, this mechanism has so far not been much used for blindness prevention programmes, with one or two exceptions. It is, however, difficult to envisage major increases in this funding, as only a relatively small part of bilateral funding tends to go to the health sector, and then usually for broad strengthening of infrastructure. Still, bilateral funding should be considered in all possible settings, particularly when local nongovernmental organizations may collaborate with ministries of health and with international nongovernmental organizations, as some donor countries have funds available in support of such projects.

The following points were stressed by the participants in the course of the discussion of mobilization of resources:

- There should at least be a "token" contribution of a country to its national blindness programme through the regular WHO funds as a sign of commitment, which may make it easier to attract other sources, in particular support from nongovernmental organizations.
- Countries should propose sound and comprehensive national plans, which can then more easily serve as a basis for a project document and request for funding.
- A "subregional" approach may be useful in some settings, such as in the Caribbean or the South Pacific; this, however, requires close consultation and coordination between the countries concerned, on a TCDC² basis.
- The exchange of information between international nongovernmental organizations and WHO Regional and country offices needs to be strengthened, to encourage optimal identification and utilization of resources. It was suggested that, whenever convenient, representatives of nongovernmental organizations pay short visits to WHO Regional or country offices, in conjunction with visits to their supported projects. Furthermore, major nongovernmental organization reports on country developments for blindness prevention may be made available to the WHO Regional Office concerned. A representative of WHO may also be invited to attend the regional review meetings of the nongovernmental organizations when appropriate.

With regard to manpower resources, the Group debated at length several issues, as follows:

- There is a great need to mobilize trained eye surgeons to deal with the backlog of curable cataract blindness.
- Some areas of the world have a sufficient number of trained eye surgeons, but the distribution of these eye surgeons within individual countries is unsatisfactory, i.e., urban versus rural areas.
- In other areas of the world, particularly Africa, the number of eye surgeons is inadequate. Thus each country must develop its own strategy for mobilization of eye surgeons.
- Nongovernmental organizations should be encouraged to assist national programmes in developing training programmes for eye surgeons and in recruiting experienced eye specialists to provide continuous surgical services while countries develop self-reliance in manpower.

There is an increasing worldwide interest amongst ophthalmologists in developed countries to work for short periods of time in developing countries. This is a positive trend, but some thought must be given to the constraints in using expatriate ophthalmologists, e.g., the lack of continuity of services, the frequent need for more sophisticated facilities and equipment to satisfy the visiting ophthalmic surgeon, the difficulties in adapting to new and often primitive working conditions, different patient behaviour, language constraints, etc. In the discussion of this matter, the following criteria for efficient use of expatriate specialists emerged:

- Only qualified and experienced ophthalmologists should be considered: should junior specialists be available, then appropriate supervision and support must be ensured.

² Technical Cooperation among Developing Countries.

- The specialist should spend a reasonable period of time in the country (at least three months).
- There should be regular visits for continuity of services; this may be arranged on a rotational basis amongst a few surgeons.
- There should be a commitment to serve a defined area, population or hospital set-up.
- Expatriate specialists should preferably be used for teaching, rather than routine services.
- High priority should always be given to the training of local ophthalmologists, whenever needed.
- Briefing for the expatriate specialists should be arranged prior to their arrival at the selected workplace, as this may greatly facilitate their rapid adaptation to a developing country situation, and thus their ability to work effectively.

7. SPECIFIC PROGRAMME ISSUES

7.1 The relationship to programme 13.15(b) "Deafness"

Following a request made at the Seventh Meeting of the Advisory Group, the issue of deafness had been included on the agenda for the present meeting, for the purpose of general information and discussion. It was explained that at present, under the Seventh General Programme of Work in WHO, there is a Programme for the Prevention of Deafness and Hearing Impairment which is managed within the Rehabilitation unit. As from 1990, with the implementation of the Eighth General Programme of Work, there will be a new joint programme title of Blindness and Deafness (reference 13.15) with two programme components named 13.15(a) Blindness and 13.15(b) Deafness. This does not necessarily imply a joint managerial structure for the two programme components, but is pending a decision by the Director-General of WHO. The Programme for the Prevention of Deafness and Hearing Impairment is in a phase of early development, with a very limited budget available, and will in principle depend on the future mobilization of extrabudgetary resources. Amongst the wide range of causes of deafness or hearing impairment, attention is being paid to congenital, infectious, occupational and age-related causes; the availability of low-cost hearing aids is also covered by the Programme. The prevention of otitis media, which is probably one of the most common causes of hearing loss, is however dealt with mainly by the Programme for Acute Respiratory Infections.

In the discussion of this issue the Group expressed its appreciation to the Organization for having established a Programme for the Prevention of Deafness and Hearing Impairment. It was felt that loss of hearing may well constitute a public health problem in certain countries, but it is often a medical and social problem which is not properly recognized. Furthermore, there is a serious lack of reliable data on the magnitude and epidemiology of disorders leading to hearing loss, much as was the case for blindness a decade ago. It should also be noted that blinding diseases and care for the blind, in contrast to disorders leading to hearing impairment, have traditionally been in the sphere of interest of both medical services and welfare groups, blindness representing a 100% invalidity if no rehabilitative services are provided.

The Group members emphasized the priority they felt should be given to the congenitally deaf and blind child, where early training and habilitation are of utmost importance. It was noted that an International Agency for the Prevention of Deafness had been established and that some countries in the Regions of the Americas and of South-East Asia have expressed interest in setting up projects for deafness prevention.

The Group felt that, in order to achieve successful development and growth of this new programme, it should be given its own independent identity and develop strategies within primary health care systems.

7.2 The role of the PBL Programme in ivermectin distribution schemes

The Group members and representatives of the international nongovernmental organizations took note and expressed their appreciation of the fact that ivermectin is now becoming available for the large-scale control of onchocerciasis in endemic countries. The drug, which is commercialized under the trade name of Mectizan®, is available in tablets of 6 mg, with two tablets in each package. The drug trials conducted in recent years, presently at the community level, have so far confirmed that ivermectin is a highly effective microfilaricide which does not usually provoke unpleasant or harmful side-effects, as has been the case with the drug previously used, diethylcarbamazine-citrate (DEC-c). Thus, a treatment scheme with an annual dose of 150 µg/kg has been demonstrated to reduce to almost undetectable levels the number of microfilariae in the skin, which eliminates both the itching, skin changes and, above all, the appearance of serious eye lesions.

The manufacturer, Merck, Sharp and Dohme (MSD), is making ivermectin available for public health programmes free of charge in those endemic countries interested. This company has established close cooperation with WHO, and a liaison group, including a representative of the PBL Programme, has been set up in WHO headquarters. The liaison group meets regularly with representatives of MSD to discuss the applications received, and to provide complementary information. The final decision as to whether to make ivermectin available is then taken by an independent Expert Committee established by MSD. The manufacturer has developed, in consultation with WHO, a complete application package which requests information on the onchocerciasis situation in the country in question, the population group to be treated, post-treatment surveillance, etc. Another part of the application package is destined for the formal approval of the Ministry of Health of the country concerned to the use of ivermectin in the hands of the proposed coordinator/investigator.

Contributions of ivermectin have already been authorized for all the countries participating in the Onchocerciasis Control Programme in West Africa under the auspices of WHO. Several other countries in Africa have followed in setting up pilot projects for ivermectin distribution through the existing health systems. In the western hemisphere, Mexico is embarking on a large-scale ivermectin programme, with Guatemala and others expected to follow soon.

The role of the PBL Programme in the distribution of ivermectin is through national blindness prevention programmes, or acting as a liaison for nongovernmental organization work in this field. Following negotiations during 1988, collaboration between three of the international nongovernmental organizations working with PBL and the Onchocerciasis Control Programme in West Africa has resulted in an agreement whereby Christoffel Blindenmission (CBM) and the Royal Commonwealth Society for the Blind (RCSB) will both start working in Sierra Leone, and the Organisation pour la Prévention de la Cécité (OPC) in Guinea. It can be expected that several other African countries will request support from nongovernmental organizations in the setting-up of national distribution programmes, the scarcity of trained manpower and lack of transport facilities constituting common constraints.

8. REVIEW OF TERMS OF REFERENCE FOR THE PROGRAMME ADVISORY GROUP; PROCEDURE FOR CONSULTATIONS WITH NONGOVERNMENTAL ORGANIZATIONS FOR PROPOSALS FOR NEW MEMBERS

It was explained that the procedure for appointments used to date involved consulting all WHO Regional Offices and three of those nongovernmental organizations dealing with blindness prevention in official relations with WHO, in order to arrive at a shortlist of proposed new members for the Director-General's approval. This consultative process had become cumbersome, with increasing correspondence and sometimes duplication of effort. It was therefore proposed, and unanimously agreed by the participants, including the representatives of the nongovernmental organizations, that in future this consultation process could be coordinated through the International Agency for the Prevention of Blindness, of which all the nongovernmental organizations concerned are members. The Agency would then request proposals from its various member organizations and forward one joint shortlist to WHO. The terms of reference for the Advisory Group were revised accordingly by the Group and are attached as Annex 4.

9. OTHER MATTERS: LOW VISION

The issue of low vision care had been added to the agenda for the present meeting of the Group in view of the fact that some countries with national blindness prevention programmes were now gradually also developing services for patients with irreversibly low vision. This group of patients, i.e., those who have vision less than 6/18 (0.3) but equal to or better than 3/60 (0.05), is often in a difficult position from a socioeconomic point of view, not being "blind" and thus entitled to rehabilitative and social services, but not being well sighted enough either to carry on a normal life. The information and statistics available indicate that there are equal numbers of people suffering from low vision and blindness, i.e., around 30 million worldwide. The main approach used in developed countries for cases of low vision is by training in the best use of residual vision, sometimes supported by the use of optical aids, such as telescopic lenses, magnifying glasses, etc. Some of the nongovernmental organizations collaborating with the PBL Programme are partly involved in this field as a complement to their rehabilitation projects.

The participants stressed that children are the most important group for low vision care, as it can make a tremendous difference to their further educational capacity. The elderly are another group often suffering from low vision; however, the results of training and use of optical devices are generally less good than with children. In many developing countries, optometrists are particularly involved in low vision services, together with special low vision teachers. There may be a need for creating new cadres of staff if large-scale low vision services are to be provided. The technology available for low vision patients is very multifaceted, from simple magnifying glasses to complete (and expensive) scanners. Particular attention to simple and affordable technology in this field is therefore needed in most developing countries. Furthermore, it was pointed out that the provision of low vision care and services is still a "grey" area between ministries of health and ministries for education, when children are involved. Ideally, low vision care should have connections with both ophthalmology and rehabilitation, but most cases are today probably handled through centres attached to eye departments.

The participants felt that the issue of low vision was fairly complex, and therefore requested that this matter be discussed in more detail at the next meeting in 1991; if possible, a working paper providing background on causes of low vision around the world would facilitate a more comprehensive review of this matter and its programmatic implications.

CONCLUSIONS AND RECOMMENDATIONS

1. The Group noted with appreciation that the target under the Seventh General Programme of Work for the PBL Programme has been achieved, i.e., the establishment of national blindness prevention programmes in at least 60 countries by 1989. There is, however, still a need to consolidate and strengthen many existing programmes. It is therefore recommended that additional resources be mobilized to this effect, whilst at the same time encouraging the initiation of new programmes in other countries.
2. In view of the future target for the PBL Programme to have national programmes wherever blindness constitutes a public health problem, it is recommended that a small working group be convened to consider in detail the number of countries and populations concerned, the use of standardized assessment methods, and the main programme implications.
3. As in previous meetings, the Group again wished to stress the crucial importance of having sufficient staff available at the WHO Regional level for effective programme development. It was felt that there was a particular need for a full-time PBL post in both the African Region and in the Region of the Americas. It is recommended that the option of regular consultants be considered in the other Regions.
4. The PBL Programme has elaborated a wealth of documentation and educational material. It is recommended that a list of existing publications, reports and other material be made available by the Programme; this could be easily disseminated and publicized both through WHO and through nongovernmental organization channels.
5. The Group took cognizance of the efforts made by the PBL Programme both at global and regional levels to promote the development of low-cost/affordable spectacles within the context of national programmes, in order to meet the requirements particularly of children with refractive errors and patients operated on for cataract. Although its success has been limited in some Regions owing to commercial obstacles, it is recommended that the PBL Programme continue to promote and support this activity in countries where such a need has been identified.
6. Despite the development and overall success of prevention of blindness programmes in some countries, blinding conditions such as xerophthalmia and trachoma are still major problems in some underserved communities. It is recommended that the affected communities be identified, those blinding diseases controlled and disease surveillance maintained. New and appropriate methods of control may need to be developed for certain underserved communities, in urban slums, refugee camps and scattered isolated populations.
7. The Group recommends the collection of reliable data on the nature and causes of blindness in developed countries, as well as methods for dealing with them. This will provide valuable guidance to developing countries as they deal with present and emerging problems.
8. The draft report, "Formulation and Management of National Programmes for the Prevention of Blindness" (PBL/84.3 Rev.1), was considered to be a very useful document, which responded to the recommendation for such guidance at the last meeting of the WHO Programme Advisory Group for the Prevention of Blindness. The Group strongly recommends the widest possible distribution of this document, preferably in published form, incorporating as annexes additional material relevant to the assessment and management of blindness.
9. The number of ophthalmologists in developed countries averages one per 20 000 inhabitants. In developing countries, where the rates of blindness are much higher, the ratio of ophthalmologists is, however, often very low, averaging one per million in Africa, and most of them work in the larger cities. The Group recommends that

national programmes consider, as a minimum target, to have one ophthalmic medical assistant per 100 000 population, and one cataract surgeon per 200 000 population. This implies that the present number of cataract surgeons being trained annually in Africa needs to increase tenfold if self-reliance in ophthalmic manpower is to be achieved.

10. In the development of national blindness prevention programmes, it is recognized and recommended that: (i) primary eye care must be an integral part of the primary health care services; (ii) managerial skills are an essential but often overlooked component; (iii) the paramedical ophthalmic assistant is extremely important in providing eye care services to isolated/underserved communities; (iv) it is essential to achieve maximum efficiency and productivity of existing eye care personnel.
11. The Group welcomes and supports the development of national programmes for training ophthalmic medical assistants and cataract surgeons in Africa, as documented in the recent report of the workshop held in Accra. It recognizes the need to mobilize further resources to facilitate the training and equipping of these ophthalmic personnel. The ongoing contribution of nongovernmental organizations in these activities is appreciated and encouraged.
12. Cataract is by far the single most important cause of avoidable blindness. While countries make intensified efforts to increase surgical output, the Group felt that it was imperative that national programmes should lay down minimum standards of surgical performance and establish mechanisms to evaluate and ensure quality of surgical services and patient satisfaction.
13. The Group discussed the continuing practice of couching for cataract in some parts of the world. It considered that this procedure has an unacceptably high rate of complications leading to irreversible blindness. It is therefore recommended that couching be strongly discouraged.
14. The Group took note of the inclusion of a new programme under 13.15 of the Eighth General Programme of Work of the World Health Organization, and expressed its appreciation of the establishment of a Programme for the Prevention of Deafness and Hearing Impairment, recognizing this as a public health problem. Based on the experience of the PBL Programme, it was felt that, in order to facilitate the mobilization of resources to support this new programme, it should have a free-standing, independent identity.
15. The work of the WHO Collaborating Centres for the Prevention of Blindness was appreciated. It was noted that there was a need to strengthen collaboration between Centres in order to foster the exchange of information and expertise. It is recommended that opportunities for increased consultation between these Collaborating Centres be created. Furthermore, the need for new Centres in certain Regions was recognized, and the establishment of such Centres should be encouraged. Where there is a promising institution, it can initially affiliate with an existing Collaborating Centre.
16. The Group notes with appreciation and enthusiasm the recent availability of ivermectin as a new approach for control of blindness due to onchocerciasis. The PBL Programme, in its collaboration with several international nongovernmental organizations, can play a major role in the development of future national large-scale ivermectin distribution schemes. It is therefore recommended that all possible efforts be made by the PBL Programme and interested nongovernmental organizations to support developments in this field in endemic countries.

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Mr A. Jenkyns, Chairman

Professor Jean Langlois, President
Miss Claire Cabanis, Secretary-
General

Mr Alan Johns, Executive Director

Dr Suzanne Gilbert, Executive
Director (unable to participate)

Mr Alan Johns, Executive Director,
Royal Commonwealth Society for the
Blind, Haywards Heath, West Sussex,
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Annex 1

SECRETARIAT

- Dr V. Carazo, Short-term Consultant, WHO Regional Office for the Americas/Pan American Sanitary Bureau, 525, 23rd Street N.W., Washington, D.C. 20037, United States of America
- Dr M.E. Chuwa, Regional Adviser - Non-Communicable Diseases, WHO Regional Office for Africa, P.O. Box N^o 6, Brazzaville, Congo
- Dr K. Konyama, Department of Ophthalmology, Juntendo University School of Medicine 3-1-3 Hongo, Bunkyo-ku, Tokyo, 113 Japan (Temporary Adviser to the Secretariat)
- Dr A. Modjtabai, Regional Adviser - Non-Communicable Diseases, WHO Regional Office for the Eastern Mediterranean, P.O. Box 15127, Alexandria - 21511, Egypt
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- Dr A.-D. Négrel, Ophthalmologist, Programme for the Prevention of Blindness, World Health Organization, Avenue Appia, 1211 Geneva 27, Switzerland
- Dr R. Pararajasegaram, Consultant - Prevention of Blindness, WHO Regional Office for South-East Asia, World Health House, Indraprastha Estate, Mahatma Gandhi Road, New Delhi - 110002, India
- Dr Helena Restrepo, Programme Coordinator - Health Programmes for Adults, WHO Regional Office for the Americas/Pan American Sanitary Bureau, 525, 23rd Street, N.W., Washington, D.C. 20037, United States of America
- Dr B. Thylefors, Programme Manager, Programme for the Prevention of Blindness, World Health Organization, Avenue Appia, 1211 Geneva 27, Switzerland (Secretary of the Meeting)

AGENDA

Opening of the Meeting

Election of Officers

Adoption of the Agenda

1. Review of programme development:
 - global level
 - in the Regions
2. Review of recent programme documentation
3. Activities of the WHO Collaborating Centres for the Prevention of Blindness
4. Collaboration with nongovernmental organizations
5. Mobilization of resources for programme development
6. Specific programme issues:
 - the relationship to programme 13.15(b) "Deafness"
 - the role of the Programme for ivermectin distribution schemes
7. Review of terms of reference for the Programme Advisory Group; procedure for consultations with nongovernmental organizations for proposals for new members
8. Any other matters

Conclusions and Recommendations

Date and place of next meeting

Closure of the meeting

AFRICAN INSTITUTE OF TROPICAL OPHTHALMOLOGY
Bamako, Mali

Director: Dr P. Vingtain

1. RESEARCH

In 1987 and 1988 the African Institute of Tropical Ophthalmology pursued the following research for prevention of blindness:

- 1.1 Ivermectin treatment of onchocerciasis; end of fifth therapeutic trial in October 1987.
- 1.2 Sensitivity to retina autoantigen and onchocerciasis antigen in the determination of chorioretinitis in onchocerciasis patients (in collaboration with INSERM U 86/Hôtel Dieu). Results described at the Immunopathology Congress, Padua (1986) and Louvain (1987).
- 1.3 Study of a macrofilaricide (in collaboration with the National School of Medicine and Pharmacology of Mali).
- 1.4 Incidence of bacterial and viral infections in ocular diseases. Work began in 1985: second part of the study (June 1987 to June 1989) in association with the Hôtel Dieu de Paris, the Virology Unit of Grange-Blanche Hospital, Lyon and the University of Rabat (Morocco).
- 1.5 Retinitis pigmentosa: research into autoimmune response against retinal proteins in chorioretinal inflammatory or degenerative diseases (in collaboration with INSERM U 86 Hôtel Dieu, Paris - Laboratory of Ocular Immunopathology).
- 1.6 Descriptive epidemiology.
 - 1.6.1 Prevalence and causes of blindness in the River Niger inner delta, Republic of Mali.
 - 1.6.2 Causes of blindness among residents at the Institute for Young Blind People, Bamako. Results: among those under 16 years of age, 63.1% suffered from avoidable blindness: sequelae of infectious diseases accounted for 51%, 23% resulting from measles. Congenital glaucoma accounted for 12%. 72.4% of all cases of blindness at the Institute were avoidable.

2. TRAINING

- 2.1 Two-year course leading to specialist nursing diploma in ophthalmology, awarded by OCCGE.³

The Institute trained 22 candidates in the 1986-1987 biennium and has an intake of 6 candidates for the 1988-1989 biennium. Priority is given to candidates from the eight OCCGE Member States, although candidates from other countries may apply.

³ Organisation de Coordination et de Coopération pour la Lutte contre les Grandes Endémies.

Annex 3

2.2 Traineeship (2 months for student nurses; 45 days for medical students).

The Institute took on 95 trainees over the biennium.

2.3 Certificate of specialization in ophthalmology (four years' hospital training).

So far four Malian doctors have taken this diploma. They have been sent to the local centres of Sikasso, Kayes, Mopti and Ségou. Five physicians are undergoing training at present: two Malians and three from other French-speaking countries - Burkina Faso, Niger and Chad.

3. OPTHALMOLOGY CLINIC (activities from 1 January 1987 until 1 October 1988)

- Consultations	114 700
- Major operations	2 225
- of which, cataract operations	1 649
- Other operations	3 751
- of which, trichiasis operations	1 431

Note: Cataract accounts for 74% of surgical activity, glaucoma 6.9%. For every ten cases of glaucoma at the African Institute of Tropical Ophthalmology, 6 are in the final stages.

4. PLANNED ACTIVITIES (1989)

4.1 Continue treatment of onchocerciasis, both at the African Institute of Tropical Ophthalmology and in collaboration with the Department of Epidemiology and Prevention for areas not covered by the Onchocerciasis Control Programme (mass treatment).

4.2 Prevalence of open-angle glaucoma: two epidemiological surveys are planned for 1989.

4.3 Vitamin A deficiency/xerophthalmia: three surveys planned for 1989.

4.4 Further work on chorioretinitis in onchocerciasis patients.

4.5 Blindness surveys: two surveys on the prevalence and causes of blindness are planned.

INTERNATIONAL CENTRE FOR EPIDEMIOLOGIC AND PREVENTIVE OPHTHALMOLOGY
Baltimore, United States of America

Director: Professor A. Sommer

1. SUMMARY OF ACTIVITIES 1987-1988

In addition to the wide range of research and training activities of the Wilmer Institute and the Johns Hopkins Medical Institutions as they relate to ophthalmology and blindness prevention in general, the International Center for Epidemiologic and Preventive Ophthalmology concentrates on public health issues directly related to its role as a WHO Collaborating Centre for the Prevention of Blindness, Xerophthalmia and Onchocerciasis.

2. TRAINING

Another post-doctoral Master's Degree Programme in Preventive Ophthalmology was held in the 1987/1988 academic year. A total of 13 participants from ten different countries attended. All but two have returned home to assume major research, academic or government positions. One remains enrolled in a doctoral programme in epidemiology and another has continued with two years of practical field experience in a research project related to the prevention of blinding trachoma through appropriate surgery. In addition, three American Board-certified ophthalmologists continue in 2-5 year full-time training positions. Additional short-term training activities cover a wide variety of topics and venues. These vary from visiting scholars, who have come to spend 1-3 months completing analyses of collaborative research projects, to a mobile training activity that has visited 4 continents training people in impression cytology for the diagnosis and assessment of vitamin A deficiency and xerophthalmia in the community. In addition, a number of training aids have been produced, including an African version of the Centre's "field card to the detection and treatment of xerophthalmia" (published in 5 languages) and a self-teaching manual detailing impression cytology techniques.

3. RESEARCH

Research activities continue in the areas of glaucoma, cataract, trachoma, xerophthalmia and nutritional blindness, onchocerciasis, strabismus, trauma, and related topics. Major achievements during these past two years include:

- A second major trial was completed demonstrating the impact of vitamin A supplementation on xerophthalmia, growth, anaemia, and mortality. In addition, the impression cytology technique has been refined with the development of a specialized applicator that improves reliability, and field studies initiated to better identify immunological changes mediating vitamin A's impact on resistance to infection.
- The "Waterman Field Study" definitively demonstrated the increased risk of cortical cataract formation associated with ultraviolet B rays and the lack of association between UVB exposure and nuclear cataract. Simple plastic glasses will reduce exposure by over 80%. A wide brimmed hat will reduce exposure an additional 50%. A case-control study in a similar geographic area indicates UVB also increases the risk of posterior subcapsular cataract. The public health implications are clear and require intervention trials to demonstrate the value of UVB reduction in reducing the rate of cataract formation and progression.

Annex 3

- The large Baltimore Eye Survey completed field work and entered early analysis. Preliminary data confirm the greater risk of glaucomatous optic nerve damage among black Americans. This will have important implications for targeting intervention programmes in the USA and heightening awareness of their importance in other areas, like Africa.
- Risk factor analysis in a field trial in the United Republic of Tanzania identified a number of hygiene and environmental factors that contribute to the level of blinding trachoma. This had led to a phase in which anthropological assessments are being carried out to identify specific personal and community practices amenable to intervention. A third phase will actually attempt to carry out a controlled trial in which alternative interventions will be compared with one another.
- The safety and efficacy of ivermectin treatment for onchocerciasis has been confirmed and appropriate dosage levels identified. A greatly enlarged, long-term study has now entered a new phase.
- The Centre has undertaken a new initiative developing approaches for modelling cost-benefit analyses for eye care and blindness prevention activities. The first model concerns diabetic retinopathy.

Future activities will continue along all of the above lines, even as other initiatives come to fruition and additional ones are begun.

FRANCIS I. PROCTOR FOUNDATION FOR RESEARCH IN OPHTHALMOLOGY
San Francisco, United States of America

Director: Dr C. R. Dawson

The major efforts of the San Francisco Centre have been devoted to trachoma control and epidemiology. Major projects have been carried out in collaboration with the Institut d'Ophthalmologie de Tunis and the University of Alexandria, Alexandria, Egypt.

A population-based survey of trachoma and blindness was conducted in a rural Nile Delta hamlet. Trachoma remains hyperendemic in this region. Estimates of blindness based upon this survey and other surveys in Egypt indicate that blindness is still a serious public health problem in rural Egypt. The number of blind persons in Egypt will increase from an estimated 420,000 in 1980 to 868,000 by the year 2020. The current crude blindness rate of 1.8% is expected to increase to 2.3% in the year 2000 and to 3.2% in the year 2020.

To estimate the total number of blind from trachoma in the world, the pattern of trachomatous blindness has been projected for populations in Africa and Asia with blinding trachoma.⁴

⁴ Extracted from "Trachoma and blindness in Egypt: Current prevalence and further projections for the other endemic regions" by Courtright, P., Dawson, C. R., Sheppard, J. & Schachter, J.

Annex 3

Because there is a large cohort of young people with trachomatous scarring who will develop complications, the estimated number of trachomatous blind may increase by as much as three times in the next 30 years. This does not take into account the possibility that some blindness may be prevented by trichiasis surgery.

Identifying children at risk of blinding complications with trachoma

In a long-term study of trachoma in Tunisia, individuals examined 16 to 18 years previously were re-examined for trichiasis/entropion and degree of conjunctival scarring. The clinical risk factors most important are severe papillary hypertrophy (P3) or a marked follicular response (F2 or F3). The appearance of conjunctival scarring under the age of 10 also carried a high risk of later complications. Using this data, a simple checklist can be used by primary health care workers to identify children at high risk of developing trachomatous complications. These children can then be selected for more intensive antibiotic treatment and for family counselling to improve household hygienic practices.

Behavioural patterns and severe active trachoma

In a two-year study in Egypt a medical anthropologist carried out detailed observations of daily life in two Egyptian villages. Children were examined independently for trachoma without knowledge of their behavioural patterns. The association of specific behaviours with trachoma intensity was then analysed using a variety of statistical methods.

The major results of this study are that the two forms of behaviour which appear to have protected children from severe intensity disease are (1) daily face washing with soap and water, and (2) presence and use of a latrine in the household by adults. Household wealth, access to water, number of siblings and other socio-economic factors did not appear to have a significant correlation with trachoma.

Other results of this medical anthropological study:

- (1) Traditional "ethno-ophthalmologic" health practices in this community are based on previous health systems, including Pharaonic, Callenic, mediaeval Arabic (Sufi) and 19th century and modern biomedicine.
 - (2) Access to medical care in Egyptian villages depends upon the household status of the individual through a three-tiered system of treatment consisting of (1) family treatment, (2) traditional healers, and (3) biomedical physicians.
 - (3) Visual impairment, as defined by visual acuity measurements, is quite distinct from recognized visual disability, which is a social value. Even people with profound visual impairment function independently in daily activities and make meaningful contributions to their families.
 - (4) In rural Egypt there are 20 different therapeutic substances used to treat eye disease and four invasive procedures on or around the eyes.
-

Annex 3

NATIONAL EYE INSTITUTE, NATIONAL INSTITUTES OF HEALTH
Bethesda, United States of America

Director: Dr C. Kupfer

The National Eye Institute (NEI) currently supports research internationally on four blinding diseases that have a major worldwide impact: cataract, onchocerciasis, glaucoma, and vitamin A deficiency.

During the past year NEI sponsored several case-control studies of aging-related cataract in an effort to determine why the onset of cataract occurs at earlier ages in some geographic areas.

The NEI has also helped develop two demonstration Cataract-Free Zone projects for limited populations in two Latin American countries.

Onchocerciasis: NEI-supported investigators are attempting to determine antigens in the adult and larval forms of the worm that are responsible for the host immune response and for ocular and systemic complications of the disease.

The Barbados Eye Study, funded by NEI, hopes to find the information needed to help prevent or delay the onset of glaucoma.

COUNTRY-TO-COUNTRY ACTIVITIES

China: A Memorandum of Understanding has been signed between the NEI and institutions in China for the conduct of a wide-range of eye research projects and for the training and exchange of scientists.

India: The NEI serves as a consultant to a large field project sponsored by the Ford Foundation of India and conducted by the Aravind Eye Hospital in Madurai to evaluate the effectiveness of frequent low dose supplements of vitamin A.

In addition, the NEI and the Indian Council of Medical Research (ICMR) developed a collaborative programme of blindness research including projects on cataract and Eales' disease.

A hospital-based case-control study was conducted at the Dr Rajendra Prasad Centre for Ophthalmic Sciences, New Delhi to determine risk factors that may be associated with the development of aging-related cataract.

An operations research study to reduce barriers to cataract surgery was conducted in Madurai in collaboration with the Aravind Eye Hospital and the University of Michigan. US and Indian scientists worked together to field-test and evaluate alternatives in overcoming social, economic, and logistic barriers to cataract surgery among the rural blind in India. Results from this study and from those obtained in studies being conducted in Peru and Brazil will provide information needed to design more effective programmes.

An investigation of Eales' disease is being conducted in Madurai in collaboration with Madurai Kamaraj University and Aravind Eye Hospital.

Italy: Two projects have been ongoing: a genetic study of retinitis pigmentosa, which is particularly prevalent in Sardinia, giving special attention to the recessively inherited form of the disease and a case-control study of risk factors in aging-related cataract.

Annex 3

Japan: The NEI and the Japan Society for the Promotion of Science have carried out a scientist-exchange programme since 1977.

Latin America: Two demonstration projects to create cataract-free zones have been completed in Peru and Brazil. The goal of the projects was to demonstrate a replicable cost-effective means to ascertain and clear the cataract backlog in an urban area using the techniques of house-to-house visual acuity screening, outpatient surgery, and in-home community follow-up. These projects are being sponsored by Helen Keller International, Inc. with the NEI serving in a consultant role.

Nepal: The most effective way of providing affordable prevention programmes against vitamin A deficiency is under study by the University of Michigan and the Nepal Netra Jyoti Singh. The NEI is providing technical oversight.

USSR: Collaboration according to a mutually agreed plan started in 1987, and it is expected that studies will be implemented in 1989. They include investigations of the immunology of the eye and glaucoma, cataract, and epidemiological research.

West Indies: A major epidemiological investigation of risk factors for open-angle glaucoma among blacks in Barbados is underway following a successful pilot feasibility study. In Barbados, open-angle glaucoma is the major cause of blindness with advanced early visual loss. The comprehensive evaluation of risk factors will provide important data for control programmes, particularly those aimed at high-risk black populations.

ACTIVITIES WITH INTERNATIONAL AND MULTINATIONAL ORGANIZATIONS

Over the past year, the WHO Programme for the Prevention of Blindness, which continues to be partially supported by a contract from NEI implemented several projects in the African, South-East Asia, and Western Pacific regions.

NEI continues to work closely with Helen Keller International, Inc. and other nongovernmental health organizations, in designing service and research programmes to reduce blindness.

EXTRAMURAL PROGRAMMES

In 1988, NEI made 20 grant awards to foreign institutions in nine countries for research and training projects.

INTRAMURAL PROGRAMMES AND ACTIVITIES

NEI continues to serve as an international centre for research and training in eye disease. In the period covered by this report, 25 Visiting Fellows, 8 Visiting Scientists, 25 Visiting Associates, 6 Guest Researchers, and 20 other special volunteers and investigators from 15 countries conducted research studies in NEI's Bethesda facilities.

Annex 3

NATIONAL EYE INSTITUTE
Lima, Peru

Director: Dr F. Contreras

SUMMARY

In January 1986, the Peruvian Government created the Instituto de Ciencias Neurológicas y Oftalmológicas. In April 1987, this Collaborating Centre was changed to National Eye Institute.

The Programme for the Prevention of Blindness of the National Eye Institute is directed towards two aspects:

1. Research

One operational research project has been carried out: the "Cataract-Free Zone I" in Chimbote, Peru. The final report has been completed for inclusion in a professional journal (together with a similar project carried out in Campinas, Brazil).

2. Training of personnel (Lima, Lima's marginal-urban sectors)

Training of personnel, by departments and professions - 1987

Professions	Lima (Marginal Urban Areas)	Ancash	Puno	San Martín
Teachers	132	292	640	265
Auxiliary nursing personnel	3	45	45	49
Nurses	120	26	20	15
Doctors		18	18	15
Health promoters	156			

One doctor on our medical staff was trained in "public health and preventive ophthalmology" at the Johns Hopkins University in USA (Dr Cesar Mendiola). The training for doctors and nurses has been expanded to include professional personnel from neighbouring countries of Latin America.

Training of personnel, by departments and professions - 1988

Professions	Lima (Marginal Urban Areas)	Ancash	Puno	San Martín
Teachers	109	157	31	162
Auxiliary nursing personnel	127	179	18	30
Nurses	96	15	12	11
Doctors	2	21	19	6
Health promoters	59			

Annex 3

Number and types of activities in health centres and rural hospitals, 1987

Activities	Lima	Ancash	Puno	San Martin	Total
Visual screening	1282	1845	30	1325	4482
Prevention of conjunctivitis in newborns		807	15	858	1680
Cataract detection	13	81	5	107	207
Medical eye consultations	851	2611	42	1432	4936
Referrals	272	34	-	33	339

Number and types of activities in health centres and rural hospitals, 1988

Activities	Lima	Ancash	Puno	San Martin
Visual screening	6528	522	484	779
Prevention of conjunctivitis in newborns	-	224	495	432
Cataract detection	31	63	10	67
Medical eye consultations	2289			
Other activities		475	240	775
Referrals	1224	35	13	11

These activities have been economically and technically supported by nongovernmental agencies such as Helen Keller International, Operation Eyesight Universal and Project Orbis Inc. These actions are being coordinated through the National Committee for the Prevention of Blindness.

INSTITUTO DE SAUDE, SERVICIO DE OFTALMOLOGIA SANITARIA
Sao Paulo, Brazil

Director: Dr Oswaldo Monteiro de Barros

The following is a summary of the activities undertaken by the WHO Collaborating Centre for the Prevention of Blindness during the period under review :

1987

1. A seminar on Research in Preventive Ophthalmology was organized in Ribeirao Preto, Sao Paulo in February. Several presentations were made, including:
 - 1.1 "Epidemiological surveillance of trachoma in the State of Sao Paulo", by Expedito J. A. Luna, Norma Helen Medina and Márcia B. Oliveira.
 - 1.2 "Study of eye morbidity at health centre I, Freguesia de O, from June 1984 to March 1985" by Carlota Leopoldina de Bueno de Azevedo, José Guilherme de Oliveira Bugano, Maria Alice da Silva Pires and Marisa Giacomo Massaini.

Annex 3

- 1.3 "Epidemiological investigation of trachoma (preliminary results)" by Norma Helen Medina, Expedito J.A. Luna and Márcia B. Oliveira.
2. A course on ocular health was organized in Feira de Santana, Bahia, for 22 doctors from SUCAM.
3. A second course on ocular health was organized for Escola Paulista de Medicina and the Faculty of Medicine of Jundiai.
4. An evaluation of a study on the treatment of trachoma was carried out in Poco Redondo, Bahia.
5. The National Programme of Ocular Health and Prevention of Blindness was elaborated in conjunction with the Ministry of Health.
6. The eye health programme was implemented in several areas of Sao Paulo State.

1988

1. The National Programme of Ocular Health and Prevention of Blindness was developed further. Responsibility for this programme has been assumed by the Ministry of Health and there now exists a national committee.
 2. The eye health programme has been implemented in Sao Paulo State.
 3. Training of health centre personnel in eye care has continued. Approximately 2000 individuals have been trained in Sao Paulo State.
 4. The Centre participated in the elaboration of federal guidelines to enforce the application of Credé's prophylaxis as a normal procedure.
 5. An outpatient clinic has been set up for Aids patients, for eye examinations and research on the ophthalmological implications of the disease.
 6. The Centre has been involved in setting up a public health course for Brazilian and Latin American ophthalmologists, to start in 1989.
 7. A low-cost spectacle project has been implemented in association with the firm 'Security Equipments'.
 8. A study of eye morbidity in old people, involving approximately 300 individuals, was initiated; this study is still ongoing.
 9. In connection with the implementation of the national and State blindness prevention programmes, training material has been developed, including the publication (in press) of a manual by the Ministry of Health.
 10. Further courses on ocular health have been organized for Escola Paulista de Medicina and the Faculty of Medicine of Jundiai.
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EYE & EAR HOSPITAL DR RODOLFO ROBLES V
Guatemala City, Guatemala

Director: Dr F. Beltranena

The following activities have been carried out during 1988:

1. TRAINING

1.1 Primary level

During the past year, the Centre became involved in a new governmental programme for "The Development of Guatemala City's Marginal Areas" and was charged with the primary eye care training of the medical personnel staffing the 10 family clinics of the programme, covering a total population of 12 300. Between July and November, 15 physicians and 633 medical students received such training; in addition, staff of both urban and rural NGOs in charge of health care delivery, together with health promoters and nurses working in government health services (80% in rural areas) underwent such primary eye care training (total 763 persons).

1.2 Secondary level

The Centre provides ophthalmology training to students from the Schools of Medicine of Francisco Marroquin University (1 month as part of their Curriculum) and San Carlos University (2 months, as an elective). The number of students trained during the past year was 75.

1.3 Postgraduate Programme in Ophthalmology

A total of 15 residents undertook this course including students from Belize, Colombia, Ecuador, El Salvador and Honduras.

During this past year, there has been one full-time rotating resident in the ocular health activities of the Prevention of Blindness Programme.

As from 1989, this residency programme is being extended to a fourth year, during which residents will be assigned to the community ocular health programmes which radiate from the six rural outposts.

2. VITAMIN A PROGRAMME

The Prevention of Blindness Programme run by the Centre has been selected by UNICEF as the responsible channel for the launch of a coordinated plan to distribute 1.6 million therapeutic doses of vitamin A (200 000 I.U.) to children up to 6 years of age. Intersectoral cooperation involves the Ministry of Public Health, San Carlos University, NGOs and the communications media. The Centre distributed 82 500 doses through its network of services.

3. ONCHOCERCIASIS

The Eye Clinic at Yepocapa, Chimaltenango, which is a highly endemic onchocerciasis area, has been firmly established as an onchocerciasis centre. During the year, 1850 patients were examined, with 293 patients undergoing continuous treatment. The Centre has provided follow-up for a Ciba-Geigy research group; in 1989, a new control group will be studied. Interesting results are being obtained from the use of ultrasound in following up nodule evolution.

Annex 3

4. GENERAL

4.1 New outpost

The Centre inaugurated a new outpatient clinic at San Pedro Carcha in June 1988, and plans in-patient care as from 1989.

4.2 Outpatient and in-patient services

A total of 90 935 outpatients were treated over the past year at the hospital "Rodolfo Robles" in Guatemala City and its various outposts and mobile clinics. There were 3692 surgical interventions (2631 major; 1061 minor), and a further 208 927 ophthalmologically related services were also provided.

INSTITUTE OF OPHTHALMOLOGY
Tunis, Tunisia

Director: Professor M. T. Daghfous

INTRODUCTION

The principal activities of the WHO Collaborating Centre for the Prevention of Blindness, Institute of Ophthalmology, Tunis, fall under three headings:

- (1) Training of medical and auxiliary personnel in eye care and prevention of blindness, in collaboration with the basic health services and the Centre for Research and Education.
- (2) Research centred on blinding diseases.
- (3) Field activities.

1. TRAINING

The training of medical and paramedical personnel in primary eye care was strengthened in 1987 and 1988; 150 persons were trained in 1987 and 612 in 1988. The guide to primary eye care, of which 2000 copies were printed, was distributed throughout the country and is soon to be reissued. A manual "Guidelines for the management of a red eye without trauma" was prepared for general practitioners and physicians in charge of primary health care services.

A total of 19 Residents completed their training courses in 1987-1988. Two newly trained ophthalmologists were sent to Tozeur and Gafsa where they now operate on cataract and trachoma. A workshop on public health ophthalmology and management of blindness prevention programmes took place from 23 to 27 May 1988 at the Research and Educational Training Centre as part of a WHO project on the development/assessment of monitoring and evaluation mechanisms for national blindness prevention programmes.

Two WHO fellowships for training in public health ophthalmology at the Free University of Brussels were awarded. Dr Thabit, Director of Communicable Eye Diseases and River Blindness Control Administration of Sudan, was received at the Institute for a short training course and for exchange of information on programme developments.

2. RESEARCH ACTIVITIES

2.1 Risk factors in senile cataract in Tunisia

A paper on this subject was read at the Fourth International Congress on Cataract in Milan (28-30 October 1988). A study of 250 patients demonstrated that unoperated cataract is still the main cause of blindness in the country. Its prevalence and incidence clearly rise with age. Diabetes is an important risk factor for cataract needing surgery in all age groups and both sexes. Cataract was much more frequent among people living in rural areas and was often associated with exposure to solar radiation. Those most seriously affected were agricultural workers and people who work outdoors. There was a clear correlation with protein insufficiency, high consumption of tobacco and alcohol, and high blood pressure. No significant correlation could be established with levels of blood cholesterol, blood calcium, plasma urea or creatinin, or with a positive Wassermann test.

2.2 Epidemiology of amblyopia due to strabismus in Tunisia

Strabismus is a significant cause of unilateral amblyopia, and this is frequent in Tunisia: an epidemiological study of 202 cases of strabismus under 15 years of age showed that 118 cases (58%) presented amblyopia. Of the 118 cases of amblyopia, 46 (39%) were mild and 72 (61%) were moderate or severe. The damage to eyesight is therefore considerable and is aggravated with age; the proportion of moderate or severe amblyopia increases with age, while mild amblyopia diminishes. The best results are obtained when children are treated early. In fact, after six months' treatment, 66% of cases were cured when the patients were under four years of age, 49% of cases between four and six years of age and only 22.5% of cases over six years of age. The best treatment, therefore, is prevention of amblyopia as soon as strabismus becomes apparent. The best treatment available at present is occlusion in association with corrective spectacles. Each eye in turn should be occluded to avoid provoking amblyopia in the stronger eye.

The result of treatment depends also on good cooperation from parents, who should be informed of the risk of amblyopia as a consequence of strabismus.

2.3 Limbic injuries resulting from trachoma and other eye diseases caused by chlamydia: Risk factors associated with pannus

Study conducted in collaboration with the Francis I. Proctor Foundation of the University of California (Dr C. R. Dawson).

Limbic complications due to trachoma were studied retrospectively in a group of 213 children examined in 1969-1972 and re-examined in 1986.

Endemic trachoma causes epithelial keratitis characterized by diffuse infiltration with swelling of the limbus and formation of superficial blood vessels: the damage to the limbus also involves formation of follicles which subsequently leave characteristic depressions (Herbert's pits). Associated bacterial infections make the condition more serious.

2.4 Evaluation of the blindness prevention programme

The data at present being analysed are proving that in only a few years (1981-1988) the prevalence of blindness has diminished very significantly from 4.46% to 1.19% in Gabès, from 4.47% to 2.75% in Médenine, from 3.74% to 0.78% in Kasserine, and from 3.40% to 0.84% in Siliana. The causes of blindness, on the other hand, have remained the same, and untreated cataract is still the main cause, accounting for 55%-60% of cases.

Annex 3

3. FIELD ACTIVITIES

Control of communicable eye disease and cataract has continued and developed in the programme areas. Intermittent treatment of trachoma is regularly given to all children in the first three years in rural primary schools in the south of the country. In this way 31 000 pupils were treated in 1987 and almost 30 000 in 1988. Local antibiotic treatment was administered as a preventive measure regularly each year between 15 October and 30 November to prevent seasonal conjunctivitis epidemics. The mobile eye unit continued to provide surgical treatment of trichiasis and screening for cataract. Some 12 057 people were examined in 1987, and 13 007 by 30 November 1988.

KING KHALED EYE SPECIALIST HOSPITAL
Riyadh, Saudi Arabia

Director: Dr I. A. Badr

INTRODUCTION

During 1987 and 1988, the King Khaled Eye Specialist Hospital (KKESH) reached an optimum level of activities in the field of curative and educational services. Continuous involvement within the community at large remains an important aspect. Research has further progressed and is now going through a reorganization period. Dr Badr, Director of the WHO Collaborating Centre, participated in the Inter-country Scientific Working Group on Primary Eye Care, Amman, Jordan, 14-17 December 1987 and the Interregional Meeting on Control of Corneal Blindness within Primary Health Care Systems, Tunis, 11-17 November 1988.

1. TREATMENT

During 1987, the outpatient department handled 74 389 patients, and in 1988 76 424 patients. Inpatient admissions in 1987 amounted to 8388 and in 1988 amounted to 7813. Emergency Room visits numbered 13 148 in 1987 and 17 400 in 1988. The total number of ophthalmic operations carried out in 1987 was 10 584 and 10 951 in 1988. In 1987, the total number of cataract extraction operations was 4313, of which 3711 had intraocular lens (IOL) insertions; for 1988, the figures were 4400 and 2629 respectively. Corneal graft operations during 1987 and 1988 numbered 811.

2. EDUCATION

The Affiliation Agreement with King Saud University has been implemented. The first group of 12 residents graduated in November 1988 after completing 3 years of residency and one year's fellowship. Eleven residents passed the final examination and obtained a degree equivalent to American Board F.R.C.S. Apart from the usual weekly educational activities during 1987, the Fourth Annual Symposium on New Developments in Ophthalmology, a Seminar on Common Eye Diseases for the primary health care level and a Seminar on Neuro-Ophthalmology and Orbital Diseases were held. In 1988, the Fifth Annual Symposium on New Developments in Ophthalmology, including an Extracapsular Cataract Extraction Course, two Seminars on Common Eye Diseases, one for the primary health care level and the second for ophthalmologists, and a Seminar on Tumours in Ophthalmology were held.

The training programme for ophthalmic assistants and technicians has proved to be successful and gradually more nationals are being recruited in this field and performing well. Trainee programmes in the field of cataract surgery have commenced, and are directed towards national ophthalmologists who are working in Ministry of Health

Annex 3

hospitals for a six-month period in the field of modern cataract surgery. Four individuals have benefited from this course which proved to be useful, and will enable them to return to their establishments with improved ophthalmic skills.

3. PREVENTION OF BLINDNESS ACTIVITIES

The recommendations of the KKESH National Survey on Blindness and Eye Diseases in 1984 remain the main guiding document in activities related to prevention of blindness and directing eye health care services. Major emphasis with respect to the main causes of blindness has been placed on our educational programmes for residents, medical students, primary health care staff and the public. The Ministry of Health has adopted a programme to increase the efficiency of cataract surgery in centres in the country. With regard to public education, large numbers of posters and booklets have been produced to educate the different groups within the community and a fair amount of writing has been directed to educate the public in local medias by staff of the KKESH and the Saudi Ophthalmological Society. In the field of trachoma prevention, apart from general public awareness of the disease, a fair amount of effort has been spent in encouraging health sectors to participate in decreasing this disease, especially in areas where trachoma is still considered endemic, in spite of the fact that severity and prevalence have greatly decreased in these communities. KKESH has organized trachoma prevention and treated conjunctiva in 170 schools in highly endemic areas. Further efforts and emphasis from KKESH will be directed to this task in an attempt to identify areas and populations at risk and to encourage the creation of programmes for these communities. Efforts started in collecting data on causes of eye trauma in the community and on evaluating and preventing retinopathy of prematurity.

Emphasis has also been placed on primary health care in the field of prevention of blindness; a guideline booklet is being edited to suit our local needs. This practical book will hopefully become a major policy document to direct our primary health care staff in the field of managing and preventing eye disease.

4. RESEARCH

In the course of the last two years, 68 projects were activated in the Research Department. In the field 28 431 schoolchildren were screened for trachoma in the Alahssa region of Saudi Arabia in 1987; 4685 children (16.4%) had evidence of active trachoma, and were treated with tetracycline ointment. The magnitude of trachoma has been assessed in this region and a programme for trachoma control that includes the training of primary health centres' professional staff is under review for final details. Review of patients with Fuch's heterochromic cyclitis revealed no major surgical or post-operative complications after extracapsular cataract extraction with or without posterior chamber IOL implantation. A study of 62 cases of corneal amyloidosis in scarred corneas showed that trachoma is the most likely cause of corneal degeneration with secondary amyloidosis. Environmental conditions associated with climatic droplet keratopathy (CDK) may be contributing factors in some cases. The efficacy of 3 different concentrations of hyaluronidase, 5 I.U./ml, 20 I.U./ml added to local anaesthetic agent for retrobulbar anaesthesia was compared in a double-blind method in 360 patients. No significant difference in quality or duration of akinesia was found. It was concluded that the optimum dose of hyaluronidase is below 5 I.U./ml. A study of 130 forms comparing penetrating keratoplasty (PKP) and lamellar keratoplasty (LKP) showed that overall visual acuity improved in all groups. Patients receiving PKP tended to require topical steroids and antiglaucoma medication for a longer duration of time and more frequently than those receiving LKP. Surgical complications were more frequent in the LKP group.

A review of over 100 cases of conjunctivodacryocystorhinostomy revealed complications in the form of migration of tube; infection; conjunctival overgrowth at the canthal area; posterior obstruction of the fistula at the site of the nasal cavity; and rare dissecting nasal submucosal haemorrhage.

Annex 3

Other projects in progress include studies on retinal detachments, vernal keratoconjunctivitis (VKC), histopathological pictures of graft failures, proliferative vitreoretinopathy, comprehensive studies on retinoblastoma, orbital tumours and experimental endophthalmitis in the rabbit.

INTERNATIONAL CENTRE FOR EYE HEALTH, INSTITUTE OF OPHTHALMOLOGY
London, United Kingdom

Director: Professor Gordon Johnson

1. TRAINING

1.1 Annual course in community eye health

The annual course continues to attract much interest and a high standard of participants. In 1987 there were fourteen students, and in 1988 nineteen, the highest number so far. The participants were as follows: 21 ophthalmologists, 2 doctors, 3 ophthalmic medical assistants/clinical officers, 5 ophthalmic nurses/nursing instructors, and 2 health officers. The countries represented were as follows: Brazil, China (2), Ethiopia (2), Ghana, India (4), Ireland, Jordan, Kenya, Malaysia, Mongolia, Nepal, Netherlands, Nigeria, Norway, Pakistan, Somalia, Sri Lanka, Thailand (3), Tunisia, Uganda, United Republic of Tanzania (2), and the United Kingdom.

On 24 November 1988 the Centre was honoured by a visit by HRH The Princess Royal, who presented diplomas and certificates to the graduating students.

1.2 Short course in ophthalmology for developing countries

A one-week course was held at the Institute in March 1987 which emphasized the main areas of importance in prevention of blindness and ophthalmology in developing countries. It was attended by twenty-four participants, including trainees and consultant staff from the United Kingdom and a number of workers from overseas who were studying in this country.

1.3 External teaching

Members of the staff have taken part in teaching programmes in many parts of the United Kingdom, Germany, Denmark and several centres in Africa.

2. WORKSHOPS

The Department was asked in September 1987 to host a WHO symposium. This was organized in association with the Francis I. Proctor Foundation of San Francisco. There were twenty invited participants from around the world. This has resulted in the publication of a booklet on the Prevention of Blindness from Ocular Leprosy, in August 1988, by the Department, with support from WHO.

A refresher course and workshop for colleagues who had previously graduated from the Department were held in Nairobi. A total of twenty-two previous students of the Department presented the work which they were currently undertaking. This workshop was supported by the Royal Commonwealth Society for the Blind (RCSB) and Christoffel Blindenmission (CBM).

3. RESEARCH

Research effort is being addressed to many different problems. Three topics have been selected for emphasis.

3.1 Computer software package

A computer software package is being developed for the WHO Programme for the Prevention of Blindness by Dr. D.C. Minassian. The interactive package of integrated software is designed so that it can be used by non-expert personnel on IBM PC-compatible micro-computers to organize and analyse data from eye surveys. It would be used in conjunction with the new Eye Examination Record recently formatted through workshops held at WHO in Geneva.

3.2 Cataract

The results from a case control study of risk factors in cataract in Titlagarh, Orissa, now confirm that smoking is an additional risk factor to dehydrational crises in the etiology of cataract.

The five-year follow-up of the longitudinal study of the incidence and risk factors in cataract in Arang, Madhya Pradesh, Central India, has been completed and has yielded a large volume of data which are at present being processed. Preliminary indications are that adequately precise direct estimates of the incidence of age-specific cataract can be made in relation to some of the more important risk factors under study and that the mortality rate of the various cohorts in the sample can be compared.

3.3 Collaborative programme of research for control of onchocerciasis and prevention of blindness, Kaduna State, Northern Nigeria

This is a large collaborative programme between the Guinness Ophthalmic Unit, Ahmadu Bello University Teaching Hospital, Kaduna (Professor A. Abiose), the International Centre for Eye Health (Professor Barrie Jones as Director of Onchocerciasis Research), London School of Hygiene and Tropical Medicine, and the Nigerian Institute for Trypanosomiasis Research. A research grant from the WHO Special Programme for Research and Training in Tropical Diseases (TDR) allows a large scale trial of annual community therapy with ivermectin in a population of ten thousand, to test community acceptance and the incidence of serious adverse effects. A second WHO/TDR award supports a three-year study on the vectors and dynamics of transmission of onchocerciasis in relation to optic nerve disease. A major research grant from the Leverhulme Trust supports three Leverhulme Research Fellows. The Royal Commonwealth Society for the Blind has provided funding which has enabled the whole project to go ahead, and also supports training in the prevention of blindness and brings basic eye surgery within reach of the rural people of Kaduna State.

4. COMMUNITY EYE HEALTH BULLETIN

Under the editorship of Mr D.D. McGavin, a new twelve page international bulletin designed for ophthalmologists and other health workers in isolated situations has been launched. The first issue appeared in July 1988. Initially it will appear twice a year, and is intended eventually to be a quarterly publication. The production staff is supported by RCSB and CBM, which both also support the preparation of training materials. The design, printing and free distribution of the Bulletin have been generously sponsored by the Coca-Cola Company.

Annex 3

DEPARTMENT FOR VIRAL AND ALLERGIC EYE DISEASES
OF THE MOSCOW HELMHOLTZ RESEARCH INSTITUTE OF OPHTHALMOLOGY
Moscow, USSR

Director: Professor I. F. Maitchouk

1. TRAINING ACTIVITIES

Five training courses on viral and allergic eye diseases, with the participation of 225 experts, were held at the Centre. Another 18 experts visited the Centre for training courses.

The Centre hosted a Soviet-Polish symposium on the application of dexamethasone in ophthalmology, and Professor I. F. Maitchouk also conducted a workshop on ocular pharmacology in Albena (Bulgaria). Furthermore, lectures on the diagnosis, clinical patterns and treatment of infectious and allergic eye diseases were delivered in Bulgaria, Viet Nam and Afghanistan.

A book on parasitic eye diseases by Professor I. F. Maitchouk and four training manuals were published.

WHO's publications on xerophthalmia and conjunctivitis of the newborn were translated into Russian.

Four reviews were published, on AIDS, ocular toxocariasis, new ocular drugs and ocular Chlamydia.

2. RESEARCH ACTIVITIES

The following new drugs and methods of treatment were introduced into clinical practice:

- Interloc - alpha-interferon for herpetic ocular infections
- Tarivid - for paratrachoma
- Eubetal (tetracycline + chloramphenicol + colistin + betamethasone) - for paratrachoma, bacterial and infectious or allergic cornea ulcers and conjunctivitis. The preparation appears to be more effective than tetracycline, erythromycin and colbiocin.
- Ocular film inserts with taufon (SODI-taufon) and ocular film inserts with apilac (SODI-APILAC) - for metabolic disorders of the eye
- T-activin - for immune corrective therapy in severe ocular herpes and for prevention of its recurrences
- Ketaconazol (oronasol, nisoral) - for fungal keratitis and other fungal lesions of the eye
- Tocopherol and other reparative preparations (xantervit, actovegin, mertilen) - for a complex treatment of inflammatory and metabolic affections of the eye

After clinical trials the following preparations for infectious and inflammatory conditions of the eye were recommended for clinical practice: furavit, septonex, oriprim, dexona, sicorten, inflanefran, octilia, bivacin, opticrom, efflumidex.

3. FUTURE ACTIVITIES

- Continue training of personnel through training courses, training at work places, development of training material and lectures.
- Include new data to the file of the Centre on world blindness, and prepare a book on "World Blindness" for publication.
- Work out a programme on the control of corneal blindness (prevalence, etiology, primary and secondary prophylaxis, treatment, rehabilitation and the most necessary drugs).
- Participate in the assessment of mass trachoma control in any country.

DR RAJENDRA PRASAD CENTRE FOR OPHTHALMIC SCIENCES
New Delhi, India

Director: Professor Madan Mohan

INTRODUCTION

The Dr Rajendra Prasad Centre for Ophthalmic Sciences is a premier institution in ophthalmology and constituent unit of the All-India Institute of Medical Sciences. WHO identified it as one of its Collaborating Centres for the Prevention of Blindness in 1979.

The Centre has been able to achieve the objective of attaining the bed strength of 300 including 20 paying wards rooms. It has 9 operating theatres and its own service and research laboratories for clinical and basic science activities. The Centre runs an around-the-clock casualty service, an Eye Bank and an Ocular Infection Cell. On an average over 900 patients are examined and over 40 operations are performed each day.

1. TRAINING

Twenty-nine resident doctors have completed their Residency training and qualified for M.D. in Ophthalmology during period under review. Eleven Senior Residents completed their three years' training in ophthalmic sub-specialities during the years 1987 and 1988. Nineteen students have completed their three-year training course in ophthalmic technique and were awarded B.Sc.(Hons) degree.

Thirty-two short-term trainees were given training in various fields at the Centre. Twenty-one WHO Fellows visited the Centre during 1987-1988 from abroad and received training in their respective fields.

The Centre has been actively engaged in organizing post-doctoral workshops and seminars to train ophthalmologists from regional institutes of ophthalmology and medical colleges in various specialities to enable them to organize such specialized services in their own institution. During the past two years, the Centre has organized 12 workshops attended by 328 doctors from outside the Centre.

Annex 3

2. NATIONAL SURVEY ON BLINDNESS

The Centre is conducting a survey and evaluation of blindness control activities in India under a WHO-assisted project. A nationwide population-based survey and evaluation of the National Programme for Control of Blindness is being conducted from the WHO Collaborating Centre. The survey is spread over 125 districts in the country. The Centre also successfully carried out a multicentric study of prevalence of cataract at 15 different centres in the country under the Indian Council for Medical Research and the National Programme for Control of Blindness.

3. COMMUNITY SERVICES

The Centre has a separate community ophthalmology wing and is catering to the needs of patients in the rural areas in and around Delhi. The Centre organized 55 eye camps and conducted eye clinics in 5 primary health centres and urban slums of Delhi. A team of doctors is providing eye care services in ophthalmology in the remote villages by organizing eye camps. In addition health education talks and literature on eye care were distributed.

4. RESEARCH

A case control study on senile cataract has been completed under an Indo-US collaborating project. It has thrown some light on the possible risk factors in the causation of senile cataract amongst Indian populations. The Centre is engaged in various fields of clinical, applied and basic research and at present there are 63 clinical and basic sciences projects in hand.

5. WORKSHOPS/SEMINARS HELD DURING 1987 AND 1988

1. National Seminar on "Eye Microsurgery and Intraocular Lens Implants"
 2. Workshop on "Vitreoretinal Surgery"
 3. Workshop on "Corneal Surgery"
 4. Workshop on "Research Methodology in Ophthalmology"
 5. Workshop on "Neuro Ophthalmology"
 6. National Seminar on "Glaucoma Management"
 7. Workshop on "Fluorescein Angiography"
 8. "Paediatric Ophthalmology"
 9. Workshop on Eye Bank Methodology
 10. Post Doctoral Workshop on "Contact Lens"
 11. National Symposia on "Vitreoretinal Diseases" and "Micro Surgery and IOL" in collaboration with Project Orbis
 12. "Ophthalmic Plastic Surgery"
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DEPARTMENT OF OPHTHALMOLOGY, JUNTENDO UNIVERSITY SCHOOL OF MEDICINE
Tokyo, Japan

Director: Professor A. Nakajima

INTRODUCTION

The main activities of the Centre have long been focused on assisting Member States in the WHO South-East Asia and Western Pacific Regions in the development of the manpower required for the successful implementation of national programmes for blindness prevention and promotion of eye health. Emphasis has been placed on encouraging professional awareness of public health needs and national goals. Training opportunities in Japan have therefore been made widely available to all Member States of the two Regions alike, and both to ophthalmologists and to ophthalmic nurses.

The promotion of research is also of significance in the Centre's activities; this has included not only clinical but also applied research which is promoted at every opportunity. The Centre has continued to provide technical expertise wherever possible to any country requesting such assistance.

In addition, there has recently been an increase in the number of Member States in the two Regions seeking closer contacts with neighbouring countries, many of the requests for which have been channelled through the Centre. In connection with its provision of expertise, therefore, the Centre has assumed a new responsibility in facilitating accessibility to relevant information on a regional TCDC basis.

1. TRAINING

In 1987 and 1988, the Centre provided 13 fellowships of between 1- and 6-month duration, covering China, India, Indonesia, the Philippines and Thailand. The Centre devised a special 1-month programme in 1987 for four Indian fellows with grants from WHO, to ensure that the best possible use was made of this training opportunity. The Centre also developed programmes for two students funded by grants from the Japanese Government.

Recently, a new source of funding from a Japanese nongovernmental organization was explored, under which two students from Indonesia and Thailand carried out a study in rehabilitation in 1988.

In order to ensure that the ophthalmic profession and the general public have access to information on blindness, the Centre has organized five meetings over the past two years. Presentations were made by those involved in blindness prevention at various levels and included WHO staff and guest speakers from other Collaborating Centres who were visiting Japan.

2. RESEARCH

Reflecting the significance of cataract as a cause of blindness in the Region in general, and in China in particular, the Centre was involved in a study on the epidemiology of cataract in Tibet in 1987. The Centre played a coordinating role and provided technical support to the study undertaken jointly between the Beijing Union Medical College and WHO, under its contract with the National Institutes of Health/National Eye Institute.

The blindness pattern in Japan also deserves study, particularly the categories of chronic and degenerative disorders. The Centre, with support from the Ministry of Health and Welfare and the Ministry of Education, continued to examine the basic and clinical aspects of such disorders both independently and together. One study "Research on Choriorretinal Degenerations", funded by the Ministry of Health and Welfare, is still

Annex 3

ongoing as a nationwide inter-institution-linked study. A new study on visual impairment for chloroquine has also been undertaken, financed by the Ministry of Health and Welfare as from 1982.

The study on community eye care has received recognition in Japan; however it requires a sounder basis for a systematic approach. The Centre has been playing an active role in this field, which can be witnessed by its direct involvement in the ophthalmic component of the "Sawauchi Village" health development research project. This study was in part funded by the Japanese Ophthalmologists' Association. As a further example, the Centre has also provided consistent input into the regular meetings of the "Preventive and Community Ophthalmology" Study Group, which forms part of the Japanese Ophthalmologists' Association.

3. REGIONAL ACTIVITIES

The Centre has, over a long period of time, maintained close relations with the Thai national blindness prevention programme. One of the Centre's staff members joined its central executive body in an advisory capacity. Collaboration is both at programme management and field activity level, and present efforts are directed to the success of the cataract campaigns carried out within the context of primary health care.

The Centre was represented at meetings held in India, the Philippines, the Republic of Korea, Singapore and Thailand, where relevant lectures on prevention of blindness in the Region were delivered.

Finally, having felt that the need for further collaboration is now more relevant than ever among the Collaborating Centres in the South-East Asia and Western Pacific Regions, and in order to assist the new Centre in Beijing, the Tokyo Centre is now planning to strengthen training, particularly at the operational level, to improve management skills. The WHO Programme Advisory Group on the Prevention of Blindness made a recommendation to this effect at its Seventh Meeting in Alexandria in 1987. It is hoped, therefore, that other Collaborating Centres will cooperate to make a success of the course being planned in Thailand in 1989.⁵

⁵ This course has, for administrative reasons, been postponed until February 1990.

TERMS OF REFERENCE

Programme Advisory Group on the Prevention of Blindness

1. The Advisory Group will:
 - (a) promote worldwide interest and support for the WHO Programme for the Prevention of Blindness;
 - (b) advise the WHO Secretariat with regard to the priorities of the Programme and its coordination with other related activities of the World Health Organization and of others.
2. Members of the Advisory Group will be appointed by the Director-General. The Group will normally consist of 12 members, selected after consultation with the International Agency for the Prevention of Blindness, in addition to the Regional Offices of WHO. In the selection of the members, due consideration will be given to attaining an optimum diversification and balance of personal experience, professional background, international standing, affiliations and geographical origin.
3. The term of appointment to the Group will be two years, with possibility of reappointment for not more than a further two terms, with the objective of achieving a turnover of approximately one third of the Group every two years. Reappointments will not generally be considered before two years have elapsed from the previous termination date.
4. The Chairman, Vice-Chairman and Rapporteur will be elected by the Advisory Group at each meeting. The Programme Manager of the WHO Programme for the Prevention of Blindness will serve as Secretary to the Advisory Group.
5. Meetings of the Advisory Group will normally be convened on a biennial basis. A report of each meeting will be prepared and circulated appropriately.
6. The Advisory Group will be assisted in its work by consultants and small task forces as required.

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