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Report of the Eighth Meeting of the WHO Alliance for the Global Elimination of Blinding Trachoma

Geneva 29–30 March, 2004



GLOBAL ELIMINATION OF BLINDING TRACHOMA BY THE YEAR 2020

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1. INTRODUCTION

The eighth annual meeting of the WHO Alliance for the Global Elimination of Blinding Trachoma by the year 2020 (GET 2020) was held at the headquarters of the World Health Organization, Geneva, from 29 to 30 March, 2004, attended by 84 participants (32 national representatives from disease-endemic countries; 22 representatives of governmental and nongovernmental organizations; 14 representatives from collaborating centres for the prevention of blindness and other research institutions and foundations; 5 donors/ observers from the private sector; and 8 technical staff from WHO, including staff from the regional offices of Africa, the Eastern Mediterranean and South-East Asia).

Robert Beaglehole, Director of the newly formed department of Chronic Diseases and Health Promotion, opened the meeting and welcomed all participants. He acknowledged the great value of the relationships forged between members of the Alliance; the interaction between epidemiologists, clinicians, researchers, foundations, nongovernmental organizations and industry was a model for WHO's work across the whole disease spectrum. Under the new Director-General the commitment was to improvement of people's health at country level, an emphasis that fitted well with the GET 2020 ethos. The public health challenges were clear: 84 million people whose sight was affected by trachoma, of whom 7.6 million had their sight seriously under threat from trichiasis. Interventions must be scaled up to reach all people in need, equity issues resolved, and resources further increased to meet demand. The greatest challenge, however, was for health systems, and it would be on this broad issue that the ultimate success of any programme would be judged. These must build on the primary health care foundations and grow through the trachoma elimination experience so that they were equipped and able to cope with the next global challenge to health. It was an ambitious agenda; he commended the work done so far and looked forward to learning of the results of the present meeting. Dr Serge Resnikoff, Coordinator of the WHO programme on blindness and deafness, added his welcome to participants, and particularly to the representatives of India and the United Arab Emirates; the two newest members of the Alliance. WHO was most grateful to the donors whose financial support had made it possible for the number of members to grow each year, and who thus brought the elimination goal nearer. Achievements in the last year included the updating of the global data on trachoma morbidity, the definition of the ultimate intervention goals (UIG) — for which term appropriate translations were invited — and the announcement of the donation of 135 million doses of azithromycin by Pfizer Inc.

Dr Jacob Kumarasan (International Trachoma Initiative) was elected Chairman of the meeting, and Dr Doulaye Sacko (Mali) as Vice-Chairman. Professor Sidi Ely Amidou (Mauritania) and Dr Anthony Solomon (London School of Hygiene and Tropical Medicine) were elected Rapporteurs.

The Agenda was adopted, modified to include a presentation by the United Arab Emirates (Annex 1). The list of participants is contained in Annex 2.

2. ACTIVITIES UNDERTAKEN SINCE THE SEVENTH MEETING

2.1 Report by the WHO Secretariat (Dr Silvio Mariotti)

The Second Global Scientific Meeting, on Ultimate intervention goals for trachoma control, was held in Geneva in August 2003.¹ The meeting was an important precursor to the GET 2020 Alliance meeting as it provided the tools (the UIGs) and the data that the following days' discussions by the GET 2020 working groups would refine. Participants at the August meeting had updated the available information on the regional and global burden of trachoma and defined UIGs as "the ultimate intervention to achieve the final target: the elimination of blinding trachoma by 2020". The figures were dynamic, based on current estimates, which were themselves dependent on the quality of data available. Improved estimates would result in better-defined UIGs. The global scientific meeting had also clarified the situation with regard to countries with large populations and a high disease-burden, such as China, Ethiopia and India. Goals were established for each of the components of WHO's "SAFE" strategy (surgery, antibiotics, facial cleanliness and environmental improvements).

¹ *Report of the Second Global Scientific Meeting on Trachoma*, WHO/PBD/GET03.1

For the “S” component the UIG for trichomatous trichiasis (TT) was less than 1 case per 1000 population. That would correspond to more than one incident case of trichomatous corneal opacity per 10 000 total population per year. Programmes therefore should aim to reduce the current level of trichiasis cases to less than one TT case per 10 000 population, calculating the number of cases that required TT surgery, and working out feasible annual intervention objectives to reach the UIG. The initial assessment was made through active case-finding, estimating the total number of cases requiring TT surgery and then calculating the TT UIG. In many countries those goals would take a number of years to achieve. National coordinators should set annual intervention objectives based on: a needs assessment; the current availability of services; and the feasibility of increasing services (with training of key personnel to undertake the surgery being an essential aspect of this).

For the other components of the SAFE strategy, Dr Mariotti noted that assessment should start at the district level, focusing on children of 1–9 years of age, and on trichomatous inflammation –follicular (TF).

Referring to the “A” component he described an important change in WHO policy, whereby the threshold for mass treatment with antibiotics changed to a 10% prevalence. If TF prevalence was 10% or more, the whole district should be mass treated with antibiotics. If TF prevalence was less than 10% then treatment should be implemented only at community level. Repeated assessments would determine whether disease prevalence had been reduced and the intervention level could be shifted, for example, from community to family level. Based on the available data, the global recommendation was to conduct mass treatments for a minimum of three years. Those treatments must not be stopped until the TF level among children aged 1–9 had fallen below 5%. Where the rates were already very low in certain countries, flexibility would be needed. Coverage levels should be 80% of the eligible population (defined as all people living in communities where TF was at levels of 10% or more, although some age groups were not treated).

For the “F” and “E” components, the aim was that at least 80% of children in the community should have clean faces in order to break or reduce the infection cycles. After the first three years, the periodicity could change, with populations being resurveyed once every one to three years. That decision would depend on the level of endemicity of active trachoma among 1–9 year-old children, an assessment of the “clean face” status, and whether antibiotic treatment was indicated. The methodology for assessing the required periodicity after the initial three years was still under discussion, and would reflect a pragmatic balance between competing costs/demands and the level of involvement required. Rapid assessment tools were under review. Input from the working groups on those topics was expected. National coordinators were encouraged to find the current implementation status of Millennium Development Goals (MDGs) in each country and to do all they could to contribute to them.

Monitoring at national, district and community levels was especially important, particularly in those countries that were nearest to their elimination goals. The criteria and guidelines for the assessment of elimination still required finalization and debate.

Azithromycin had been included in the WHO Model List of Essential Medicines (13th edition, 2003) and in 2005 would be included in the WHO Model Formulary.²

Discussion: National coordinators noted the need for simultaneous implementation of all the components of the SAFE strategy, without which antibiotic treatment would fail to achieve the goals set. Although the UIGs were new to some at the meeting (and therefore would need time for assimilation and consideration) they were already a familiar and well-tried concept in other disease-control programmes, such as onchocerciasis. The concept of the UIG strategy had already been of direct use in Morocco, where it had helped to review and improve planning. UIGs were particularly commended as a tool for countries at the start of the planning process, where there would be short-term, medium-term and long-term needs and objectives to establish. Trachoma elimination faced the same problem as all other such elimination programmes: the lower the incidence of the disease, the harder — and more expensive — it was to find the remaining cases. Funding was also a considerable concern for developing countries in which prevalence was high, the need for antibiotics was great, but resources were limited. Donor support would be essential if those countries were to cope with the implications of the new strategy, both to support the number of doses required and to administer the periodic surveys.

² Available on the Internet at: www.who.int/medicines

2.2 Reports from trachoma-endemic countries: Members of the Alliance

Afghanistan (Dr Ahmad Shah Salam)

The prevalence of blindness in Afghanistan is 1.5–2%, with corneal opacity, the second highest cause of blindness, accounting for more than 10% of the country's total blindness. The prevalence of low vision is 4.8% and severe visual impairment is 1.95%. Data from a hospital report showed 6% of its blind population to be children (26 out of 445 cases). There were more than 850 cases of trichiasis in 2002 in total.

There are active trachoma cases in every province, with disease-endemic areas in provinces in the north and west of the country. A study among 624 orphanage children in Kabul showed a prevalence of active trachoma of 0.6%. In a report based on Mazar ophthalmic centres (northern province), the prevalence of active trachoma was 1.35% in the whole age group. Similarly a report from the Herat ophthalmic centres in the western province gave a prevalence rate for active trachoma of 1.54%.

Environmental conditions are harsh; there are poor sanitation facilities (access to adequate sanitation for only 12% of the population and only 13% with access to safe drinking-water). Infant mortality among children under five years of age is high (257 per 1000 live births). Afghanistan has limited numbers of technical staff in the country, almost exclusively in urban areas. There are 93 eye doctors (not all of whom perform surgery), 6 optometrists, 23 refractionists/technicians, and 71 ophthalmic nurses. More than 99% are national eye-care health workers. There are four training centres for eye-care workers.

The five-year national plan for comprehensive eye-care started in 2002 with a focus on developing provincial and district primary and secondary eye-care complexes. Eye-care services are still limited; there are some eye-care centres in three provinces but none at district level. Primary eye-care is integrated in primary health care (PHC). Although there is no national programme specifically for trachoma control, the disease is dealt with in eye-care centres at provincial level with some outreach activities (including data collection, follow-up and evaluation) and the Government is supportive of the overall eye-care programme. A national committee has been formed, representing a range of partners, including ministries, international nongovernmental organizations (NGOs) and organizations such as IAM (International Assistance Mission) and SERVE (Serving Emergence Relief and Vocation Enterprise). The launch of a Vision 2020 campaign, with strong political backing from the Ministry of Health, has been planned for April 2004, followed by a donor conference. In future, within the five-year national eye-care plan, trachoma rapid assessments will be carried out in 22 provinces; areas of greatest need will be identified and prioritized; a national trachoma plan based on the SAFE strategy will be formulated; and that plan will be implemented, monitored and evaluated.

Discussion: The launch of the Vision 2020 initiative should improve the funding and supply of antibiotics; currently not even tetracycline was available in some provinces. Donor support to provide azithromycin was needed. Despite the lack of population data there was no doubt of Afghanistan's needs; trachoma was a major blinding disease in certain areas, and very little PHC was available. Through Vision 2020, the development of trachoma control and eye-care services could importantly strengthen the health care system. The lack of water was a critical issue too; in Kabul, each household had only one hour's supply of drinkable water each week. WHO's Eastern Mediterranean Regional Office was committed to providing help and coordination of other interested parties ready to support Afghanistan's progress.

Australia (Professor Hugh Taylor)

World Health Assembly resolution WHA56.26 (Elimination of avoidable blindness) has had important consequences for many countries, including Australia, one its sponsors. For example, a Trachoma Steering Committee has been created as part of the national communicable disease group. Trachoma is no longer present in the urban white Australian population but is prevalent in pockets among the aboriginal population, especially in the north and west of the country, where prevalence rates of follicular trachoma are commonly 55–60%, with high rates among children. Most the data collected result from screening of schoolchildren. There are significant numbers of communities with intense levels of trachoma; in a community study in central Australia levels of 40% were found in schoolchildren aged below 13 years of age. In Arnham Land, Northern Territory, in a study of 15 schools, levels of 20–50% were found in three schools and above 50% in six schools. In South Australia, two community studies

(2000 and 2001) found TF prevalence rates of 58% in 1–9 year-olds, with a TI rate of 11%. Azithromycin has been distributed in some areas, although rather unsystematically, for the last 8–10 years and there is a consequent gradual reduction in the amount of trachoma. There is no marked gender difference; rates of trichiasis among men and blindness due to trachoma are a little higher than among women. Differences in prevalence between genders reflect the intensity of transmission and high prevalence, and the absence, in Australian children, of the marked gender-role differences in 6–7 year-olds observed in other Asian or African cultures.

Discussion: The context for prioritizing trachoma as a public health issue was explored, with discussion of the various other agendas and problems experienced by the aboriginal communities, with which this health issue had to be balanced. Trachoma was viewed as a priority in the 1970s and 1980s but, without continued advocacy and vocal leadership, was supplanted by other health issues, such as the hundredfold increase in diabetes among aboriginal populations in the last 20 years. It was disturbing that conditions conducive to the spread of trachoma were still so prevalent. The Government was committed to having a plan by 2005, implemented by 2007, and reporting back to the Health Assembly by 2010. The situation in Australia provided evidence that specific interventions and approaches were needed but had to be part of health sector development if they were to compete successfully for attention with other health issues, HIV, for example. The Alliance itself was a powerful tool for gaining attention and should be more visible in a political sense, for example presenting information about trachoma and the UIGs at the Health Assembly. Resolution WHA56.26 requested the Director-General to report to the Fifty-ninth World Health Assembly on the progress of the Global Initiative to Eliminate Avoidable Blindness; that level of accountability provided a good opportunity to lobby government interest and raise the profile of trachoma activities, along with other opportunities such as World Sight Day.

The principal issue in Australia was living conditions, such as inadequate housing. Only 20-25% of the houses surveyed had hot and cold running water at any given time, with electricity run by diesel generators. Rubbish was only collected occasionally. Antibiotics were distributed rather haphazardly. Data collection in recent years has been sporadic, generated at local, district or territory level, but not consistently available at Federal or Commonwealth levels.

Brazil (Dr Norma Medina)

Preliminary results were available from 11 states (out of a total of 27 states) in a national trachoma school survey of underserved schoolchildren in public schools from 1–4 grades (covering ages 7–10 years). The study is very important for trachoma control in Brazil because it provides data on areas about which there was previously no information and clarifies misconceptions about the location and presence of active trachoma. The 2002–2003 survey targeted municipalities where the human development index is lower than 0.742 (the median for Brazil), sampling 7200 children in each state. Ninety-eight percent of the trachoma cases found among schoolchildren are TF, 0.1% are TI, and 0.1% TS (trachomatous scarring). Cases were treated with tetracycline (1%) with follow-up after nine months and eye examinations were made of all household contacts. The total, overall prevalence rate (from the 11 states' data) is 5.2%. The highest prevalences in the country are in Acre (north Brazil) followed by Ceará (north-east). Certain municipalities in Acre and Roraima (where there is a large Indian population, treated with azithromycin) have trachoma prevalence rates of 10–20%. Of the states in the north-east, only Ceará has a high rate, of 7%. In Bahia, formerly a problem area, prevalence rates have dropped considerably. Until the present survey no data had been available for the presence of trachoma in Acre. Similarly, the most southerly state of Brazil, RG Sul, a rich state, was found to have a prevalence rate close to that of São Paulo, with pockets of high prevalence although trachoma had not been reported in RG Sul in the last two decades. Laboratory tests confirmed this finding. In addition to examining schoolchildren, a survey had been made of household contacts. In 2004, 10 more states will be surveyed which will further clarify the situation.

Discussion: The problem of cross-border trachoma control was raised, and the difficulty in monitoring and treating diseases in mobile populations. Given the identification of trachoma, for example, in areas bordering Bolivia, Guatemala and Venezuela, and the existence of mobile Indian populations, it would be timely to reconsider the previous findings that trachoma was not present in those countries. The prevalence of active trachoma among children aged 0–6 years was thought to be a little higher than among the schoolchildren surveyed, on the basis of the household inspections made for antibiotic treatment. A further survey would be needed to establish TT prevalence, although it was known that the ophthalmological services frequently operated on TT cases. The “A”, “F”

and “E” aspects of the SAFE strategy were being implemented; the “S” element had been more difficult to address. It was observed that, on the basis of the data available, it was difficult to assess the scale of the public health problem; further investigation at household level would be needed to establish the level of blinding trachoma in the areas where trachoma was now known to be prevalent.

Burkina Faso (Dr Bernadette Yoda)

The trachoma prevention activities among the 13 health regions and 55 health districts in Burkina Faso are integrated within the overall national plan for blindness prevention. Trachoma control workshops were held in 2003 to conduct microplanning with partners for the five most affected regions. Each district and region submitted annual action plans, which were then integrated, and held in readiness until sufficient technical and financial resources were in place to implement them. Lack of resources meant that only one of the five regions (La Boucle du Mouhoun) has been able to carry out the plans in four districts in training of health workers, and in organization of trachoma control days using the SAFE strategy. In that one region, 120 nurses have been trained in trachoma screening, 8 TT operators, 360 instructors for children, and 120 community workers for advocacy and sensitization activities within the communities. During trachoma control days, 2500 examinations have been carried out, 250 cases of active follicular trachoma have been found, and 173 trichiasis operations have been carried out.

In the rest of the country, activities such as trichiasis surgery continue, both in fixed centres, and through the work of mobile teams. Eight hundred trichiasis operations have been carried out during the “days for trachoma control”, and tetracycline (1%) has been distributed. Efforts to improve facial cleanliness have been supported by the education system, and NGOs and other partners, through programmes in 17 schools, and a new school health curriculum has been tested in eight schools in the Est region.

A meeting of partners, including WHO, UNICEF, CBM (Christoffel Blindenmission), HKI (Helen Keller International), the Lions Club, Save the Children, and others, was held in January 2004, at which a firm commitment with health authorities has been made to establish a national blindness control committee. Work on integrating blindness control efforts among regional coordinators has started but more technical and financial support is needed. Burkina Faso wishes to establish a partnership with ITI (International Trachoma Initiative) to benefit from the azithromycin donation project. An action plan for trachoma control over the next five years is in development, as is a project for prevention and case management of trichiasis and cataract in three health regions. This was presented to partners for their consideration; and a plan for Vision 2020, with a workshop to validate it.

Cambodia (Dr Do Seiha)

The current magnitude of trachoma prevalence in Cambodia is unknown. There are estimates based on hospital data from Svay Rieng (in the east of Cambodia) and Battambang (in the west); community surveys in northern and central Cambodia; a national micronutrient survey in 12 provinces, and rapid assessments in three provinces (there are 22 provinces in total). The estimates put TF/TI prevalence at 22.6% for children under 10 years of age, and prevalence of TT for people over 14 years of age at 3.56%.

There is no national trachoma control programme in Cambodia; all trachoma activities are carried out at the eye-care level, identifying high-risk populations and areas, and using the SAFE strategy to reduce blinding trachoma. There are 18 eye-care units and all 34 eye doctors in the country have been trained to perform lid rotation surgery. Mobile units have increased the provision of outreach surgical services; in 2003, they performed 903 TT surgeries. Active trachoma in individuals and families is treated with tetracycline (1%) using the existing PHC facilities. Face-washing for children is an active part of the public education campaign, targeting children at home through several information, education and communication (IEC) activities, including posters, brochures and TV spots; this operates in conjunction with school health education on hygiene. Coverage is not yet comprehensive, with cities and selected provinces targeted initially for the IEC campaigns. The use of television and radio media to communicate information has been found to be very successful in encouraging people to admit themselves to hospitals for lid rotation surgery. Environmental change is being supported by other ministries to achieve a better water supply and better sanitation. In the future, analysis of the situation will be helped by the rapid assessments being carried out in the northern and central parts of Cambodia. There is an international plan for the prevention of blindness, to set up a multisectoral national trachoma control taskforce. The aim will be to strengthen health

education, strengthen outreach activities, and mass treat selected trachoma-endemic communities with azithromycin.

Chad (Dr Djoret Dezoumbe)

A combination of cataract, trachoma, glaucoma, onchocerciasis and other diseases contribute to a national blindness prevalence of more than 2%. There are only three ophthalmologists in the whole country, serving 8 million people, with the brunt of the work sustained by only two doctors. To date the medical faculty in Chad has trained only general practitioners, but starting in 2004, there will be a training course for nurses specializing in ophthalmology to supplement the limited opportunities that currently exist for such training in Bamako.

A survey of five health districts in 2000–2001 started the trachoma mapping in the country; the results were reported to the Alliance, showing trachoma to be a true public health problem in the country (TF prevalence among children under 10 years of age is 31.5% and TI 16.7%). In 2003 there have been 600 TT operations, mostly performed in semi-desert areas. It is essential to complete the mapping operation. Fourteen health districts remain unexplored but it is hoped that, with the help of partners, the picture will be completed and a national trachoma control programme will be included in the national blindness programme. Two more surveys (covering three districts) have been made already in 2004; the findings will be presented at the next meeting.

Discussion: Participants expressed their concern over the lack of human resources in Chad. A very great deal could be achieved by trained health personnel who were not necessarily ophthalmologists, as had been seen in Nepal, where paramedics were trained to perform eye surgery. The role of specialized nurses would be important; the training course started at the public health institute in Chad would produce 12 ophthalmological nurses at the end of a two-year course in 2005.

China (Dr Qingjun Lu on behalf of Dr Ningli Wang)

Renewed attention is being paid to trachoma elimination in China, following the Seventh Meeting of the Global Alliance in 2003. An action plan for trachoma control has been reformulated, with the aim of eliminating blinding trachoma in China by 2010. The prevalence of trachoma is highest (up to 20%) in the south-east and north of the country, and, on the east coast, where the economy is better and the climate less dry, prevalence is lower. An estimated 6 million TT cases need surgery, with 26 million cases of active trachoma in the country.

The focus of activity will be two populations: schoolchildren and the elderly. Education of eye-care specialists, to operate on the worst cases, will be the most important element.

Access to accurate epidemiological information is critical to accurate planning. Since the outbreak of SARS the Government's infectious disease control reporting system has been working efficiently, and will be involved with the collection of samples. The network of reporting systems — national, provincial and county, and primary health care — will support data collection.

The action strategy, developed in conjunction with WHO, and strongly supported by the professional groups concerned, has three steps: the definition of a model for trachoma control; the integration of the elimination activities into the national prevention of blindness programme; and the elimination of blinding trachoma nationwide. In 2003 a preparatory campaign has been executed, of training courses, demonstration surgeries, and awareness-raising via the media and posters. Also in 2003, two contrasting pilot sites have been chosen: a suburban area in Beijing Shunyi county, and four rural villages in Sichuan province. The first has environmental conditions supportive to health, is well supplied with commercial tap water, and children have separate face-washing conditions. Among the 1000 children assessed, only 18 (1.8% prevalence) TF cases have been found, and among the 2010 older population (more than 60 years of age) 43 (2.1%) TT cases have been found. In the poorer rural areas, where there is no tap water but only access to wells, poor living conditions, with flies present, and shared washing facilities within the families, the results are dramatically different. Among the 214 children aged 5–7 years, 103 (48.1%) have TF, 16 (7.47%) have TI, and among women older than 30 years, of the 148 checked, 21 (14.2%) have TF, 29 (19.6%) have TI, 62 (41.9%) have TS, and 11 (7.4%) have TT.

The models, which indicate the scale of the problem in rural areas, will inform the nationwide expansion of the action plan, working to eliminate TI and TT (using screening by PHC, collection of samples for pathogenesis study, and surgical teams); engaging the reporting system so that monitoring and evaluation is accurate; and educating communities in rural areas.

Discussion: China has been very successful in providing data; high praise was given for the efforts made to produce the estimates of active trachoma and trichiasis data that had been provided to the August meeting and revised for the present Alliance meeting. However, there were substantial differences in prevalence between rural and coastal areas, for example, and a national figure could not be reliably extrapolated, especially in view of the impact large-country-data had on the global estimates. The point that this was “work in progress” was clearly made, and that the planning provided by the UIGs process would be useful in China. Precise data would be essential for fixing objectives and planning elimination in the future.

Egypt (Dr Enaam Hamad Abdel Dayem)

In 2003, the Ministry of Health of Egypt signed the Vision 2020 Declaration, celebrated World Sight Day, held a technical workshop to sensitize and orientate eye-care providers to the Vision 2020 programme, initiated a national plan for Vision 2020, and, in conjunction with the Al Noor Foundation and the London School of Hygiene and Tropical Medicine, conducted a workshop to plan interventions for trachoma control in 2003.

The preschool and primary schoolchildren of Egypt are severely affected by trachoma. Three surveys have been undertaken in the governorates of Menoufiya (in 1999, covering ages 2–6 years, prevalence 36.5%); Menya (in 2001, covering ages 2–12 years, prevalence 50.6%); and Fayoum (in 2002, covering ages 2–12 years, prevalence 47.8%) which provide indicative data on active trachoma. Active trachoma is highly prevalent among preschool children (in Fayoum 82% and Menya 76%). No gender differences have been noted in the prevalence rates. Phase one of the intervention programme targeted women and preschool children (four villages in Menoufiya and four in Fayoum), in a pilot study for trachoma control in Egypt. The second phase targeted primary schoolchildren and their teachers, providing health education materials and input to the curriculum. The outcomes, after two years, show women to have become sensitized to improved water and sanitation in the villages, with knowledge of trachoma and improved knowledge attitude and practice. The school curricula have incorporated trachoma teaching and children are actively involved in the preparation of educational material about trachoma prevention. Azithromycin was distributed in a pilot village of 20 000 inhabitants in Menoufiya governorate, with a reduction in prevalence in active trachoma seen from 36.5% to 12% over three months, and to 27.5% after six months.

Based on this assessment (and other data on trichiasis among adults, not presented at the meeting) the Ministry of Health of Egypt recognizes trachoma as a public health problem in the country. It is in the process of establishing a national coordinating committee for Vision 2020 and the prevention of blindness, within which there will be a taskforce for trachoma elimination. The Ministry of Health recognizes the invaluable role partners have played in the activities thus far and asks for their continued support. Action needs to be taken to improve face-washing and environmental components, using community-based approaches, in conjunction with the agencies involved in water and hygiene issues.

Ethiopia (Mr Zegeye Haile Zewde)

A multistage random cluster sampling has been undertaken in 2003, funded by various NGOs (the Carter Centre, World Vision Ethiopia and Orbis International), with the work done largely by government health personnel. The country is divided into 65 zones or 605 districts. In the Amhara region, 15 districts (population 19 210) have been surveyed. TF prevalence is 70% among children aged 1–9 years, and TT prevalence is 3.5–7.3%. In the Tigray region (1200 households) a rate of active trachoma of 39.6% has been found and TT prevalence of 3.3%. In the south, 38 districts have been surveyed. More than 4 million people were examined; TF prevalence is 50-90% and TT is around 3%. Endemic trachoma is a major public health problem in Ethiopia. There is a national trachoma control programme, which is integrated within the national prevention of blindness programme and a five-year plan (2004–2008). Vision 2020 was launched in 2002, with encouraging ministerial support.

Prior to this a total of 45 districts have been surveyed. In total, 10.9% of the country has been covered, and this systematic method will continue.

The SAFE strategy: villages and communities are involved in all four components. There are 212 TT surgeons, including ophthalmic nurses, ophthalmic medical assistants and integrated eye-care workers, (95% of whom are in the rural areas). A certification process for such surgeons is planned for the future. A total of 25 000 TT surgeries have been conducted in 2003. Thirty ophthalmic nurses are under training. The UIG for surgery, including the backlog is 1.1 million. The plan is to conduct 50 000 surgeries in 2004, 90 000 in 2005 and 110 000 in 2005.

Treatment with antibiotics (tetracycline ointment) is carried out in government health institutions. Although azithromycin is not generally available, a donation in 2003 has allowed 300 000 people to be treated in one district in the south. To reach the UIG of TF prevalence below 5% will require mass treatment: 3 million people in 2004, 7 million in 2005 and 10 million in 2005. The environmental issues facing trachoma elimination include the low percentage of the population with access to safe water (28.4%) and with access to safe excreta disposal (11.5%). Work to improve this includes education about facial cleanliness on national radio, building of model latrines, and water and sanitation projects. The UIG for the "F" component is to achieve 80% of children with clean faces. This will be one of the areas dealt with by the national five-year strategic plan for trachoma control. The "E" component links with the work on achieving the MDGs, and has resulted in the Government's plan to reduce by half the proportion of people without sustainable access to safe drinking-water. A very wide range of partners are involved in the prevention of blindness in Ethiopia, whose support will be needed to overcome the many constraints facing the trachoma programme.

Discussion: Recurrence after trichiasis surgery was of concern as was quality control of surgeons, as those would impact progress towards attaining the UIGs. Studies had shown recurrence rates of 14% after six months, 20% after three years (and even higher rates in studies in other countries) with no differences found in surgical quality between ophthalmic surgeons and integrated health workers trained for one month, nor in the surgical methods used. The majority of operations were conducted by the health workers, supported financially by NGOs. Ways to reduce recurrence were being sought, such as the certification procedure planned for surgeons, accurate definition of the nature of the recurrence, and the role of re-infection after surgery.

Gambia (Mr Ansumana Sillah)

TT prevalence is being steadily reduced in the Gambia. In 2003, 528 surgeries were accomplished. The plan for the country targets specific local government areas, rather than looking at overall prevalence figures, which would otherwise indicate mass treatment for 0.5 million people, over a period of three years, creating very serious resource issues. There are problems in the country with facial cleanliness, including the need for a clear definition of what that means in the Gambia. The specific objectives for the country include: to operate on all registered blinding trachoma cases by the end of 2007; to reduce the prevalence of active trachoma by 50% in each health division by 2007; and to fully implement the SAFE strategy throughout the country. In 2003 divisional registers for trichiasis have already been established.

Much work has been done on training: general nurses have been given nine months' training to become community ophthalmic nurses. Suitable candidates are also trained as lid surgeons, and village health workers are taught to identify active trachoma and treat cases. Advocacy groups called "friends of the eye" have been created, to motivate people to come forward for treatment. Community screening and treatment has suffered from inadequate donations of azithromycin, relying instead on tetracycline, and mass treatment has been compromised by cross-border movement of populations. It will be important to explore joint programming across borders. Currently operational research is ongoing, supported by the London School of Hygiene and Tropical Medicine, among others, in various areas, such as to improve service delivery; to strengthen the scientific evidence for trachoma control and management strategies; to investigate re-infection after mass antibiotic treatment; to evaluate the effect of sanitary kits; and to standardize the surgical techniques used.

Discussion: The need to note the scale of the TF problem in the Gambia was emphasized; there had been a view that trachoma was under control in that country, yet two large areas had been shown to have sufficiently high prevalence to merit mass antibiotic treatment. The Health for Peace Initiative was already active between the

Gambia and Senegal; the issue of commensurate and well-planned disease control among bordering countries was discussed in the light of work on the prevention of blindness.

Ghana (Dr Maria Hagan)

The trachoma control programme concentrates on six districts, with a total of 4566 communities, among which 234 are implementing the SAFE strategy. An impact assessment has been conducted in five districts to evaluate the programme after two years. It shows a significant reduction in active trachoma among children aged 1–10 years, (41–72%). Over 95% of children in that age group report having received at least one dose of antibiotic.

A baseline study has been conducted to assess programme expansion to 12 districts (looking at children aged 1–5 years). The study reveals focal prevalence at the community level. Of the 551 communities surveyed, 314 had trachoma and 137 had no signs. TF (1–5 years) ranges from 0–53%, TI (1–5 years) ranges from 0–17%; TS (40+ years) ranges from 1–30.9% and TT (40+ years) ranges from 0–13%.

The surgery target in 2003 was to perform 1100 TT operations, however, only 551 cases have been registered and only 383 have been operated on (a coverage of 34.8%). Until sufficient eye surgeons have been trained to cope with demand, eye camps will be used, and 90 more general nurses will be trained in primary eye-care to release ophthalmic nurses to perform operations. The surgery goal in 2004 is to perform 2100 operations. Plans for 2004 also include retraining the present 15 TT surgeons and training an additional 36 surgeons. Community-based TT surgery is free, as are other trachoma-based treatments.

Antibiotic treatment exceeds the availability of supplies and demand estimates. In 2003, 23 000 more people than projected needed treatment with azithromycin. Antibiotic distribution is best made in the first quarter of the year, avoiding the rainy season and related population movements. Pregnant women and children under one year of age are treated with tetracycline. In 2004, a total of 315 000 people will be treated with antibiotics; sentinel communities will be identified for detecting trends in active trachoma; and TF prevalence in children will be monitored to assess the success of the three treatment rounds.

Health promotion activities in communities and schools have been intensified throughout 2003, with “trachoma awareness” weeks, IEC materials printed and distributed, and training provided to 78 health workers at all levels, to 40 volunteers for radio learning groups, and to 294 schoolteachers. In 2004, all 18 districts and 680 communities will be covered by “F” and “E” activities, with capacity-building for teachers and general nurses an important aspect of this. The radio learning groups were very successful in effectively communicating the trachoma control messages. In 2003, sustained advocacy was very successful in increasing the building of household latrines and bore holes for potable water. The target of building 700 latrines was exceeded (by 5%) and the target of providing 50 potable water points was exceeded by 182%. Other challenges for the future include financial support to continue the radio learning groups and other multimedia programmes; finding ways of helping communities to contribute towards the cost of potable water; and providing motorcycles for home visits.

Support from partners has been invaluable, such as UNICEF, which contributed to the achievement of the successes in water and latrine projects, the Carter Centre, World Vision, and the West African Water Initiative (WAWI), funded by the Conrad N. Hilton Foundation.

Guinea Bissau (Dr Meno Nabicassa)

The country is divided into three provinces, eight regions and one autonomous area containing the capital, Bissau. There are 11 health districts. Human resources for health are very limited, with one ophthalmologist, 12 technicians, and 5 eye-care nurses. There are three health centres in the capital and one in the rural area. There is no trachoma control programme as such, however, the health centres provide care to patients, including surgery.

Trachoma is thought to be a national public health problem; although data is very limited, three trachoma-endemic regions were identified by the Gulbenkian Foundation, a Portuguese foundation that conducted screening tests in 1996. No national survey has been made. The “Health for Peace” initiative has started a survey programme but has not been able to sustain it due to lack of funding. Discussions have been held with the Medical Research Council and WHO to conduct a national survey on the causes of blindness in the country, and a group has been set

up in anticipation of this, under the Director of Public Health. Funds permitting, it is intended to conduct a national survey, at least on trachoma, once elections have finished and once the political situation is conducive to such efforts.

Discussion: The situation of Cote D'Ivoire was raised, and experiences in that country put together to suggest the likely current trachoma situation. There had been cases of trichiasis in the northern part of the country, and, three years ago, a prevalence study had been proposed for that area with funding from the European Union (although those funds had not yet been made available). There was at present no programme for blindness prevention or control. It was noted that a professor at the Faculty of Medicine in Abidjan was very interested in trachoma and other public health issues and had already participated in several meetings.

Guinea Conakry (Professor Nouhou Konkouré Diallo)

In September 2003 a blindness prevention programme was established and integrated with the onchocerciasis programme. The resources of both are pooled and experience shared.

Trachoma affects 15 districts. In 2003, 58 nurses have been trained in primary eye-care to work in the trachoma-endemic areas, using the structure of the onchocerciasis programme to screen through communities for TT, cataract and other loss of vision. Twelve nurses have been trained to deal with trichiasis using the Trabut technique. In 2003 and the first quarter of 2004, 1456 cases of trichiasis have been detected in Haute Guinée, and operated on as part of the training programme for surgeons.

With the support of NGOs such as HKI, 848 cases of active trachoma have been detected and treated with azithromycin in four subprefectures of Haute Guinée. Within the 10 districts in Haute Guinée, TT prevalence is 2.7%, (23 842 cases). The number of operations necessary to reach the UIG is 22 076, or about 4500 operations a year. The scenario is similar for Moyenne Guinée, which has five districts, and 3000 TT cases pending – approximately 700 cases per year over five years. For antibiotic delivery, as long as the supplies are available, up to 350 000 doses annually could be administered through the ivermectin distribution mechanism in Haute Guinée. A link with this complementary mechanism (established for onchocerciasis prevention and control) would be an efficient means of using health-worker skills and advancing trachoma prevention. The community volunteers could start by screening trachoma, registering patients and informing the health centres of prevalence so that interventions can be planned. For Moyenne Guinée, approximately 157 000 doses need to be administered each year for five years to meet the total of 776 175 TF cases.

The action plan for trachoma control will be ready in 2005. It deals with three components of the SAFE strategy (the “E” element is still being worked on). To meet the goals for trichiasis surgery, TT cases in villages will be screened by community distributors, brought to health centres catering for specific catchment areas, and operated on. To cover the 50 districts, the TT operations will be carried out by mobile nurses, three to each of the 15 districts, assisted by the local health centre nurse. An additional 24 surgeons would thus be trained. Each health centre will have a local plan to tackle about 100–150 operations per surgeon per year to meet the goals. The major problem is lack of equipment, not human resources. Motorbikes are needed, for example.

Tetracycline is available at health centres but not used for mass administration. Azithromycin, currently being field-tested in Haute Guinée, would be very useful as, like ivermectin, it would be distributed once annually to communities. Facial and hand cleanliness would be tackled through community behavioural change strategies. The national water service provides pumps but these often break down and they are not used for face-washing.

In total these activities would require a total budget of US\$94 500, with contributions from the several partners involved. Some equipment and funding is already available thanks to Sight First and The Organization for the Prevention of Blindness (OPC), supporting training, drugs and transport. OPC, with Sight First, is establishing a project in Haute Guinée and the forest region, linked to the national prevention of blindness project.

India (Professor Rasik B. Vajpayee)

The first study on trachoma was conducted from 1959 to 1963. A national Trachoma Control Programme has been established to address the high prevalence rates (up to 74%) found in the economically backward northern

parts of India, the plains and the states of Uttar Pradesh and Bihar. A second survey was conducted from 1986 to 1989, by which time the population had better health care, better provision of water and sanitation, and living conditions in general had improved. The study showed trachoma prevalence to have decreased considerably; the disease is minimal in the south, but is still endemic (with prevalence up to 24%) in the northern states. Gujarat, Haryana, Punjab, Rajasthan, Uttar Pradesh and Delhi are considered hyperendemic for active trachoma. Overall, the prevalence of active trachoma is less than 1%; this is included in the causes of corneal blindness, which is 3% (and cataract 81%). In 1971–1974 the national average for trachoma-related blindness was 5%, and this had decreased by the time of the 1986–89 survey to 0.39%. In 1995 a small study was conducted in an area in Northern India (including microbiological investigation). Clinical diagnosis found an overall prevalence was 8.5% (males 10.1%, females 6.1%). Active infectious trachoma prevalence was 85.9% and with preschool children there was an increase in active trachoma.

No major study has been done since the 1986–1989 survey and it is imperative that accurate data be collected on the current situation, in which, it is estimated, 20 million people are affected by trachoma. Multistage random sampling, supported by microbiological investigation, in hyperendemic areas would be the first step, selecting 10 districts within each of 8 states in the western and northern regions targeted (as listed above, with the addition of Uttaranchal and Himachal).

As yet, although the various elements of the SAFE strategy exist within the national programme for control of blindness in India, no separate programme exists to control trachoma. Trachoma is recognized as a focal target disease under the Vision 2020 initiative. Once the current prevalence is established through accurate surveys, strategies for its elimination can be shaped along the lines recommended by WHO, with mass treatment with azithromycin (currently not available in the country), screening for active trachoma among children in disease-endemic areas, and trichiasis identification and operation in eye camps. Resources are needed for the surveys, the screening and operations, to support the provision of antibiotic supplies, and to raise public awareness of the situation.

Kenya (Dr John Kipkorir A. Limo)

No comprehensive national survey or rapid assessment of blinding trachoma distribution has been carried out so far in the country. Under a five-year comprehensive plan for eye-care, five-day training in trichiasis surgery (bilamellar tarsal rotation) has been held in 2003 for six ophthalmic clinical officers, two general clinical officers and one ophthalmic nurse. Screening of 230 patients has been carried out in the six health centres and dispensaries. A total of 35 operations have been performed, with each trainee operating on at least six cases. Post-operative patients have been reviewed after seven days to assess the success of the surgery; the results indicate that further training will be needed.

Lao People's Democratic Republic (Dr Vithoune Visonnavong)

The population of Lao PDR faces considerable hardships, with the general health status remaining low. One half of the population (58.1%) does not have access to safe drinking-water, and less than half (41.6%) does not have access to safe sanitation facilities. Poverty remains widespread. The National Poverty Eradication Programme (2000) includes a component to improve social services such as education, health, water and sanitation. This has been aligned with the SAFE strategy.

Rapid assessments of two rural districts of Lao PDR in 2003–2004 (Nonghet and Long districts) have been conducted for active trachoma among children aged 1–9 years, and trichiasis among the elderly, individual facial cleanliness and collective hygiene (looking at water supply, latrines and livestock). The prevalence of active trachoma is 1–12% (average 2.75%). Many households have no access to latrines, and several options are being considered to improve the environment. Communities in mountainous areas seem to suffer less from trachoma, perhaps because of different climatic conditions, and housing styles.

Eye-health education is very important to prevent and control trachoma; schoolchildren are “health scouts” helping to spread health messages, for example, through card games. This method has been successful in the five provinces in which it has been tried, with only one village having a high level of active trachoma (12%).

The UIG for surgery is 400 cases, with annual intervention objectives of 100 cases for the first two years and 200 in the third. The UIG for antibiotic distribution is 50 000, with objectives of 10 000 in the first year and 20 000 in each of the next two years. The UIG for facial cleaning is again 50 000 with a similar pattern of achievement estimated for the objectives. For the “E” component several government initiatives are underway to meet the MDGs of improved access to water and sanitation.

Mali (Dr Doulaye Sacko)

Three strategies have been developed to reduce trichiasis prevalence in the country, involving operations at fixed centres and other campaigns carried out by specialized ophthalmologists and other health-care workers trained in surgical procedures such as 70 specialized nurses. Surgical interventions have increased by 600 cases each year, with a total of 4500 cases of trichiasis operated on in 2003 (compared to 1500 in 1998), 55% of which were from the region of Koulikoro. The rate of refusal has been successfully reduced through advocacy and awareness-raising work, from more than 30% to less than 15% .

Azithromycin continues to be donated through ITI for mass distribution to the regions of Koulikoro and Kayes. In addition, Medicin Sans Frontières has distributed generic azithromycin imported from India in the region of Mopti. More than 7000 village volunteers have been trained to support this distribution in two districts in the Kayes region, two in Mopti, and five districts in Koulikoro, treating children from six months of age to women of more than 15 years. Children under five years of age are treated with tetracycline. In 2003, 1.15 million people were treated with azithromycin (compared with 250000 in 2001). Of those, 750 000 people have been treated at least twice. An evaluation carried out five months after the last distribution round, shows that infection has been reduced by 75–80%.

Facial cleanliness and environmental change have been tackled through a wide range of national IEC interventions. Although these interventions are perhaps less successful than the “S” and “A” components, they are important in the control of trachoma. Elements such as short theatrical plays, TV and radio spots, and information days in schools, involving theatre and dance, are newly available and are already making inroads into refusal rates among communities through increasing their knowledge and understanding of the disease. In 2003, in addition to the IEC activities to support environmental change, practical steps have been taken, with masons trained to support the construction of latrines and improvement of water supply, increasing the diameter of wells, for example. These efforts are supported by the Carter Centre and ITI. Water supply projects and hygiene and sanitation efforts are also being supported by WAWI, World Vision and others. UNICEF is also involved, particularly in school sanitation and hygiene. Celebration of World Sight Day has been used to mobilize public awareness of blindness control and the Vision 2020 initiative. These events are well supported at the highest ministerial levels and are covered by the national media.

A prevalence survey conducted in certain sentinel villages, in which all four components of the SAFE strategy have been implemented, was conducted in December 2003 in Kaye and Koulikoro. Preliminary results show that 91.3% of children have clean faces; prevalence of TF/TI is 3.6% among children aged 0–10 years, and prevalence of TT is 0.9% in the general population under 14 years of age.

Lack of trained human resources continues to be an obstacle. Non-specialized staff who can be involved in eye-care generally have been included in the programme. Difficulties in distributing azithromycin and in getting people involved in changing the environment are being tackled. Plans for 2004 include enlarging activities in Segou region, further improving work with intersectoral partners such as WAWI, and improving the collection of data where feasible. A five-year programme for trachoma control is being prepared.

Mauritania (Professor Sidi Ely Ahmedou)

A five-year community health plan for elimination of blinding trachoma has been developed, based on the SAFE strategy, and with the help of partners such as ITI, Fondation Bouamatou and the Lions Club. The three areas covered are Adrar, Tagant and Assaba. In December 2003, OPC supported the training of trichiasis surgeons who took part in a campaign in the three regions, operating on 95 cases. The surgical teams are mobile, to address problems of population inaccessibility. In January 2004, a prevalence survey was conducted in Adrar, for which

preliminary results are available. In Nouakchott, a large city with good economic development, rates have fallen from 20% in 2000 to 4.5% and less than 1% in 2004. In Adrar and Tagant rates are still quite high. In Adrar TF has a 30% prevalence rate and TI is at 10%. In Tagant TF rates are around 23% and TI under 5%. The conclusion is that economic development has contributed to the drop in prevalence. Efforts are being made in all areas to fight poverty and the Vision 2020 initiative will support this.

Work is still needed on the educational and social mobilization component of the plan. A seminar has been held for field NGOs, for press and for prefects, mayors, and other decision-makers in the regions. Promotional materials have been prepared, such as posters, stickers, cartoons, radio and television spots etc. There is good political support for trachoma control efforts. Azithromycin will be distributed in Adrar and Tagant from May onwards.

Mexico (Dr Jorge Raul Ricardez-Esquinca)

Research showed there to be only five municipalities in the highlands of Chiapas region remaining endemic for trachoma in Mexico. It is possible that there are occasional cases of trachoma elsewhere but there is no transmission. The prevention and control programme is carried out at both federal and state levels, which link with PHC workers, national indigenous institutes and local government and traditional authorities to form a “social network against trachoma”. In January 2004 a survey was conducted to find the numbers at risk in the five municipalities. Ocular examinations have been conducted among 106 406 people (80% of the at risk population) detecting 1358 cases (1.3%). Of these, Oxchuc municipality has the highest number of cases (833), followed by San Juan Cancuc (286).

Preliminary results are available for the 2002–2003 epidemiological survey conducted in the five municipalities among 12 452 children below 10 years of age. The prevalence of TF/TI ranges from 0.36% to 1.55% (a total prevalence of 0.9%), and among people aged above 14 years, total TT prevalence is 0.8%. In Oxchuc, among 1062 people in this age group, seven TT cases have been found. In total, there were 357 TF cases, of which only 87 have been treated, due to the lack of antibiotics. Similarly, 145 TI cases have been found, of which 18 have been treated. Of a total of 142 surgical cases, 71 have been operated on, with 16 refusals. The UIG for the surgery element is 29. For the antibiotics element of the strategy, the UIG is 160. For clean faces, the UIG is 4976.

The programme needs to increase its treatment coverage and surgeries to reach the elimination goal. More epidemiological surveys are needed to reduce the level of underestimation (currently thought to be at 20%). The main priority for 2004 is to complete the epidemiological surveys of all areas so as to know where blinding trachoma really is. Appropriate tools (2.5 examination loops) are needed for examinations. An increase in the level of antibiotics is needed, to allow treatment of all cases. An increase in the level of participation by the indigenous populations is desirable.

Morocco (Dr Youssef Chami Khazraji)

With the objective of eliminating trachoma by the end of 2005, Morocco has integrated all aspects of the SAFE strategy in the primary health care system and has been delivering it routinely at grassroots level. Progress in reducing prevalence is monitored biennially through point prevalence surveys as well as routine evaluation. In April 2003, a cluster survey was conducted in five trachoma-endemic provinces, to evaluate the impact of the SAFE strategy and assess prevalence. The results highlight both very high participation, and low rates of refusal.

Overall prevalence of all forms of trachoma (all ages and both sexes) varies between 1% (in Figuig province) and 20% (in Zagora province). The overall prevalence of active trachoma is highest in Zagora (30%). Severe trachoma and intense trachoma is scarcely found at all in any province, except for one or two cases. The prevalence of scarring trachoma varies from 0.3% (in Figuig) to 2.1% (in Zagora) Among children less than 10 years of age TF prevalence varies between 0.2% (in Figuig and Ouarzazate) and 7.7% (in Zagora). In that age group the prevalence of TF/TI was between 0.2 % and 8.27%. TT in women older than 14 years ranged from 0.63% (in Figuig) to 4.59% (in Zagora) and, in persons older than 39 years from 1.1% (in Figuig) to 8.47% (in Zagora). Among children less than 10 years of age TF prevalence since 1997 has been reduced by more than 85% in all five provinces endemic for trachoma.

The UIGs draw on population data from the 1994 census, the prevalence data from the 2003 provincial surveys and the directions provided by the expert meeting in Geneva in August 2003. The global figure for the population at risk aged more than 15 years is 526 050. The number of cases of TT expected within this group is 12 937, and the minimum number of operations anticipated to achieve the UIG is 12 095. In 2003, 2209 trichiasis operations have been conducted, and a further 2172 in the first quarter of 2004, bringing the total so far to 4381, and giving an overall coverage level for 2004 of 36%. The annual intervention target for TT surgery in 2004 is 5061 and in 2005 will be 3925.

The achievement of these goals is being supported by a programme of intensive screening and surgical operations, using fixed and mobile teams and conducting provincial campaigns. Teams of health professionals make door-to-door visits, recording trichiasis cases and encouraging people to go for surgery if they live within three kilometres of a health post, or to link with the mobile surgical teams. The three provincial teams use local trichiasis operators supervised by ophthalmologists, and are able to deal with other causes of blindness such as cataracts, as well as integrating other forms of primary health care, e.g. screening for diabetes or high blood pressure.

Antibiotic therapy is based on mass treatment with azithromycin (95%) and tetracycline (5%). The coverage rate for children below 10 years of age is 99% and 92% for those more than 10 years of age. The target population is 736 499. In 2003, 233 465 have been treated, which is well above the target for 2004 (191 638), and it is hoped to continue this trend. In 2005, administration will be assessed at local commune level, and the numbers will depend on the survey to be conducted in that year. Coverage has already reached the UIG, with levels above 80% attained since 1999, and with the ultimate programme objective of reaching more than 700 000 also almost achieved. The UIG for active trachoma among children below 10 years of age has been reached in all four provinces except Zagora, with reductions of more than 85%. The disease burden is heavier in Zagora than the other provinces because economic and social development there has been slower than in the other provinces. However, the intervention efforts there are having correspondingly dramatic results.

In terms of facial cleanliness, the goal was reached in 1999. In 2003, 80% of children in almost every province had clean faces. There has been a large increase in the numbers of people with access to safe water and sanitation, through the work carried out by the Ministry of Agriculture, local collectives and associations, and UNEP, with the support of ITI. Access to water has increased from 20% in 1990 to more than 80% in most provinces. In terms of other steps taken to change the environment, latrines, fly control, manure control and general sanitation campaigns are having an impact in all five provinces. More than 80% of all villages already have electricity. Efforts are ongoing to widen the scope of community awareness, through increased numbers of local associations, school education, and teaching women about the trachoma programme. A press campaign with high-level political leadership and participation has been successful in supporting the profile of the elimination efforts.

A plan of action for 2005–2007 has been elaborated with a view to seeking further support from ITI.

Discussion: The question of recurrence was raised; during the prevalence surveys of 2001 and 2003 the rate of relapse had been shown to be about 14%, although that included partial relapse. Total relapse was not more than 2%. In 2003, indicative data showed the rate to have declined further, to below 10%. The integrated approach taken in Morocco had without question increased success in accessing and treating patients. The strategy had been changed after the August meeting of experts, which had highlighted the shortfall in processing surgical cases. With its partners it had decided to open consultations to a wide range of public health issues and, through improving the overall provision of care, had impacted the effect on trachoma treatment.

Morocco's success story, in reducing active trachoma prevalence from 30–70% to less than 10% in every province, was instructive to other countries; it was suggested that the key factors in that success should be written up for others to learn from. Three contributing factors were described: First, the programme was totally decentralized, but worked smoothly because each person, at each level, was well aware of the overall vision. That was achieved through a well-planned communications strategy. The second factor was that of well-focused advocacy at national, provincial and local levels, which had sustained the interest and commitment of decision-makers throughout the health system. The third factor was the degree of ownership of the programme felt at grassroots level. That was achieved in part through the moderate pace of implementing the activities and the

confidence-building role of the outreach teams. All four components of the SAFE strategy were implemented at once (except where it was not feasible) in the 25 pilot villages in five provinces. The expansion of the project had happened almost spontaneously, through word of mouth. The outreach programme was a positive force also in establishing the credibility of the programme and gaining grassroots support, as the mobile teams were immediately functional, carrying out operations, working with local associations to construct latrines, showers, etc. It was also suggested that political will was mobilized when decision-makers understood the link between trachoma and poverty and between neglect and ill-health. The personal contribution of the national coordinator also must not be underestimated. The integration of other activities with trachoma control could usefully support the momentum of the project, when involved at a later stage. There were some reservations about combining trachoma with cataract surgery given the immediate results given by cataract operations. Relapse cases should be referred to ophthalmologists, not the original operating surgeon, to avoid damaging refusals.

Mozambique (Dr Yolande Zambujo)

Mozambique currently has 8 ophthalmologists, 3 residents in training and 22 ophthalmic assistants. Only one province (out of 10) currently conducts specific trachoma control (supported by HKI), under the auspices of the National Prevention of Blindness programme, although there are plans to start a similar trachoma control programme in Inhambane province in 2005, with the support of “Ulls del Mon”, a Spanish organization. Similar plans, for community-based eye-care and trachoma services are being made for Sofala province, supported by CBM and HKI. While there is no data to show trachoma prevalence levels throughout the country, hospital data show that there is trachoma in every province.

Training of 44 health-care workers in basic eye-care, has enabled “trachoma and eye-care days” to be held, whereby communities are educated on disease and free examinations and treatment given. Between January 2003 and March 2004, these efforts covered 18 communities in four districts, resulting in the identification of 289 trachoma cases (15%) and treatment with tetracycline, and of 31 cases of trichiasis (1.7%), with 27 operations performed. In the provinces that do not have trachoma control, cases are treated by the ophthalmic assistants or by the ophthalmologists.

School health activities have been carried out in three schools in one district, with 3050 children being surveyed. Of these children, 337 (11%) had active trachoma and were treated. Twenty-three teachers and district school health officers have been trained on eye-care and trachoma. This programme will be expanded to 10 schools.

To meet the UIG for the surgical component of the SAFE strategy, Mozambique will have to conduct a total of 610 TT operations among the three districts in Manica Province. For antibiotic distribution, the UIG is to cover 38.8% of the population, providing 93 200 people with azithromycin, although this is dependent on the availability of the drug and of funding for mass outreach activities.

For activities related to the “F” and “E” components of the strategy, estimates are difficult to make, as there is no survey data on the current situation. However, these elements are accommodated through the HKI-supported activities in school health education and water provision. Funding constraints have inhibited these activities.

Myanmar (Dr Nyunt Maung)

A historical review was provided of the programme in Myanmar, including the problems in the central dry zone of the country, methods of surgical intervention, and the cost-effective nature of using tetracycline and safe water.

Irrigation, re-forestation in nine districts, and other such environmental efforts have supported the reduction in overall trachoma prevalence from 43% to about 1%, with only pockets of endemicity remaining. At present 16 secondary eye stations are monitoring those disease-endemic areas under the leadership of ophthalmologists, performing eye operations such as cataract and glaucoma, and with outreach workers promoting the SAFE strategy to communities, performing active case-finding and referring surgical cases to eye stations for case management. In October 2002, rapid assessments (using the WHO-recommended format) have been conducted in 21 villages in three districts that had high prevalence rates (Shwebo, Monywa and Sagaing). The total prevalence of trichiasis

among the three districts ranges from 0.24% to 1.39%. Active trachoma prevalence ranges from 3.74% to 5.87%. The assessment of personal hygiene in the three districts shows rates of 3.51–28.44%. In terms of environmental conditions, two of the districts have adequate access to water supply and only Monywa district has 3.8% of its population without such access within half an hour's walk. In terms of proximity to garbage, human waste and animal pens, between 7.3% and 55.6% of houses are at risk. The rapid assessment of latrine supply showed that 3.3% to 17.4% are at risk from inadequate sanitation. Intersectoral work with the departments of irrigation, environment and sanitation is the way forward with these problems. The results of these rapid assessments have been used to develop UIGs for the three target districts in Myanmar. Supplies of antibiotics and funding for the operational force have been received for these efforts. Political commitment is very important to the success of the programme, as is community involvement and the dedication of the trachoma programme staff.

Nepal (Dr Basu Prasad Adhikari)

Despite its small geographical size Nepal has a large population of more than 23 million, 85% of which are rural communities. The SAFE strategy is being implemented in the mid-western and far-western states, where trachoma is a leading cause of blindness. In these nine disease-endemic zones the "S" element of the UIGs represents 11 500 surgeries. To date, there have been 20 000 TT cases recorded, with 5700 lid operations conducted in the field. According to the eye hospital data approximately 1200 TT surgeries have been conducted there so far. A population-based survey in those nine zones shows TF/TI in the general population to be 4–14%. Among children below 10 years of age, prevalence was 7–26%, whereas, as a whole, TT was 0.4–1.4%. Ten rapid assessments had been carried out in adjacent areas which found prevalence to be 5.4–36%. These were not detailed surveys but indicative.

Antibiotic distribution targets are 14 million doses over three years. For the "F" and "E" components, no data are available, but details of household and community interventions are available, such as quizzes, essay competitions at schools, mass communication through TV and radio, and advocacy work through opinion leaders. Work on the environment has been given financial and technical support, with projects to improve waste pits and water supply to schools.

Political support is strong for the many activities in the countries, with many partners combining forces to work on the elimination of trachoma by 2010. Human resources are available for the control efforts, with 233 surgeons (and 34 in training), although most of the programme work is carried out by paramedics; ophthalmic assistants who have been trained for three years and three months and who have obtained qualifications in surgery.

Discussion: Members of the Alliance might find it useful to have of models of good practice consolidated into one publication. Those models were already present in three of the WHO regions: the African Region (Gambia), the Eastern Mediterranean Region (Morocco) and the South-East Asia Region (Myanmar). The importance of a strong primary health care system in trachoma control was reiterated; with that in place surgeons could then concentrate on reducing trichiasis cases. The question was raised of the lack of standardization of the tools used in the field; an issue which presumably would affect evaluation of results.

Niger (Dr Abdou Amza)

The estimated number of the blind in Niger is 265 000 (a rate of 2.2%,) of which trachoma accounts for 110 000 cases. Environmental conditions are poor; only 52% of the population have access to drinking-water, and 18.1% have access to adequate sanitation. Less than 5% of families have latrines.

Zinder and Maradi are the most affected regions; elimination efforts are concentrated in the most affected districts within those regions. With the support of ITI a two-year project (2002–2003) implementing the SAFE strategy has been undertaken in Magaria and Matamèye, the areas with the highest trachoma prevalence rates. In 2003 the aim has been to provide surgery for 5000 patients with trichiasis; in fact 4340 operations took place. Training of 44 nurses in trichiasis surgery and 12 supervisors took place as planned, 75 new TT kits were provided and the 44 nurses each received kits. The antibiotic objective for 2003 was to treat the 676 000 people of Magaria and Matamèye with free donated azithromycin and 67 000 with tetracycline. Good coverage, of more than 90%, has been achieved. In 2004 the entire population of Zinder will be targeted; administering between 2.5 and 3.1 million

doses. The antibiotics azithromycin and tetracycline are well accepted by the population, with good tolerance and proven efficacy.

Educational activities in 2003 have included training of teachers, health workers, masons, radio presenters, village health and sanitation committees, with a variety of materials provided to support activities, such as posters, calendars, T-shirts, solar-powered radios and audio cassettes about trachoma. Listening clubs have been launched, theatrical performances undertaken, and latrine programmes carried out — a total of 1750 built, which is an achievement rate of 85%.

Studies have been carried out of azithromycin administration in six villages looking at size/dosage, as in mass distribution dosage cannot be done by weight but must be judged by size instead. Data from Mali has been used in this. The impact of antibiotic use in disease-prevalent villages has been shown; prevalence was more than 63% before treatment and diminished to 23% six months after distribution.

Plans for activities in 2004–2005 include advocacy work for increased access to clean water, targeting NGOs and ministry officials; involving women more closely in trachoma control; working to get all schools to have clean drinking-water and latrines; drawing up a five-year plan for trachoma control through Vision 2020; increasing the number of surgical staff and the numbers of operations conducted, and likewise increasing the numbers of people treated with antibiotics. The valuable role of partners in supporting these activities is stressed.

Discussion: It was important to know what methodology was used in making the surveys reported. In the epidemiological work done in Niger the methodology was checked with WHO before proceeding. In the administration of azithromycin the dosage was formulated using the simplest method possible, which was based on the height of the patient, rather than their weight, in view of the ability level of the distributors.

Nigeria (Dr Dieye Iyalla Apiafi)

The prevalence of blindness in the country is estimated at 1.3%; there are no national survey data for trachoma, although NGOs have made surveys in nine states within the trachoma belt in the Sahel region. Human resources are relatively limited: 250 ophthalmologists, 1200 ophthalmic nurses, 14 instrument technicians, one low-vision specialist and 1500 optometrists. There are several eye-care facilities, one in the national eye centre and 20 specialist teaching hospitals. Trachoma control started seriously in 2002 with a coalition for control, which has already met six times and is set to expand further. The coalition aim is to develop a coordinated work plan for trachoma control in Nigeria under a taskforce independent of government control with a desk officer coordinating efforts. Membership is to include all stakeholders in trachoma control. The taskforce is to map trachoma, using rapid assessment or randomized prevalence surveys, although it was noted that the use of a variety of methods (such as used by NGOs in their surveys) has drawbacks.

In 2003, NGO activities included the Carter Centre's support for implementation of the SAFE strategy in all trachoma-endemic areas, finalization of health education materials, establishment of a sustainable monitoring and evaluation system, and continued screening for trachoma especially in disease-endemic areas. Communities have been mobilized, patients screened and 75 TT operations carried out, and 5971 patients treated with tetracycline. One hundred and eight trachoma control volunteers have been trained and 45 public health care workers, 42 latrines have been built, bringing the total to 110 built in 2004. CBM conducted a rapid assessment in four states up to December 2003 and found significant public health problems in two states. Results have not yet been finalized but an intervention strategy was being drawn up.

HKI has surveyed five districts and carried out community eye health education, health screening, treatment with antibiotics for active trachoma and lid surgery for trichiasis. Training has been provided for four eye nurses in surgical techniques, for 15 PHC workers and other volunteer health care workers in primary eye-care. Health education has been given to 98 villages. Sight Savers International (SSI) has also given valuable support to the control programme.

Discussion: The need for a single unified methodology was highlighted in order to assess the scope of the problem and assess the impact of programmes in place, especially for those countries where the sample sizes were

very large. The coalition formed among the NGOs was an important tool for other countries to consider as it was a very effective way of working on disease control.

Oman (Dr Abdulatif Hussein Al Raisi)

Work on the SAFE strategy continued with screening for early detection in schools, administration of azithromycin and tetracycline, operational research on the response to azithromycin, and mapping of active trachoma among children aged less than 10 years. Prevalence of active trachoma among primary schoolchildren has “plateaued” at 0.6% since 2000. There is still low coverage of TT surgery. The TT register is 6600 cases, but there are high levels of apparent recurrence (20–30%) after the bilateral tarsal rotation surgical procedure, rising to 56% after 3.5 years. The majority are not real recurrences but dysplastic eyelashes arising from metaplastic conjunctiva and distichiasis. Health education materials explaining the apparent recurrence have been widely used in communities to alleviate anxiety and reduce refusal rates among those operated upon. Laser electrolysis is being adopted in Muscat region; this will be extended throughout the country. A study has been undertaken in 2003 of the visual status at the time of presentation and recurrence rates. Face-washing is well taught through posters, booklets and school programmes. Environmental issues are also thoroughly dealt with, with early establishment of a Ministry for Environment. Access to water is good throughout the country despite the scanty rainfall.

Progress with the programme continues with much sharing of information among country counterparts and WHO colleagues. The attainment of the objective of eliminating blinding trachoma in Oman by 2005 is feasible, if the surgical element can be strengthened and the community encouraged to become further involved in the areas where the disease is still endemic (Izki and Rustaq). TT cases found in those areas total 115. There are competing demands for the resources to the programme, such as the emerging eye diseases of diabetes and glaucoma, and other priority health programme, such as adolescent health.

Discussion: The suggestion was made that the recurrence results after surgery in Oman appeared to show similar findings as a study made in the Gambia, whereby the long-term results of bilateral tarsal rotation procedure had high recurrence rates (up to 40–60% in some cases). However, it was pointed out that results were not comparable, and that any such conclusions could only be drawn from directly comparable studies.

Pakistan (Dr Mohammed Bahar Qureshi on behalf of Professor Khan)

The complex administrative structure of the national eye-care programme and its relationship with the trachoma control programme was reviewed, highlighting the role of the National Task Force on Trachoma (NTTF).

The third NTTF meeting was held in February 2004 and agreed the criteria by which the pilot districts would be selected. Its recommendations were endorsed by the National Steering Committee. The criteria were: the presence of a high prevalence of trichiasis and active trachoma; and a district that has already been upgraded as a comprehensive eye-care district. The chosen districts are: Shekhupura, Quetta, Umerkot, Batagram and Skardu. The first four have already been allocated support by CBM and SSI (following the preparation of the strategic plan of action), but resources still have to be found for Skardu. Work was expected to start on the door-to-door surveys in the pilot districts in April 2004.

The next taskforce meeting will be held after the door-to-door exercise has been completed. The next steps will include gathering the district trachoma control team together, and training community ophthalmologists in reporting and door-to-door surveying techniques. These ophthalmologists will then go back to their provinces and train their own teams. The TT surgeries will be carried out free of charge at the nearest health facilities by ophthalmologists, with outreach programmes to ensure coverage of all cases.

Water Aid has expressed interest in possible collaboration. All such collaboration is anticipated with interest. It is proposed that the taskforce develop strong linkages with community-based organizations, district government and agencies working in water and sanitation. On the recommendation of the taskforce a member from one of the agencies in water and sanitation has joined the taskforce team. The Layton Rahmatullah Benevolent Trust has committed to carry out national trachoma control (following the agreed guidelines). Thanks are extended to the WHO Alliance, SSI and CBM for their support to the programme. It is hoped that Dark and Light, Fred Hollows Foundation, AUSAID, ITI and other donors might also be able to contribute further.

Senegal (Dr Boubacar Sarr)

Trachoma control efforts are completely integrated within the programme to prevent blindness, however, resources of all sorts are lacking and trachoma remains a public health problem. TF/TI prevalence among children aged less than 10 years ranges from 17.3% in Louga region, to 3.3 in Dakar, with TI prevalence from 3.7% in Louga to 0.2% in Kaolack. Mapping shows the three most affected regions to be those in the centre of the country: Diourbel, Louga, and Thiès. Thiès also has high rates of trichiasis for women over 14 years of age (4.1%), compared to St-Louis at 0.3%. Fatick (2.9%), Louga (2.4%) and Kaolack (2.6%) also have very high levels of trichiasis.

In 2003, 1210 trichiasis operations were performed. Pilot projects are shifting emphasis to surgery at health posts and to screening by community health workers, limited only by funding availability. In terms of antibiotics, 90 000 tubes of aureomycine were distributed. Mass distribution of azithromycin is planned for the future. Facial cleansing and environmental improvements are still lacking an intersectoral committee to provide leadership. More IEC and advocacy work is needed, and linkages with other sectors.

In future, work will be facilitated by Senegal's membership of the Alliance, the agreement for support from ITI, and the integration of trachoma into the surveillance programme. Major projects are ongoing with the Organisation pour la Prévention de la Cécité (OPC), and Lions Club International Foundation in a three-year project (starting April 2003) to operate on 1000 cases of trichiasis, building on the work ongoing in onchocerciasis-endemic areas, and learning from that programme. In conjunction with ITI and Lions Club it is planned to perform 3000 operations each year in the three regions of highest prevalence distributing azithromycin to 95% of the target population. This plan was made pre-UIGs and now has to be brought into line with those goals.

The trachoma control project will last 10 years, conducted in two-year phases, targeting one or two regions for expansion every year.

Sudan (Dr Kamal Hashim Osman)

Trachoma is estimated to contribute 18% of the total burden of blindness in the country. Overall blindness prevalence is 1.5%. The five-year national plan includes a trachoma national survey, which was started in 2003 and is now 80% completed. Only two areas remain in the cluster survey of 11 states. The preliminary results show high prevalence in most of the areas surveyed (between 14% and 33% prevalence). The survey team found that it was able to reach its objectives well by working through women's groups of various kinds: female teachers, female students, midwives etc.

The SAFE strategy has been implemented in five areas so far (Malakal, Wadi Halfa, Mayo camp, Renk and Um Dawan Ban). The programme targets for 2003 have been: to perform 3000 surgeries; to treat 215 000 people with azithromycin; to increase awareness of trichiasis and its treatment; and to train more eyelid surgeons, ophthalmic medical assistants and to provide them with medical kits. The actual number of surgeries achieved was a little below target at 2658 (88%) but a large increase from the 422 operations conducted in 2002. The addition of Um Dawan Ban (with a prevalence rate of 14%) to the treatment plan changed the picture. Health education and mass treatment were immediately implemented. Volunteers (290) were trained, 564 480 tablets of azithromycin were distributed, as well as 21408 azithromycin vials. For tetracycline, 37 155 treatments were given in 2003 (compared to 11 250 in 2002). The large numbers of displaced persons arising from the war (4 million people) created considerable obstacles to the conduct of the campaign and in general the war contributed to the lowering of economic and environmental standards. Up to 8 million people have no access to basic services. TT surgery has been provided in eye camps and mobile teams have helped with access problems in the south. Despite all the problems, 87% of targeted treatments have been carried out.

In 2004 the surgery target is 2000 operations; for azithromycin the target is 500 000 doses; and 50 000 tubes of tetracycline ointment are to be distributed. Plans included capacity-building for PHC staff in diagnosing, treating and preventing trachoma, strengthening of the surveillance system, and of the lid surgery services through training and provision of more lid kits.

To build the facial cleanliness and environment aspects of the strategy, extended health education activities are planned for villages and schools, using the lessons learned in maximizing input from women's groups, providing 500 new latrines, and working on behavioural change through opinion leaders, trachoma teachers, trachoma clubs, and regular messages in local languages on radio and TV programmes. Only 51% of the health education coverage targeted for 2003 has been achieved. Water supply activities had a dramatic success, achieving 303% of the targeted water points. Monitoring and evaluation reports are monthly for all the villages involved.

Acknowledgment was made of the support given by the many partners and donors to the programme, particularly the Carter Centre, ITI and Pfizer, CBM and Albasar.

Discussion: WHO-EMRO and other partners wished to create a special project in Malakal where more than 30% of the women have active trachoma; the programme should focus on community-based activities using the PHC structure.

United Republic of Tanzania (Dr Grace Saguti)

The disease burden has been assessed from information collected from hospitals and from outreach teams. Of 119 districts, 50 are endemic for trachoma and currently 45 000 people are blinded by trachoma. The national trachoma control programme is run under the auspices of the national eye-care programme, using the SAFE strategy. It is a public-private partnership between the Ministry of Health and ITI, including regional authorities, local government and the community, reflecting the decentralization of the programme to district level. Other key partners in the programme, contributing either financial or technical support, include the Ministry of Education and Culture, the President's Office, the Ministry of Water, Livestock and Development and the Ministry of Community Development, Gender and Children. Several institutions are also involved, such as research centres, hospitals, and several NGOs, such as HKI, CBM, SSI, WV, SEMA (Strategic Empowerment and Mediation Agency) and Water Aid. Further collaboration is needed among the many different sectors involved and the membership of the trachoma taskforce and review meetings have been expanded accordingly.

Currently the programme covers 20 of the 50 disease-endemic districts, with 10 more to be added in 2004. By 2006 all districts should be included.

The surgical component of the SAFE strategy has been strengthened. Training policy guidelines have been developed, and two new training sites established (bringing the total to three). In total there are now 60 trained surgeons (mainly assistant medical officers and nurses), and to date 7107 operations have been performed (1999–2003). Low surgical output remains an obstacle to progress; the TT backlog is large (estimated at 54 000); and there is resistance to overcome, although this is being tackled through advocacy by those who have already experienced the operation.

Through ITI and Pfizer azithromycin has been donated to the country, for mass distribution to the districts targeted under the programme, using height-based dosing. Coverage is more than 80%. Up to 2003, 1.72 million people have been treated with azithromycin. Tetracycline is used in the other disease-endemic districts.

Health education is focused at primary school level, with wide advocacy using a range of media (e.g. radio and TV spots), encouraging clean faces and the use of latrines. World Sight Day will be a focus of advocacy activities, with the theme of trachoma control and elimination. The PHAST (Participatory hygiene and sanitation transformation) initiative introduced under the Ministry of Environmental Health programme and UNICEF, helps communities to increase latrine usage.

In January 2004, the first national trachoma five-year plan (2004–2008) was drafted, addressing the expansion of programme activities to all disease-endemic areas. It is hoped that the policy guidelines which accompany this plan will encourage the participation of more sectors in the programme as well as providing quality assurance for surgical operations.

Uganda (Dr Stanley Bubikire)

Uganda faces a severe lack of data on eye infections including trachoma. Activities under the SAFE strategy were continued: the main task has been to undertake countrywide mapping of active and non-active trachoma for the year 2002, establishing trachoma morbidity in relation to other eye diseases through a retrospective trachoma morbidity proportion study, identifying the districts most affected, and making recommendations for interventions based on these data. The study population was 173 196 eye patients, the sampling method included all 56 districts. The records given by the ophthalmic clinical officers were reviewed and the data managed both manually and through use of the Excel computer program.

Of the more-than 170 000 eye patients reviewed, 8% had active trachoma. The results show that 15 districts need to be targeted, mainly within the northern region (285 cases), the eastern region (8177 cases) and Karamoja region (3036 cases), where the populations are mainly nomadic and have particular social habits and beliefs which lead, for example, to the very rare usage of latrines. In Karamoja the worst-affected districts were Kotido, Nakapiripirt and Moroto, where there are high rates of both TF and TT.

The intervention strategies have to take account of the particular social conventions, targeting active trachoma with both surgery and preventive measures. Jinja, Iganga and Kamuli are the worst affected districts in the eastern region, with high rates of active trachoma. In the northern part there are fewer cases, but both active and non-active trachoma are present. Overall active trachoma is three times more common than trichiasis, although the contributing factors to this (particularly in the eastern region) are not understood and warrant further study.

Viet Nam (Dr Ton Thi Kim Thanh)

In order to eliminate blinding trachoma by 2010, Viet Nam's strategy concentrates on locating the remaining pockets of disease through rapid assessments, treating them with antibiotics, and conducting TT surgery in the Red River Delta provinces. The approach is rooted in the PHC system using a community-based method, drawing on resources from a range of partners.

A new phase of the programme with ITI started in September 2002, covering 314 communes in 11 districts, in seven provinces in the north of Viet Nam. A budget of US\$1.1 million has been allocated, and 926 998 doses of azithromycin committed for the population of more than 1.8 million. The objectives are to build an appropriate model to control blinding trachoma in the communities, reduce active trachoma to less than 5% in the project areas, and to provide eyelid surgery to 50% of TT patients. The project has four steps: screening, antibiotic distribution, TT surgery, and trachoma control promotion and education. "Days for healthcare", held annually, are opportunities to teach children about many health issues, including trachoma.

A range of equipment covering advocacy and education materials, surgical kits and other medical tools have been distributed. Four training courses have been carried out for 95 people from provincial and district levels, on project management, trachoma control education and trachoma treatment. At the district and community levels, 628 members of women's unions have been trained to teach a further 8860 instructors at community level about trachoma control. Similarly, 684 teachers have been trained to teach 7058 other teachers in primary schools in the project area about trachoma control. To tackle trachoma screening and treatment, 652 commune health workers have also been given training. The result is that 1.6 million people (89.5% of the total target population) have been screened by trained health-care workers. The prevalence of active trachoma is 9.51%.

More than 500 000 people needed to be treated with azithromycin; the project achieved treatment of 427 196 (more than 80% coverage). Screening has been carried out by trained community health workers and surgery carried out by provincial eye doctors at commune health centres. More than 20 000 TT cases were identified, and 6617 operations were carried out. However, the overall backlog is now estimated to have reached 300 000 cases and help will be needed to improve this situation.

Trachoma control education is given at all primary schools, using lectures, loudspeaker broadcasts, and competitions to convey messages. At community level, posters, leaflets and meetings are used to spread information about trachoma control, with instructors contacting 1.4 million people with advocacy and mobilization messages. Improvements to the environment include improvement of water supply to 21 459 homes, and latrines built for 16 446 households.

In other provinces there are other NGO-supported projects conducted within the SAFE strategy. For example, there are two ORBIS projects, primarily focusing on cataract, which have added a trachoma control component. However, rapid assessments will be required to check where other areas of blinding trachoma might be present elsewhere in the country, for example in the south, in the mountainous areas or in central provinces. In the northern provinces 20 000 TT surgeries have been carried out. In the next phases of the programme it is recommended that the SAFE strategy only be applied to communes and villages in which active trachoma prevalence is more than 10% among children of 1–15 years. If the prevalence is 5–10%, azithromycin will be distributed to individuals with active trachoma but no “F” and “E” components will be implemented.

Once elimination is achieved, it will be necessary to have a fully functional monitoring and surveillance system in place.

Discussion. Coordination of the work carried out by NGOs was very important so as not to dissipate efforts and jeopardize results.

United Arab Emirates (Dr Thoraya Alhashmi)

Appreciation was expressed for the inclusion of this presentation in the agenda. The United Arab Emirates, a federation of seven emirates, had a population of 3.5 million people (40% of whom are expatriates), in a territory of 83 600 km², bordered by Saudi Arabia, Oman, and Qatar. Topographically it has a diverse landscape, including mountains, gravel plains, barren desert, as well as coastline and salt marshes. The last three decades have seen very rapid economic development, reflected in high standards of environmental and health services.

Trachoma used to be endemic in the 1970s, the level of prevalence has now diminished substantially. Only a few cases of TT and TS can be found and little active trachoma. However, a large component of UAE’s population is made up of immigrant workers from countries where trachoma is endemic, and it shares its borders with countries in which trachoma is still reported. A WHO-supervised rapid assessment would give an accurate picture and allow plans to be made. The actual survey would be carried out by the country personnel.

The most recent eye-care statistics in UAE (2002) show eye-care operations to represent 6% of total operations; outpatient eye-care units and referral systems provide good eye-care in the country. There were very few trichiasis operations in 2003, not more than 13 cases. Corneal scarring data are not known, but treatment depends on the patient’s wishes for remedial work.

General discussion on country presentations.

It would be helpful to map data and look at, for example, in Yemen, the number of villages which had trachoma rates of higher than 10%, so as to gauge the scale of the problem and interpret for planning. The same comment applied also to Uganda, where data had been averaged by district or region. The Alliance and WHO technical staff could support countries in suggesting the most useful way of analysing and presenting the data that countries had worked so hard to collect.

When the Alliance was founded it had two aims: to enable all the members to learn what was going in other countries, and to provide a forum for advocacy. In order to facilitate planning of attendance and organization of the meeting, the dates of the Alliance meetings should be fixed, at the end of March every year, to allow countries to prepare presentation materials in advance, and arrive at the meeting with specific questions and comments having made themselves familiar with the reports. That would obviate the necessity to spend much of the meeting on the individual reviews. However, with the agreement of the Alliance, slides could be shown on progress made on attaining UIGs, or if there was new information to share, for example a new country joining the Alliance or starting a control programme.

Epidemiological data at country level was needed; a taskforce could be set up, composed of those with the skills to carry out rapid assessments or other such techniques, and thus return more concrete data to the Alliance on which decisions could be based. A database of suitably skilled human resources could be set up, to which all countries could contribute.

Integration with the onchocerciasis programme was viewed by some as a potentially positive development for the support of trachoma screening and education. Reservations were expressed about the use of the ivermectin distribution network for the distribution of azithromycin as the requirements surrounding the two drugs differed greatly.

Yemen (Professor Aziz Hameed Said Shaher)

Although there had been reports of high rates of prevalence of trachoma in Yemen, no national trachoma survey had been carried out, until rapid assessments were undertaken to clarify the current situation. Yemen has a population of 20 million people; geographically it is divided into 22 governorates with varied topography. The aim of the survey was to establish the trachoma situation, looking at the risk factors and identifying and prioritizing communities for intervention measures.

The assessments looked at 10 governorates, selecting 20 districts and 60 villages, with a total population of 202 640. In each village 50 or more children aged 1–9 years were examined for active trachoma; women of more than 14 years of age were examined for trichiasis, and 20 households were examined to assess the environmental factors such as access to water, functional latrines and the risks for fly breeding. Schools, PHC centres, access to trichiasis surgery, and the presence of markets were also noted.

In total, 337 cases of active trachoma (10.63%) have been found among the 3169 children, 661 of those children had unclean faces, and 43 cases of trichiasis (2.78%) were found. The environmental factors assessed for the 1547 households reveal that 199 (16.79%) households do not have a water source within half an hour's walk, 581 (49.03%) households have no functional latrine, while 53% of households have solid waste or animal pens in proximity. All villages have access to PHC centres within two hours and 68% are within 30 minutes' walk or less.

Among the 10 governorates, Hadramout and Mareb have the highest levels of trichiasis and Algowf (40% prevalence), Mareb (24%) and Sahbwah (17%) have the highest levels of active trachoma. The findings on unclean faces were similar, with the same three governorates having the highest levels of children with unclean faces. All governorates have access to water sources within 30 minutes' walk, except four governorates, among which the worst affected area is Shabwah (32% without adequate access). Statistical analysis of these risk factors show facial cleanliness to have a highly significant relationship with active trachoma.

In terms of access to facilities: 84.2% of governorates have access of 30 minutes' walk or more but under two hours' walk to trichiasis surgeries; 87.5% have similar levels of access to village pharmacies; 96.7% have that level of access to markets and 98.3% have that level of access to school.

The low prevalence that was found may be explained by the improvements in living conditions since the earlier surveys, the increase in the number of ophthalmologists and physicians trained in eye-care, increased literacy, the availability of medicine and the appropriate use of resources. Where higher prevalences were found, in three governorates, this may be explained in part by the environment: the desert conditions, hot climate, shortage of water, and their proximity to each other which may assist transmission.

3. UPDATE ON PARTNERS' ACTIVITIES

3.1 International Trachoma Initiative (Dr Jacob Kumarasan)

In November 2003, on the occasion of the celebration of the fifth anniversary of the International Trachoma Initiative, Pfizer announced the donation of 135 million doses of azithromycin. Grateful acknowledgement was made to those who had made this possible. The success of the SAFE strategy, when coherently implemented, made giving corporate support a feasible option, as well as proving that there was a real public health advantage to be gained, making a difference to the lives of the people within the community.

There are 46 countries in which blinding trachoma is a public health issue. To date ITI has supported programmes in nine of these countries: Ethiopia, Ghana, Mali, Morocco, Nepal, Niger, Sudan, Tanzania and Viet Nam, supplying more than 10.7 million antibiotic treatments, and supporting more than 84 000 surgical operations. Morocco provides an indicative success story, achieving a reduction in active trachoma of 90% among children between 1997 and 2003. The introduction of donated azithromycin is one part of that major success, building on the effects of tetracycline within a well-run programme. With those achievements, top-level decision-makers can plan how to take such successes forward to other countries, with the hope that an increase in donated azithromycin will allow the trachoma control programme to reach millions more at risk of disease. Eight million treatments have been given up to 2003, with a commitment to a seventeenfold increase over the next five years to 135 million doses. This reflects a tremendous trust in ITI's partners. Eighty percent of the increase will be allocated to the existing nine countries, with the remaining 20% going to the new countries coming into partnership in 2004: Mauritania and Senegal.

The procedure for new countries to join ITI starts with reliable epidemiological data, on the basis of which dose production and supply forecasts can be made, and a national plan for trachoma elimination is prepared and submitted to ITI. It is essential that this national plan has the willing support of the many partners involved in trachoma control and is fully "owned" by the country. The Trachoma Expert Committee within ITI will then review the plan, and make a recommendation to the ITI Board for approval. Once the plan is finalized, the Board is able to decide on the volume of donation needed and activate the necessary logistical arrangements. These latter stages can take 12 to 18 months: distribution networks need to be established and registration procedures completed in the new countries before distribution can be started at field level. These issues are important for countries to understand in making their plans and timetables.

3.2 Statement by Pfizer Inc. (Paula Luff)

Pfizer commended WHO and the Alliance for the remarkable progress made, both in raising the profile of trachoma as a public health problem and in moving towards the elimination of trachomatous blindness.

The present initiative forms the foundation of Pfizer's corporate citizenship programme. It started as a small targeted programme in 1996, and has grown to shape a major strategic focus for the company around access to medicine, championed by the highest levels of the company, and publicly declared as a measure of company performance along with the traditional financial indicators. Pfizer is actively engaged in deploying its full range of resources — medicines, human capital, and funding — to enhance health service delivery in resource-poor settings. This project started with the Alliance; Pfizer formally thanked the Global Alliance for its partnership over the years and for many years to come.

Discussion: Thanks were extended to ITI and Pfizer. A vast resource had been offered to countries, and it was the responsibility of those in the public sector to see what could be done to match that contribution and really make a difference. The partnership extended by ITI and Pfizer was of immense value to the countries already involved, and it was hoped that many more countries would similarly be able to benefit.

3.3 ACASAC Trachoma Project, Mexico (Dr Gabriel Torres Lopez)

ACASAC (Asesoría Capacitación y Asistencia en Salud Ac: Health advising, training and assistance) has been working in trachoma for eight years, taking responsibility for the trachoma control project in the five municipalities of Chiapas in 2003. The project, initiated by MSF, first focused exclusively on surgery for indigenous people (the Tseltales) with complications arising from late-stage trachoma. The programme subsequently expanded to include advocacy work, and, under ACASAC, a training component has been added. In 2003, the Government of Finland provided financial support through its embassy in Mexico. However, ACASAC believes there is still much more to do.

In 2003 the programme has conducted 572 surgical operations, the majority of which were bilamellar tarsal rotations. Three out of four patients were female, and the average age was 55 years. The recorded recurrence rate was 10% (based on operations) but actual recurrence is expected to be higher. Metaplastic lashes are commonly a problem in Chiapas. Training has been provided to all the Ministry of Health personnel involved and second opinions given by ACASAC where requested. Lack of funds has prevented evaluation of the health staff

performance. There is concern that universal detection is not being practised, despite being included in the training course, and that this will ultimately constrain any success gained from surgical training. Two physicians from the Ministry have been trained in the appropriate surgical procedure (BTR), but lack surgical equipment and supplies.

Three educational videos, the most effective means of communication, were used to inform the communities about the work being done by the Ministry staff and to encourage their support of the project. An educational game about trachoma has been produced for schoolchildren.

The support given by the municipal health committees (advocacy and logistical support) has been an important factor in the project's success to date and their continued involvement will be essential. There are several challenges still to overcome, such as low morale among health staff who are still inadequately resourced and trained, and who have to implement the programme in a cultural context which traditionally mistrusts modern medical care and limits women's decision-making.

3.4 West African Water Initiative (WAWI) (Dr Amza Abdou, on behalf of WVI)

The West African Water Initiative is an initiative supported by the Conrad N. Hilton Foundation covering Ghana, Mali and Niger. The project covers three aspects: water, sanitation and trachoma control. WAWI in Niger focuses on the Maradi and Zinder regions where trachoma prevalence is highest. The goals are to improve health conditions and rural sanitation, in particular for women and children, increasing the availability of clean water for community and livestock needs. The overall goal is to prevent blinding trachoma in Maradi and Zinder through the SAFE strategy, supporting training and IEC activities, and promoting the improvement of health infrastructure. To achieve this there is a four-year plan to undertake four KAP surveys; eight mini potable water points in eight villages; 160 wells to be equipped and 40 cement wells constructed, with rebuilding of water pumps etc. A substantial training programme is planned, of 208 village development advisory councils, 208 local workers for rebuilding, 208 masons for the construction of latrines, 660 teachers for trachoma IEC, 100 religious leaders, and 70 volunteers and supervisors. The construction programme includes 100 school latrine blocks, 2080 family latrines and two public latrine blocks in markets. To transport equipment and household waste 100 tractors will be purchased. There will be a reforestation project in 100 villages. Finally, the WAWI Niger project will be evaluated.

3.5 Statement by the representative of the Government of France (Mr Christian Bailly)

The Ministry of Foreign Affairs and French Cooperation has taken great interest in the work being conducted on trachoma in particular and in the prevention of blinding diseases and communicable diseases in general. The Millennium Development Goals have been much appreciated, in part because they have provided a means by which the international community could mobilize funding for technical assistance to the work being done today. The French Government would advocate for communicable diseases to be supported, particularly blinding diseases, and would focus on the technical means by which to combat those diseases.

4 UPDATE ON RESEARCH PROJECTS

4.1 Trachoma Scientific Informal Workshop (Dr Hans Limburg)

The workshop was held on Friday March 26, 2004, immediately preceding the Alliance meeting, with 23 presentations made. It was attended by researchers from NGOs, and representatives from WHO collaborating centres, universities and ministries of health.

Recurrence after trichiasis surgery is a point of common concern; high rates (20–40%) are being reported. Risk factors have been identified, including associations between non-chlamydial bacterial infections, the severity of presenting trichiasis, the surgical techniques used and the skills of the surgeons themselves. The concept of standardized training for surgeons and certification of skills was raised, with a detailed proposal. Three randomized control trials are in progress on the use of azithromycin in potentially reducing recurrence. Preliminary results from two of the studies have not been able to demonstrate reduction of recurrence. The third is still ongoing and no results are yet available. A separate study indicates that the uptake of trichiasis surgery can be improved by the provision of good-quality surgical services. In many cases it is not fair to attribute compliance issues to patients only; other factors such as lack of supplies and other provider factors also affect performance.

A number of studies have been conducted to assess the return of infection after mass treatment with azithromycin. Most show a good reduction of levels of infection. Different approaches have been taken: in cases of high levels of infection, six-monthly distribution is recommended. Another study reported good results with annual distribution, supported by a surveillance system that identified and re-treated (six-monthly) families in which there was TI. In areas of low prevalence, good results in reduction of infection levels have been reported from one annual treatment. One study suggests that the “herd effect”, seen in immunization campaigns, might be present, with the result that even untreated children might benefit from reduced infection levels in areas of mass treatment where the “pool” of infection had been reduced.

A recurrent topic was the discrepancy between clinical examination and ocular chlamydial infection. Cases that showed signs of active trachoma could not be shown to have chlamydial DNA in laboratory testing, and vice versa, where apparently normal eyes tested positive for *Chlamydia trachomatis* in laboratory tests. A new test was discussed in which chlamydial ribosomal RNA (a sign of chlamydial replication), showed better correlation with clinical signs. The use of DNA amplification tests was discussed at length, highlighting their sensitivity to contamination and the care needed in interpreting the results of these tests.

Review of strategies to implement the facial cleanliness and environmental aspects of the SAFE strategy indicated that behavioural change was best accomplished by implementing all four components of the strategy together. A school-based health knowledge project in Nepal has improved children’s and mothers’ knowledge, reduced active trachoma and in general enhanced the sustainability of the programme. A study in Ethiopia has demonstrated the presence of chlamydial DNA on flies, reinforcing the need to include fly control within activities to reduce transmission.

Trachoma mapping was illustrated by the graphics presented to the Alliance on trachoma in Africa, whereby all the prevalence data available from the different countries was consolidated onto one image, giving a better overview, for example, of areas where there are no data but where trachoma is suspected.

Discussion: The “trachoma map” of Africa shown would be revised within weeks. Dr Sarah Polack of LSHTM was compiling those data, and any further information should be forwarded to her to complete the picture as far as possible. It was important to note that the information from rapid assessments was not prevalence data, and that rapid assessments specifically targeted groups in which the problem was most likely to be found. Although they had contributed to the current picture, rapid assessment data would be replaced by more accurate epidemiological data as they became available. As far as possible the data reflected in such mapping was TF prevalence among 1–10 year-old children and trichiasis data for women aged above 15 years (not 14 years) on the recommendation of WHO. The importance of those maps was their support to decision-making. Some of the information was perhaps out-of-date; Tunisia was said to have eliminated trachoma in the 1980s, but recent prevalence data from bordering areas in Algeria showed the presence of trachoma at levels higher than 20%. It was further suggested that the mapping could reflect those countries that had already attained their UIGs in trachoma and trichiasis. A priority should be to establish accurate standardized epidemiological surveys in countries that have not yet been assessed.

A manual to certify trichiasis surgeon training before assignment to trachoma-endemic areas is been developed by Johns Hopkins University (Prof. S.West) as part of the effort to certify surgeons. It was hoped to make this available for countries in 2004, to accompany the WHO trichiasis surgery manual, describing (in appendices) the various surgical techniques and including checklists to be used by the operating surgeons.

Referring to the review of data on frequency of treatment, it was recalled that the expert meeting in August had recommended mass treatment for three years of communities with TF prevalence rates higher than 10%. That recommendation was based on relatively limited data. The new studies described were beginning to differentiate treatment levels between “high” and “low” prevalence; those distinctions needed to be defined and agreed. In order to produce official guidelines WHO required firm evidence; an “interim measure” such as had been agreed at the August meeting was therefore the right compromise pending the establishment of that evidence base. Without firm evidence to justify a second dose of azithromycin, those additional doses would be better distributed among those who had not even had a first dose.

Clinical and bacteriological end points needed further discussion. Laboratory techniques were not yet good enough. The negative controls were inadequate, and the clinical practices for PCR sampling were not yet satisfactory. Those points meant that results correlating clinical and PCR sampling should be treated with caution, especially where that sampling provided the key points of the analysis. It was suggested that the problem lay partly with definitions: the definition of TF meant finding five or more follicles, with four follicles defined as “normal”, despite the fact that it was not so and that patient might be expected to test positive for chlamydia. Instead of “normal”, the description should be “non-TF in the population”.

In summary, it was clear that both more research and more advocacy were needed, and a balance struck between the competing demands of each.

5. REGIONAL WORKING GROUPS ON ULTIMATE INTERVENTION GOALS

5.1 Review of the available estimates by country and determination of the ultimate intervention goals and annual intervention objectives by country and region

The task for the four working groups was to review the estimates made in August of disease burden by country, including work on countries for which UIG estimates were not made in August, and to define the annual intervention objectives for the next few years. Other topics for discussion included review of the country reporting mechanism to the Alliance, and the establishment of a roster of experts to support the analysis and presentation of data gathered in field activities. Comments following on from the conclusions of the previous meeting of the Alliance were also welcomed.

Group 1 (Burkina Faso, Chad, Guinea Bissau, Guinea Conakry, Mali, Morocco, Mauritania, Niger, Senegal. Chairman Dr Doulaye Sacko)

The group proposed minor revisions to the UIG information prepared by the Alliance secretariat, for example, updating population data to 2003. The group also supplied specific data on the populations living in disease-endemic areas, the total number of TF/ TI cases for all ages, and the total number for TT cases for all ages.³

The group recommended that the calculation of the UIGs should follow the system recommended in the August meeting i.e. taking the 10% disease-prevalence threshold to determine the scope of treatment. Under the level of 10% only the identified cases of active or intense trachoma would be treated. That number would then be multiplied by three (ref. for number of family members) to reflect the family treatment. If the prevalence was greater than 10%, the total population would be the target for the treatment.

The group proposed the last Monday of March as the fixed date for the Alliance meeting. Countries should be categorized according to the progress made in elimination. The Alliance Secretariat would determine how much time would be allotted to each country, but more presentation time should be allotted to those newly joining the Alliance as it would be important to have a general briefing on their country situation. The longer time slot should also be given to those who were just starting their programmes. Presentations should be standardized summaries, illustrating progress in reaching the UIGs and AIOs of the SAFE strategy. A specific item on the agenda should be introduced for partnerships to be explored; that would be of especial benefit to members of the Alliance attending for the first time who needed to know what resources might be available. It would be helpful to include a session for presentations on innovative experiences, such as surveys, to share the fruits of other countries’ experiences.

Group 1 suggested setting up a taskforce to support countries’ analysis of baseline data and the formulation of suitable plans of action and follow-up. Many different approaches had been used thus far; a review of methodology would be useful for countries commencing their elimination programme.

Discussion: It was reiterated that the 10% threshold related to TF, not TI. For various reasons TI was considered to be one of the least reliable gradings. Where some countries gave aggregated TF/TI data, that was because, historically, the surveys had used that grouping and no other data was available to make the UIG

³ See Annex 3 for provisional figures pending further amendment by countries.

calculations. In future those figures would be refined as more specific data were collected during the progress of elimination. The NGOs might also be invited to make presentations on their future plans, thus providing an opportunity to put all country plans on the same footing and keep them within the protocol. The importance of considering district-level figures, not national level, was reiterated, especially when calculating treatment figures.

Group 2 (Afghanistan, Egypt, Nepal, Pakistan, India, Yemen, Oman, United Arab Emirates, Sudan. Chairman Professor Sheila West)

The countries of Group 2 reviewed their country data on disease burden. Revised estimates of TF and TI would be discussed with WHO, especially Afghanistan, Egypt, and India, in view of the recent data. United Arab Emirates requested certification that trachoma was no longer a public health problem in the country. In order to verify the UIGs, the group took the target year of elimination, which was 2020 in most countries. The number of current TT cases in high-risk areas was assessed. The TT cases in the population by the target year was predicted, and the difference between the two was calculated. That figure was the number of operations needed to keep the TT rate below 1 per 1000 population. To that was added a recurrence rate of 20% of the operations and an incidence of 0.5% per year of prevalent cases to reach the total UIG for TT.

The calculation of UIGs for treatment involved estimating the number of people living in areas where TF/TI was greater than 10%, (i.e. mass treatment, where the total population needs treatment). Secondly, the group looked at the population of the areas where TF/TI prevalence was less than 10%. The number of children in that population was multiplied by the 5% who have trachoma, then multiplied by the number of family members which gave the number of the treatments needed in the low-prevalence areas. The total number of UIGs for treatment was reached by adding those two totals together. A table of UIGs based on the revised data was presented.

UIGs		
Country (2020)	UIG TT Persons	UIG TF/TI treatments
Afghanistan	105 800	12.18 million
Egypt	396 800	20.625 million
India	2 million	6 million
Oman (2010)	2565	services available
Pakistan	253 400	7.2 million
Sudan	931 000	9.2 million
Nepal (2010)	23 050	6 million
Yemen	43 125	1.45 Million

Note: For India the figures were extrapolated from Pakistan as India did not have figures available.

India and Yemen requested support for evidence-based information for trachoma planning.

The group’s consensus opinion on the most appropriate mechanism for the next Alliance report was that all countries should make a report for a maximum of 10 minutes, but should do so using structured slides. The recommended structure was: a map of disease-endemic areas within the country; the action plan for the previous year; three slides outlining the implementation of the trachoma control activities since the last meeting; and a final slide on the recommendations and action plan for the next year. The group suggested that WHO should collect a roster of experts in epidemiology, statistics and community ophthalmology to support countries in both the analysis of data and the subsequent planning process. The resources could be found within the region and/or in the Alliance, creating a human resource map in which countries could highlight their own expertise in trachoma control (e.g. Morocco for intervention, Pakistan for trachoma rapid assessment). A role for WHO was foreseen in standardizing data collection for epidemiological surveys.

Discussion: It might be useful to add the total population of the country to allow a comparison with the workload, however, it was also remarked that there was a value in keeping the presentation as simple as possible to reflect the fact that the figures were still crude. The proposed range of slides for the presentation might also contain information on the percentage achievement of the current year’s targets compared to what had been planned, and how that achievement measured up to the UIGs. It was noted that the estimates in each country were based on different survey techniques and bases and as such were not immediately comparable. Despite the limitations of the data, such as recurrence and incidence, it was important to recall that the figures would continue to grow. It was also pointed out that some measure of mortality ought to be included in the calculations. From an ethical standpoint, the goal to eliminate trichiasis should be 100% inclusive and should not neglect even 0.1% of cases, even if in reality not all of those people agreed to be operated on. From a practical standpoint, programmes should be encouraged to work until all cases were resolved, whilst recognizing that it might not be possible to achieve.

Group 3 (Australia, Brazil, Cambodia, China, Lao PDR, Mexico, Myanmar, Viet Nam. Chairman Professor Hugh Taylor)

Discussion of the figures for China had been a priority, as they had such an impact on the global disease-burden profile. It was felt that the previous assumption of 6 million cases, equivalent to a country-wide prevalence of 0.5%, was too high, and that the August-estimated figure of 3 million was more appropriate. The figures estimated for TF/TI in August were left unchanged until hard evidence was available (hopefully for the Ninth meeting of the Alliance). There were no changes to the data for Viet Nam or Cambodia. Lao PDR revised the estimate to a lower value in view of the fact that trachoma affects no more than 5% of the total population. In the absence of wider data, Myanmar retained the estimates. Australia changed the population number to a base of 121 161 and the TF prevalence rate to 15%. The data in Brazil related to children aged 7–10 years; after considerable debate it was decided that the data would relate to the rural children aged 1–10 so the number of TF/TI was reduced by two thirds compared to the estimates made in August. In Mexico precise figures enabled an accurate revision of the figures; the number of people living in disease-affected areas was found to be three times greater than previously supposed. The UIGs would need to be recalculated using the new data.⁴

Group 3 suggested the use of a template for future Alliance presentations. The template, containing five or six slides would be submitted ahead of the meeting and circulated. They would cover topics such as trachoma mapping, the structure of the programme, progress against objectives, new prevalences of TF and TI, progress in training, and partnerships and networks. The presentations at the meeting should focus exclusively on the challenges, difficulties encountered, and a summary of progress since the last meeting. At each meeting the Alliance secretariat should choose a few countries to make longer presentations highlighting particular topics, of success, problem areas, etc.

As regards the formation of a roster of experts, Dr Norma Medina, Dr Beatriz Muñoz, and Dr Anthony Solomon had volunteered.

⁴ See Annex 3 for provisional figures pending further amendment by countries.

As regards certification of the elimination of blinding trachoma as a public health problem, the group was prepared to accept the following criteria: TF prevalence of less than 5%, and TT prevalence of less than 0.1%, viewed at village level population groups (although that may vary from one jurisdiction to another). There was a need for ongoing surveillance and maintenance of activities. Trichiasis surgery might need to be continued for 20 years or more after active transmission has stopped. Ongoing reinforcement of “F” and “E” components would be needed, and could be achieved through their integration into general development, hygiene and sanitation programmes. Ongoing PHC activities and primary eye-care would be needed for case-finding and surveillance. By prospectively documenting the likely “pocket” hyperendemic areas of disease, sentinel sites could be established for surveillance of elimination and checking for recrudescence. The Alliance as a whole would need to address that topic given the proximity of elimination targets set by some members.

**Group 4 (Ethiopia, Gambia, Ghana, Kenya, Mozambique, Nigeria, Tanzania and Uganda.
Chairman: Professor Allen Foster)**

A summary sheet was presented (using Excel) which summarized information at district level, and allowed countries to work out how long it would take to meet the UIGs in surgery, and antibiotics. The following summaries of the number of surgeries to be accomplished (approximately 15 million) and the number of doses of antibiotics to be administered (approximately 100 million individuals to be treated) were the result of using this tool.

Updated UIG: 'S'

Country	Population at Risk	UIG	2004	2005	2006
GHANA	2 700 000	22 545	2100	2800	4000
GAMBIA	1 300 000	1426	600	550	600
TANZANIA	12 000 000	42 000	4000	6000	8000
UGANDA	6 000 000	21 000	2000	3000	4000
ETHIOPIA	70 000 000	1 072 400	40 000	55 000	70 000
KENYA	5 560 000	40 699	3000	6000	9000
MOZAMBIQUE	9 000 000	120 600	2000	3000	4000
NIGERIA	30 000 000	195 000	4000	5000	6000
TOTAL	136 560 000	1 515 670	57 700	81 350	105600

UIG: 'A'

Country	Total Population	Estimated UIG (using district level data)
Ghana	21 000 000	650 000
The Gambia	1 300 000	500 000
Tanzania	35 000 000	6-8 million
Kenya	32 000 000	3-4 million
Ethiopia	70 000 000	40-50 million
Nigeria	30 000 000	15-20 million
Mozambique	18 000 000	6-8 million
Uganda	25 000 000	4-5 million

It was noted that the UIG “A” for Ghana was not complete, as numbers for the community level were not yet available. For Tanzania the estimates were currently too high, and that would be revised with more accurate data next year.

In terms of improving the efficiency of the Alliance meetings, Group 4 suggested that each country might submit a written progress report, six weeks in advance of the meeting. Eight to ten of those should be selected for more detailed reporting to maximize the learning potential from obstacles overcome. Mapping of district-level data should be done for each country to show TF/TI and TT prevalences with the support of the WHO mapping programme.

Many of the experts in Group 4 were already working with external partnerships. Capacity-building through such work with external agencies is very important so as to make the process self-sustaining.

Discussion: Whilst the mathematical model presented was excellent for TF cases, for TT it was necessary to take into account the recurrent and incident cases. In connection with the certification of elimination for countries, it would be important to establish whether data was to be considered at national or community level when “graduating” a country.

5.2 Plenary discussion on working group output

Processes to be followed in refining the UIGs

On the one hand it was recommended that the simplest method possible should be found to calculate the UIGs, not including recurrence, incidence etc. On the other, it was stressed that ignoring those additional elements over the next 14 years would result in a distorted picture. It was not difficult to come up with a formula to add those cases in. The estimates being reviewed at the current meeting would be further assessed at the next meeting. They were flexible figures. The data from large countries such as China and India would influence the global figures considerably. With the exception of the data on India, for which a separate working group would be held, the estimates would be finalized and sent out to Alliance members after the meeting.

Regarding the calculation of the UIGs, Group 4 had provided a spreadsheet model that might be useful to all. WHO was requested to consider the two models provided (at the August meeting and the present meeting), and provide each country with the recommended model for the calculation of the UIGs. Feedback from the national coordinators was requested on the tools suggested. In general there was a positive response to the tool presented at the current meeting for calculating TT, however, the 10% threshold policy for TF treatment meant, in some cases, that the whole country would have to be treated which was not a practical option. Whilst the figures appeared daunting, they could be seen as a tool for planning at district level rather than an absolute at national level. Those figures usefully highlighted priorities for funding. It was suggested that the two tools be evaluated by a small representative group of Alliance members to get feedback. The tool chosen must reflect the fact that the technological environment was not the same in all countries.

The “F” and “E” components of the SAFE strategy were addressed in the August meeting. It was hard to set global targets for “E” when it was essentially a national activity with a wide remit in health and other sectors. Countries were invited to identify the main actors in the “E” component and collaborate with them.

Revisions to Alliance reporting

Elements common to all the groups’ proposals on making presentations more effective were: the presentation of a limited number of structured slides; the need to hear from partners as well as Alliance members; the wish to hear of innovative experiences as well as instructive difficulties; and the showcasing of new countries.

The criteria for selection were discussed. If a restricted number of countries’ presentations were to be chosen, every year the larger countries with several programmes ongoing might present annually, and countries that had a new or particularly successful approach should present their results. Similarly, an unsuccessful approach would be equally instructive. Non-achievement of UIGs would be a criterion for inclusion so as to give the Alliance

an opportunity to support that member. Oral presentations should be focused on difficulties, challenges and successes— the information beyond the statistics.

On the other hand, countries took pride in making their presentations; many felt that the Alliance was a forum for giving as well as receiving information and support, and that it was a matter of the Secretariat managing the time allotted to each country in a different way, not of reducing the number of countries taking the floor.

In summary: there was a need to have very focused presentations from all countries, followed by special presentations which focused on new countries, innovative approaches and challenges, with the selection and timing of these to be decided by the Secretariat.

Partnerships: Representatives from Hilton Foundation and Sight Savers International reiterated the essential part in all activities played by partnerships, especially with local partners such as national prevention of blindness committees. The UIGs were an extremely useful tool that fitted very well with partners' financial and technical planning and would support forecasting placement of future resources. Collaboration would be possible, not only with national governments but with NGOs, to allocate joint funding to priorities pointed up by UIG listing. World Vision (WV) had been involved in integrated community development, using water and sanitation as entry points for future development in terms of education, health care, food production and micro-enterprise development. Alone or in conjunction with the Hilton Foundation, projects in trachoma control would continue to grow. Helen Keller was committed to working through the governmental infrastructure to forming relationships and supporting collective action. HKI was interested in the wider development issues around trachoma such as school health, looking at behaviour change and schools as an entry point to communities. The International Trachoma Initiative was created to take a lead in eliminating the disease by 2020. It gave technical support especially through programme development in countries working with the Ministry of Health and national trachoma control programmes. ITI helped with the on-the-ground distribution of the donated drugs from Pfizer, but believed in the need to implement the SAFE strategy as a whole. Research was also an important area for ITI, covering social, economic and operational issues. A research agenda was being planned for the next two years, drawing on the scientific expertise present in the Alliance. Resource constraints were important issues, and it was important for partners to locate the gaps in country funding, and support programme expansion to fill them and attain the goals set.

Date of the Alliance meeting

Respect for religious festivals might necessitate retaining some degree of flexibility in setting the dates. A fixed period was therefore suggested, of the last two weeks of March, within which the meeting might be moved to take account of other commitments, yet establishing a target date for countries to make their preparations. Other events such as major conferences also needed to be taken into account and should be notified to the Secretariat as soon as possible.

Roster of experts

The proposed roster would include both international and national experts available for technology transfer and sharing of knowledge. The costs of such support were not inconsiderable and must be covered somehow if the roster was to be more than good intentions. Vision 2020 had a framework within which such a topic could be raised, for example: central funds were provided for trachoma in the overall Vision 2020 budget and suggestions for work within the programme could be raised. The Alliance could make a proposal to increase funding to trachoma through that mechanism, although it was noted that funding was already very limited. The partners which support the Alliance could also identify where resources might be made available.

6. OTHER MATTERS

6.1 Neglected Diseases Initiative (Dr Denis Daumerie)

In December 2003 an international workshop was held⁵ to review diseases, including trachoma, which primarily affected neglected populations — such as lymphatic filariasis, leishmaniasis, onchocerciasis, leprosy, Guinea worm disease, sleeping sickness and schistosomiasis — and to make the case for combating them.

One of the problems shared among all these disease control programmes, is the difficulty in gathering good data on the scale of the problems among populations that are difficult to reach.

The key problems for these hidden and silent diseases include complacency, lack of information and lack of commitment. Those whom these diseases affect have little political voice; these diseases do not threaten western society and keep a low profile in public health priorities, hampered by their complex medical names and prevention strategies.

A framework for action is proposed by the initiative for neglected diseases, in line with the MDGs. There are successes to build upon: there are new powerful drugs which can reach all at-risk populations; many of the diseases might geographically overlap; many of the diseases do not need sophisticated medical treatment and formal health services, but use trained volunteers and health staff; and they are high priorities for affected communities, who are taught important sustaining principles of self-care. The policy is to provide more information on the broad impact of these neglected diseases, advocating for groups of diseases and their collective burden, and working to make interventions against such neglected disease part of the district health plan. There are obvious economies of scale associated with this integrated approach, as well as advantages (well-known from the immunization model) gained from focusing on populations and interventions rather than diseases. After a workshop held in Berlin six months ago, WHO has started making the case for neglected diseases, mapping diseases at the local level, developing and testing technical guidelines for integrated interventions, implementing neglected disease projects in priority areas in selected countries, and supporting advocacy and fund-raising.

Discussion: The concepts of “red districts” as priority areas offered interesting scope for fruitful overlap of resources. Some of the common tools used by different disease initiatives might need to be revisited e.g., mass treatment could be part of routine service delivery. The problem then became one of supporting district medical teams in using a framework that can deliver different mass treatments for different diseases and building capacity at district and national levels.

6.2 Trachoma Initiative in Monitoring and Evaluation (TIME project report) (Professor Allen Foster)

An evaluation was carried out by the London School of Hygiene and Tropical Medicine with participation from national programmes for the prevention of blindness, between May 2002 and April 2004 in Ethiopia, Ghana, Mali, Morocco, Nepal, Niger, Tanzania and Viet Nam. Data was gathered and analysed, involving national staff, Ministry of Health staff, LSHTM staff and an international expert. Evaluations were carried out through interviews, questionnaires, testing agreement on trachoma grading, case studies, focus groups and direct observations. After each assessment a debriefing was conducted with the Ministry of Health, with a report prepared on SAFE activities and programme management.

In many countries there is inadequate information on the burden of disease and lack of clarity on how to get sound baseline prevalence data. A clear epidemiological tool is needed for data collection. Monitoring of programme activities could be significantly improved through a few well-defined indicators and good reporting procedures.

Surgical output is insufficient, with coverage of TT surgery less than 20% in all countries in the study except Morocco. The reasons for this include insufficient health promotion about TT and surgery, the cost of surgery to the patient (in some cases), a lack of trained surgeons (in some countries), or a lack of transport to make surgeons mobile/accessible. There is insufficient monitoring of surgical quality and follow up of operated cases.

⁵ International Workshop on Control of Neglected Diseases, Berlin 10–12, 2003

The issue of “recurrence” needs review and a more useful definition that distinguishes between potentially blinding recurrence and recurrence that is acceptable.

High-quality drug distribution is possible even in low-resource settings, with good community acceptance and high coverage. There is a lack of a consistent strategy between countries for antibiotic distribution although this issue has been addressed to some extent and distribution was generally well done.

The radio has been effectively used in health promotion to raise awareness of trachoma as a problem although it did not give a deep understanding. Community knowledge about trichiasis remains weak. Health promotion staff were often poorly motivated. Water and sanitation remain major problems in nearly all programme areas with intersectoral collaboration needed to improve supply and energetic health promotion to promote behaviour change.

The degree of integration of trachoma control into other prevention of blindness activities and the general health system is variable. National programme coverage is presently less than 50% in most countries and in some countries less than 10%. Expansion is a priority. Partnerships with appropriate ministries and NGOs involved in eye-care and community development need to be built with strong leadership from national coordinators or steering committees.

A copy of the material gathered in the TIME project, is available on CD-ROM.

Discussion: It would be very helpful to understand how the key lessons presented could be applied in practice; that could only be understood through looking at the individual country evaluations to see the change of practice in each case. The generic lessons were issues such as the need for the epidemiological tools and indicators. In the Gambia the evaluation triggered certain actions such as ensuring that all districts in the two disease-endemic regions had been assessed and the disease status was known. Clinical audits were made through the records kept by each TT surgeon and sentinel sites were selected for monitoring and evaluation.

6.3 Report on activities in the WHO Regional Offices

Dr Abdul Hannan Chowdhury, focal point for prevention of blindness in the Eastern Mediterranean, reported that a regional Vision 2020 workshop has recently been concluded in the Regional Office for the Eastern Mediterranean. The Region contains 22 countries, and a population of 492 million people, yet indications are that the area contains 22% of the global burden of trachoma. Several countries within the Region, which contain pockets of trachoma, do not attend the Alliance and will need to be included if global elimination is to succeed. It will be essential to achieve political commitment and sensitize decision-makers to the issues, such as that there is no population-based data in the whole region. A regional meeting for the elimination of blinding trachoma in the Eastern Mediterranean Region in Khartoum is planned for 28–30 November 2004, to which all Alliance members are invited.

Discussion: The presence of a representative from the Regional Office for Africa was warmly welcomed; that Region bore the highest number of endemic countries. In total, representatives of three WHO regions were attending the meeting (from Africa, the Eastern Mediterranean and South-East Asia). Regional, or even subregional meetings would be most useful; there were issues that could be seen and dealt with at that level which were not necessarily seen at global level. Trachoma and eye-care needed to be put on the agenda. One way of doing that might be to host the Alliance meeting in the various regions, in rotation.

6.4 Gold medal award

It was announced that Dr Silvio Mariotti was to receive the Trachoma Gold Medal, awarded by the International Organization Against Trachoma for his services to trachoma elimination. The Alliance warmly endorsed this tribute.

7. CONCLUSIONS AND RECOMMENDATIONS

1. The presence of representatives from China and India, which have newly joined the Alliance, makes an important contribution to the work of the Alliance. The extraordinary progress achieved in China since November 2003 is acknowledged, and further work on assessment is encouraged. It is

recommended that WHO make available technical and other assistance to support a survey in India to define the disease burden, to assess priorities and to plan appropriate interventions. It is important to involve all countries, such as Ethiopia, which have very large populations, as they may contribute a significant proportion of the global burden of trachoma.

2. The Alliance recognizes the remarkable achievements towards trachoma elimination made in Morocco. The Alliance requests Morocco to publish an account of the organization and implementation of its programme, and the lessons to be learned from it, in order to assist the work of other countries. The Alliance also recognizes the sustainable, comprehensive achievements of Oman in trachoma control and research, and its aim to eliminate blinding trachoma by 2005.

3. The development of the ultimate intervention goals in August 2003 provided a new and significant resource to countries, which has successfully focused planning of elimination activities. WHO is commended on having convened the working group that developed this concept. The Alliance recommends that countries determine annual intervention objectives (AIOs) based on their UIGs.

4. Progress in trachoma elimination is closely connected with health-sector and community development. Integration and/or coordination with other public-health activities and other sectors in the community are hallmarks of some of the most successful programmes to date. National plans could usefully be designed and evaluated with this in mind and in line with the Millennium Development Goals. It is essential that national trachoma control plans be integrated into national Vision 2020 action plans.

5. The work of the Alliance presents a valuable advocacy tool. In light of the recognition given to trachoma by the World Health Assembly in resolution WHA51.11 and the reporting requirement mandated in resolution WHA56.26 there is an opportunity to present the Alliance's work to a wider forum. The Alliance requests a briefing session for Health Assembly delegates in 2005, to provide information on the revised estimates of the burden of disease (half that estimated previously, indicating an increased level of eye health in disease-endemic countries), and on the UIGs.

6. Many countries have expressed frustration at the difficulties in quantifying the national burden of trachoma and the wide-ranging implications of this deficiency for coherent planning and monitoring activities. A standardized tool is required to help countries to collect uniform data. The Alliance also recognizes the importance of the provision of technical assistance to programmes, including technical cooperation between developing countries to build capacity, and has identified the need to raise additional funds to support this.

7. The Alliance commends Pfizer on its commitment to increase its donation of azithromycin to trachoma-control programmes over the next five years, and requests that the product insert be updated with all reasonable speed. The Alliance also notes that, without such amendment to the contraindications, some programmes are reluctant to administer azithromycin to pregnant women and infants. The Alliance recommends that national programmes reiterate the safety profile of azithromycin and its viability for use by pregnant women and infants.⁶

8. Disturbed by the high rates of recurrence of trichiasis following surgery, the Alliance reiterates the need for follow-up of operated patients, ongoing monitoring of surgery, and the need for a certification scheme for trichiasis surgeons.

⁶ See recommendation 6, in the *Report of the Seventh Meeting of the WHO Alliance for the Global Elimination of Blinding Trachoma*, Geneva 6–8 January 2003, p35. (WHO/PBD/GET/04.1)

9. It is recommended that, resources permitting, WHO convene a workshop to develop a unified protocol for assessment of the impact of control activities, further consider methodology for certification of elimination of trachoma as a public health problem, and recommend a simple surveillance system to monitor for recrudescence of disease.

10. Mindful of countries believed to have trachoma but for which no data are currently available, the group recommends that further work be done to establish which of these countries have trachoma as a public health problem, and therefore should be involved in the work of the Alliance.

11. The Alliance recognizes that further research is needed to support programmes and to further the elimination of blinding trachoma. Such research may include clinical research (such as on azithromycin-treatment intervals), cost-benefit analysis, the value of laboratory investigations, and surveillance systems.

12. Noting that a feature of the most successful programmes is the concerted implementation of all four components of the SAFE strategy, a review should be made by programmes to document successful strategies for behaviour change that could then be shared with other programmes.

13. The Alliance agrees that future meetings should routinely be convened in the last two weeks of March each year using a standardized format for reporting whereby oral presentations are limited to the sharing of successes, challenges, and the strategies used to overcome these challenges.

14. The Alliance recognizes the value of regional planning workshops and commends the workshop in Sudan to be hosted by the Regional Office of the Eastern Mediterranean. The work done at that workshop will help to sensitize countries to the need to make trachoma elimination a priority in the Region. Other regions are encouraged to hold similar workshops.

8. CLOSURE OF THE MEETING

The Chairman closed the meeting with thanks to all who had contributed to its smooth running and to all those who had so actively participated.

ANNEX 1: AGENDA

Opening ceremony
Introduction of participants
Election of officers
Administrative announcements
Adoption of the agenda

1. Reporting of activities undertaken since previous meeting
2. Presentations by new participating trachoma-endemic countries and organizations
3. Update on epidemiology, monitoring and assessment of elimination of blinding trachoma
4. Implementation of SAFE strategy at the country level: definition of the Ultimate intervention goals in countries and regions (working groups)
5. Review of the progress made in the development of partnerships, at global, regional and national levels
6. Discussion on the availability of antibiotic treatment for the people in need, in the perspective of Essential Drug List inclusion of azithromycin;
7. Review of the experiences on training needs, to ensure sustainability of control programmes
8. Discussion on how to ensure that trachoma control activities are best integrated in the “*Vision 2020: The Right to Sight*” plans, as well as in the national health systems
9. Update on TCDC progress, operations and scientific research projects on SAFE strategy
10. Any other matters

Conclusions and recommendations
Date and place of next meeting
Closure of the meeting

ANNEX 2: LIST OF PARTICIPANTS

NATIONAL COORDINATORS

- Dr (Ms) Enaam Hamed ABDEL DAYEM**, Director General, Ophthalmic Department, Ministry of Health and Population, 3 Magles El-Shaab St., Tahrir, Cairo, **Egypt** (Tel./Fax +202 792 10 62 – Fax +202 792 10 66 Email: visionright@mohp.gov.eg)
- Dr Basu Prasad ADHIKARI**, Consultant Ophthalmologist, Mid Western Regional Eye Care Centre, Fateh-bal Eye Hospital, PO Box 032 Fultekra 7, Nepalganj, **Nepal** (Tel. + 977 81 52 05 98 and + 977 81 52 10 19 (private) – Fax + 977 81 52 27 37 Email: kverma@wlink.com.np)
- Prof. Sidi Ely AHMEDOU**, Coordinateur, Programme national de Lutte contre la Cécité, Direction de la Protection Sanitaire, Ministère de la Santé et des Affaires Sociales, c/o Service de Ophtalmologie, Hôpital Militaire de Nouakchott, B.P. 786, Nouakchott, **Mauritania** (Tel. +222 529 4602 / 222 529 7378 – Mobile: + 222 6 302 362 – Fax +222 529 4602 Email: elysidi@yahoo.fr and info@bouamatou.mr)
- Dr Abdulatif Hussein AL RAISI**, Senior Consultant and Head of Ophthalmology, Al Nadha Hospital (PO Box 937, P.C. 112 Ruwi), Representative of the Directorate General of Health Affairs, Ministry of Health, PO Box 937 P.C. 112, Ruwi, **Sultanate of Oman** (Tel./Fax + 968 773 20 45 and + 968 933 1776 (mobile) – Email: almraisi@omantel.net.om)
- Dr Abdou AMZA**, Coordinateur adjoint, Direction Générale des Etudes, Programme national de Lutte contre la Cécité, Ministère de la Santé publique, B.P. 11347, Niamey, **Niger** (Tel./Fax +227 75 29 06 – Fax: + 227 75 3313 Email: pnlcc@intnet.ne)
- Dr Dienne Iyalla APIAFI**, National coordinator, National Programme for the Prevention of Blindness, c/o National Eye Centre, PMB 2267, Kaduna, **Nigeria** (Tel./Fax +234 62 31 1146 – Email: nppbk@hotmail.com and cyberworld10@hotmail.com)
- Dr Stanley BUBIKIRE**, National Eye Care Coordinateur, Disability Prevention and Rehabilitation, Ministry of Health, P. O. Box 7272, Kampala, **Uganda** (Tel.+ 256 41 25 1930 - Email: bubikire@yahoo.com)
- Dr Youssef CHAMI KHAZRAJI**, Chef de la Division des Maladies Transmissibles, Dir. De l'Epidémiologie et de la Lutte contre les Maladies, Service des Maladies Oculaires et Otologiques, Ministère de la Santé, 71 avenue Ibn Sina, Agdal, Rabat 10 000, **Morocco** (Tel.+ 212 37 67 1332 / 212 37 67 1244 -Fax +212 37 67 1298 – Email: yhami@sante.gov.ma)
- Dr Djoret DEZOUNBE**, Coordinateur National, Programme de lutte contre la Cécité, Ministère de la Santé, B. P. 221, N'Djaména, **Chad** (Tel.+ 235 52 2942 - Fax +235 52 3159 – Mobile: +235 29 5917 – Email: pnlc_drdezoumbe@yahoo.fr)
- Prof Nouhou Konkouré DIALLO**, Coordinateur National, Programme de lutte contre la Cécité, c/o WHO Representative, B.P. 817, Conakry, **Guinea Conakry** (Tel. + 224 25 33 71 / + 224 29 8930 – Fax 224 45 57 31 – Email: dnouhfr@yahoo.fr ; oms.gui@eti-bull.net ; mbayek@oms.org.gn)
- Dr (Ms) Maria HAGAN**, National Coordinator, Eye Care Unit, Ghana Health Service, Private Post Bag, Ministries, POBox M.44. LFC, Accra, **Ghana** (Tel. 233 21 666 815 – Fax 233 21 668 850 / 668 871 – Email: mhagan@africaonline.com.gh)
- Dr Kamal HASHIM OSMAN**, Chief Ophthalmologist, Walidain Eye Hospital, Omdurman, Ministry of Health, P. O. Box 303, Khartoum, **Sudan** (Tel. +249 78 0651 – Fax: + 249 78 0449 – Email: kamalhashim@kamalsmail.com)

- Prof. Mohammad Daud KHAN**, National Coordinator, National Committee for the Prevention of Blindness, Pakistan Institute of Community Ophthalmology, Hayatabad Medical Complex, PO Box 125, Peshawar, **Pakistan** (Tel. +92 91 921 73 77 – Fax +92 91 921 74 13 – Email: pico@pes.comsats.net.pk)
- Dr John Kipkorir A. LIMO**, Chief Ophthalmologist, Coordinator of Ophthalmic Programmes, National Eye Care, Ministry of Health, PO Box 1759, Nakuru, **Kenya** (Tel. +254 37 211 472 – Fax +254 2 715 239 – Email: kipkorir47@hotmail.com; kipkorir47200@yahoo.com)
- Dr Miguel Angel LOTZOW STEINER**, Médico Residente de Epidemiología, Prevención de Tracoma, Centro Nacional de Vigilancia Epidemiológica, Benjamín Franklin # 132, 1er Piso; Col. Escandón; Delegación Miguel Hidalgo, México D.F., **Mexico** (Tel.+ 52 1 5526 14 6461 – Fax + 52 1 5526 14 6462 – Email: malsteiner@yahoo.com.mx)
- Dr Qingjun LU**, Department of Ophthalmology, Tong Ren Eye Centre, Beijing Tong Ren Hospital, No. 2 ChongNei Street, Beijing, **People's Republic of China** (Tel/Fax + 86 10 8511 0023 - Email: qlu@trhos.com; Wningli@trhos.com)
- Dr Nyunt MAUNG**, Deputy Director, Project Manager, Trachoma and Prevention of Blindness, Ministry of Health, Minister's Office, 27 Plydaungsu Yeiktha Road, Dagon P.O.Box 11191, Yangon, **Union of Myanmar** (Tel. +95 1 640 742 – Fax + 95 1 546 071 – Email: ieby@mptmail.net.mm)
- Dr (Ms) Norma Helen MEDINA**, Director, Serviço de Oftalmologia Sanitaria, Centro de Vigilância Epidemiologica, Instituto de Saúde, Secretaria de Estado da Saúde, 351 Avenida Dr Arnaldo, 6 andar Cerqueira Cesar, Sao Paulo, S.P. CEP 01246-902, **Brazil** (Tel. + 55 11 3066 8153 / Fax + 55 11 30 85 5962 – Email: normamedina@redemedicina.com.br)
- Dr Meno NABICASSA**, Coordinateur National de Programme de lutte contre la Cécité, Ministère de la Santé Publique, B.P. 50, **Guinea Bissau** (Tel. + 245 20 61 71 – Email: omsbussau@mail.gtelecom.gw; apcdelgado@hotmail.com)
- Dr Doulaye SACKO**, Coordinateur, Programme national de Lutte contre la Cécité, Ministère de la Santé, Division de la lutte contre la maladie, B.P. 228, Bamako, **Mali** (Tel. +223 223 89 30 – Fax +223 223 17 21 – Mobile: + 223 675 5839 Email: pnlc@datatech.toolnet.org)
- Dr (Ms) Grace E. B. SAGUTI**, Coordinator, Eye Care and Onchocerciasis Control Programme, Ministry of Health, P.O. Box 9083, Dar es Salaam, **Tanzania** (Tel. + 255 22 213 00 09 – Fax + 255 22 213 00 09 – Mobile: + 074 428 7875 – Email: gracejengo@yahoo.co.uk and nec_ocp@yahoo.com)
- Dr Ahmad Shah SALAM**, National Coordinator, PBD Program, Ministry of Health, The Great Masood Road, Public Health Avenue, Kabul, **Afghanistan** (Tel./Fax: + 93 20 230 1337 – Email: ahmadshahsalam2003@yahoo.com)
- Dr Boubacar SARR**, Coordinateur, Programme national de Lutte contre la Cécité, Ministère de la Santé de de la Prévention du Sénégal, Service National des Grandes Endémies, B.P. 3817, Dakar, **Senegal** (Tél./Fax +221 8 24 4984 – Fax + 221 8 64 4120 – Mobile + 221 550 7773 Email: bouksarr@yahoo.fr)
- Dr Do SEIHA**, National Prevention of Blindness Coordinator, Ministry of Health, Ang Duong Hospital, PO Box 2027, Phnom Penh, **Cambodia** (Tel + 855 1284 0796 – /Fax + 855 23 11 072 - Email: campbl@online.com.kh)
- Prof. Aziz Hameed Said SHAHER**, Professor of Ophthalmology, Sana'a University, c/o WHO, PO Box 12272, Sana'a, **Republic of Yemen** (Tél. + 967 71 66 4040 – Fax + E:mail: azizshaher@yahoo.com)
- Mr Ansumana SILLAH**, Manager, National Eye Care Programme, Medical Headquarters, Box 950, Old Primet Street, Banjul, **the Gambia** (Tel./Fax + 220 97 2020 – Email: ansu_sillah@yahoo.com)
- Dr (Ms) Ton Thi Kim THANH**, Director, National Institute of Ophthalmology, Ministry of Health, 85 Ba Trieu Street, Hanoi, **Viet Nam** (Tel./Fax + 84 4 94 38004 – Email: tonthi.kimthanh@hn.vnn.vn)
- Professor Rasik B. VAJPAYEE MBBS, MS, FRCSED**, Clinical Professor of Ophthalmology, Head, Cornea and Refractive Surgery Services, RP Centre for Ophthalmic Sciences, ALL India Institute of Medical Sciences, New Delhi 110029, **India** (Tel.+ 91 11 26 59 31 92 .+ 91 11 26 58 98 22 / Fax: - 91 11 26 58 89 19 – Email: rasikvajpayee@rediffmail.com and rbvajpay@medinst.ernet.in)
- Dr V. Thouné VISONNAVONG**, Coordonateur National, Prevention de la Cécité, Centre d'Ophthalmologie, Ministère de la Santé, Vientiane, **Lao People's Democratic Republic** (Tel./Fax + 856 21 620 473 – Fax: + 856 21 612079 - Email: laoph@laotel.com)

- Dr (Ms) B. Bernadette YODA**, Ophthalmologiste, Programme National de Lutte contre la Cécité, 09 BP 650, Ouagadougou 09, **Burkina Faso** (Tel + 226 23 35 57 – Fax + 226 31 04 77 - Email: yoda_bernadette@yahoo.fr)
- Dr (Ms) Yolanda ZAMBUJO**, Coordinator, National Prevention of Blindness, Ministry of Health, Av. Base Nchinga 585, CP 994, Maputo, **Mozambique** (Tel.+ 258 82 30 3402 – Fax + 258 1 49 31 21 – Email: pereira@mail.tropical.co.mz)
- Dr Zegeye Haile ZEWDE**, Prevention of Blindness, Ministry of Health, P. O. Box 1234, Addis Ababa, **Ethiopia** (Tel.+ 251 1 159 978 – Fax + 251 1 519 366 – Email: cbm.roe2@telecom.net.et; moh@telecom.net.et)

**REPRESENTATIVES OF WHO COLLABORATING CENTRES FOR THE PREVENTION OF BLINDNESS
& OTHER RESEARCH INSTITUTIONS**

- Dr Robin BAILEY**, Senior Clinical Scientist, **Medical Research Council Laboratories**, Atlantic Road, Fajara, PO Box 273, Banjul, the Gambia
(Tel. +220 495 894 – Fax +220 496 513 – Email: Robin.Bailey@lshtm.ac.uk)
- Dr Paul COURTRIGHT**, Director, **Kilimanjaro Centre for Community Ophthalmology**, Tumaini University, KCMC Hospital, PO Box 2254, Moshi, Tanzania (Tel +255 27 275 37 94 – Email: kcco@kilionline.com)
- Dr Chandler R. DAWSON**, Professor of Ophthalmology, **Francis I. Proctor Foundation for Research in Ophthalmology**, University of California San Francisco, Room S 315, 513 Parnassus Street, San Francisco CA, 94143-0412, USA (Tel. +1 415 476 8137 – Fax +1 415 476 6085 – Email: dawson@itsa.ucsf.edu)
- Prof. Deborah DEAN**, Research scientist, Professor of medicine, **Children's Hospital Oakland Research Institute (CHORI)**, 5700 Martin Luther King Jr. Way, Oakland California, CA 94609, USA
(Tel. +1 510 450 7655 – Fax +1 510 450 7910 – Email: ddean@chori.org)
- Dr Pablo GOLDSCHMIDT**, Lab Microbiologie, Hôpital Saint Louis, 1, Ave Claude Vellefaux, Paris, France (Tel. – Email: Pablogol@aol.com)
- Dr Rajiv KHANDEKAR**, **BC Centre for Epidemiologic & International Ophthalmology**
St. Paul's Hospital, 1081 Burrard Street, Vancouver, BC, V6Z 1Y6 Canada
(Fax: + 1 604 806 8058 / Email: rajshpp@omantel.net.om)
- Dr Kazuichi KONYAMA**, Department of Ophthalmology, Juntendo University School of Medicine
3-1-3 Hongo Bunkyo-ku, Tokyo, Japan (Tel. 81338173111 - Fax: + 81338170260 Email: juntenop@iris.dti.ne.jp ; kkon@interlink.or.jp)
- Dr Thomas LIETMAN**, Director, WHO Collaborating Center for Prevention of Blindness, **Francis I. Proctor Foundation for Research in Ophthalmology**, 95 Kirkham Street, University of California, Room 307, San Francisco, CA 94143-0944, USA (Tel. +1 415 502 2662 – Fax +1 415 476 0527 – Email: tml@itsa.ucsf.edu)
- Dr Hans LIMBURG**, Senior Research Fellow, **International Centre for Eye Health**, Institute of Ophthalmology, University College London
Private: Bourgondiëweg 63, 1611 WC Bovenkarspel, The Netherlands/Pays-Bas
(Tel. +31 228 515 481 – Fax +31 228 523 853 – Email: h.limburg@worldonline.nl)
- Dr Anthony Solomon**, Clinical Lecturer, **London School of Hygiene and Tropical Medicine (LSHTM)**, Department of Infectious and Tropical Diseases, Keppel Street, London , WC1E 7HT, United Kingdom
(Tel. 44 20 7958 8336 - Fax. 44 20 7958 8338 - Email: anthony.solomon@lshtm.ac.uk)
- Prof. Hugh TAYLOR**, Professor of Ophthalmology, Director, WHO Collaborating Centre for PBL, **Centre for Eye Research Australia**, The University of Melbourne, 32 Gisborne Street, East Melbourne Victoria 3002, Australia
(Tel. +613 9929 8368 – Fax +613 9662 3859 – Email: h.taylor@unimelb.edu.au)
- Dr Lamine TRAORÉ**, Ophthalmologiste, Responsable du département de la Recherche, **Institut d'Ophtalmologie Tropicale de l'Afrique (IOTA)**, Boulevard du Peuple, B.P. 248, Bamako, Mali
(Tel +223 223 421 – Fax +223 22 51 86 – Email: iota@iotaocce.org)
- Prof. (Ms) Sheila WEST**, El-Maghraby Professor of Preventive Ophthalmology, The Wilmer Institute, Rm 129, **Johns Hopkins Medical Institutions**, 600 North Wolfe Street, Baltimore, Maryland, 21205, USA
(Tel. +1 410 955 2606 / Fax +1 410 955 0096 / Email: swest@dcpom.med.jhu.edu)
- Dr (Ms) Marcia ZONDERVAN**, Research Fellow at the International Center for Eye Health, **London School of Hygiene and Tropical Medicine (LSHTM)**, 9 Bedford Square – 3rd floor, London , WC1E 7HT, United Kingdom
(Tel. 44 207 927 2297 - Fax. 44 20 7637 4314 - Email: Marcia.Zondervan@lshtm.ac.uk)

Representatives of Governmental Organizations

- Dr (Ms) Thoraya ALHASHMI**, Ministry of Health, P.P. Box 40564, Sharjah, **United Arab Emirates** (Tel. + 971 50 45 88 322 – Fax. +971 65 38 53 78 E-mail: halimfn@emirates.net.ae)
- Dr Christian Bailly**, Chef du Bureau de la santé, Direction de la coopération technique (DCT/MSA), Ministère des Affaires étrangères, 20, rue Monsieur, Paris 07 SP 75700, France (Tel. + - Fax + 33 1 53 69 37 19)
- Dr (Ms) Maria de Fátima COSTA LOPEZ**, Physician Public Health, Health Ministry, Trachoma Program, SAS Quadra 4 Bloco N 7º Andar-Sala 714 – Brasília. DF CEP 70.070.040, **Brazil** (Tel. + 55 61 225 6137 / Fax + 55 61 314 6260 – Email: maria.lopes@funasa.gov.br)
- Dr Jaouad MAHJOUR**, Directeur de l'Epidémiologie et de lutte Contre les Maladies, Ministère de la Santé, 335 Av. Mohamed V, Rabat, **Morocco** (Tel. + 212 37 67 1271 – Fax + 212 37 67 1244 – Email: jmahjour@sante.gov.ma)
- Dr Jorge Raul RICARDEZ-ESQUINCA**, MSC Ph Epidemiology, Ministerio de la Salud del Estado de Chiapas, Unidad Administrativa Edificio “C” Calzada a la Ciudad Deportiva s/n C.P., 29000 Tuxtla Gutierrez, Chiapas, **Mexico** (Tel. +52 96 16 12 40 84 - Fax. + 52 96 16 13 75 66 – Email: jricardez@salud.gob.mx)

REPRESENTATIVES OF NONGOVERNMENTAL ORGANIZATIONS AND FOUNDATIONS

- Dr Amos ABBENYI**, Director, Planning and Analysis, International Trachoma Initiative, 441 Lexington Avenue, 16th Floor, New York, **New York**, 10017-3910, **USA** (Tel + 1 212 490 6460/ Fax: +1 212 490 64-61 – E mail: sabbenyi@trachoma.org)
- Dr Mahmoud Ali MAGDI**, Deputy National Coordinator, **Carter Centre**, Trachoma Control Programme, Academy of Medical Sciences and Technology, P. O. Box 12810, Khartoum, Sudan, (Tel. + 249 11 22 4762 - Fax: + 249 11 22 4799 – Email: magdiali@hotmail.com)
- Dr Pina L. BALDUCCI-SILANO**, Director, Evaluation and Research, International Trachoma Initiative, 441 Lexington Avenue, 16th Floor, New York, **New York**, 10017-3910, **USA** (Tel + 1 212 490 6460 ext 12/ Fax: +1 212 490 64-61 – E mail: pbalducci@trachoma.org)
- Dr Martin William BLOEM**, Regional Director, **Helen Keller International Asia Pacific**, 20 Cross Street No.02-13, China Court, Singapore 048422, Singapore (Tel. + 65 623 61 972 – Fax + 65 632 74 293 – Email: mwbloem@singnet.com.sg)
- Dr J.-François CECCON**, Director des Programmes, **Organisation pour la Prévention de la Cécité, (OPC)**, 17 villa d'Alésia - 75014 Paris, France. (Tel 01 44 12 41 93/ Fax: 01 44 12 23 01 – E mail: opc@opc.asso.fr)
- Dr Gamal Ezz El ARAB**, Medical Director, **Al Noor Foundation**, Magrabi Eye Hospital, El-Sayeda, Nafesa Square, PO Box 124, Manial el Roda, Cairo 11153, Egypt (Tel. + 202 36 31 111 ext 623 – Fax + 202 36 38 310 – Email: arab@alnoor.org.eg)
- Dr Allen FOSTER**, Medical Director, **Christoffel Blindenmission e.V.**, Clinical Research Unit, London School of Hygiene and Tropical Medicine (LSHTM), Department of Infectious and Tropical Diseases, Keppel Street, London, WC1E 7HT, United Kingdom (Tel. 44 20 7958 8359 - Fax. 44 20 7958 8317 - Email: allenfoster@compuserve.com)
- Dr (Ms) Fe GARCIA**, Health Team Leader, **World Vision US IPG**, 3001 I Street N.E., Washington, DC 20002, USA (Tel. + 1 253 815 2156 - Fax. +1 253 815 34472 - Email: Jriverson@worldvision.org)
- Dr Eric GRAND D'HAUTEVILLE**, Relief Services Manager, **PANALPINA**, 53 Chemin de l'Etang, 1219 Châtelaine / GE, Switzerland (Tel. +41 22 795 7792 - Fax. +41 22 795 7794 - Mobile: +41 79 687 8021 Email: relief@panalpina.com; and eric.grand-d-hauteville@panalpina.com)
- Ms Dyanne M. HAYES**, Vice President – Programs, **Conrad N. Hilton Foundation**, Suite 1000, 10100 Santa Monica Boulevard, Los Angeles California, 90067, USA (Tel. +1 310 556 4694 – Fax +1 310 556 2301 – Email: dyanne@hiltonfoundation.org)
- Dr Jacob A. KUMARESAN**, President, **International Trachoma Initiative**, 441 Lexington Avenue, Suite 1600, NEW YORK, NY, USA (Tel. +1 212 490 6460 – Fax +1 212 490 6461 – Email: jkumaresan@trachoma.org)
- Mr Chad MACARTHUR**, Director of Training and Community Education, **Helen Keller Worldwide**, Suite 187, Private Bag X15, Menlo Park, Pretoria, South Africa (Tel. +27 82 404 43 84 – Fax +27 12 342 35 10 – Email: hki-rsa@lantic.net)
- Dr Muluken Asresa MELESE**, **Orbis International**, Ethiopia Country Office, PO Box 23508

Code 1000, Addis Ababa, Ethiopia (Tel. +251 1 620 996 – Fax +251 1 620 995 – Email: mulukenm@telecom.net.et ; wondu@telecom.net.et)

Dr Mohammed Babar QURESHI, Director Academics, **Pakistan Institute of Community Ophthalmology**, Hayatabad Medical Complex, PO Box 125, Peshawar, Pakistan (Tel. +92 91 921 73 76 – Fax +92 91 921 74 13 – Email: cbmpak@pes.comsats.net.pk)

Dr Peter RENEW, Head of Program Support, **Sight Savers International**, Grosvenor Hall, Bolnore Road, Haywards Heath, West Sussex RH16 4BX, United Kingdom (Tel +44 1444 446 600 – Fax +44 1444 446 677 – Email: prenew@sightsavers.org)

Dr Joe de Graft RIVERSON, Executive Director for Donor Relations and Trachoma Programme Coordinator, **World Vision US**, 34834 Weyerhaeuser Way South, MS 400 Federal Way, PO Box 9716, Washington 98063-9716, USA (Tel. +1 253 815 2156 – Fax +1 253 815 3447 – Email: jriverso@worldvision.org)

Dr Gabriel TORRES LOPEZ, **ACASAC**, Calle Chihuahua No. 18, Fracc. La Ventana, Barrio San Ramón, C. P. 29240, San Cristóbal de las Casas, Chiapas, **Mexico** (Tel./Fax + 52 1 9 674 5079 – Email: OMIECH@laneta.apc.org; acasac@prodigy.net.mx)

Dr James Alan ZINGESER, Senior Epidemiologist, **The Carter Center**, One Copenhill, 453 Freedom Parkway, Atlanta, GA 30307, USA (Tel. +1 404 420 3854 – Fax +1 404 874 5515 – Email: jzinges@emory.edu)

Observers

Dr Charles KNIRSCH, Senior Medical Director, **Pfizer Inc.**, 235 East 42nd Str., MS: 18-A, New York, N.Y., USA/EU (Tel + 1 212 733 4231 – Fax + 1 212 973 7379 – Email: Charles.knirsch@pfizer.com)

Dr Heather LAUVER, Corporate Philanthropy, **Pfizer Inc.**, 235 East 42nd Street, New York, N.Y. 10017, USA (Tel. + 1 212 733 3416 – Fax + 1 212 573 2883)

Ms Paula LUFF, Assistant Director, International Philanthropy, **Pfizer Inc.**, 235 E. 42nd Street, 11th floor, New York, N.Y., USA (Tel. + 1 212 573 2932 – Fax + 1 212 573 2883 – Email: Paula.Luff@Pfizer.com)

Dr Liisa PARKKALI, Managing Director, **Medibalance Ltd**, Lankoorintie 161 B, Luvia, FIN 29100 (Tel. 358 40 54 49 33 Email: liisa.parkkali@medibalance.inet.fi)

Dr Sarah POLACK, **London School of Hygiene and Tropical Medicine (LSHTM)**, Keppel Street, London, WC1E 7HT, United Kingdom (Tel: +44(0)207 927 2336 / Email: sarah.polack@lshtm.ac.uk)

Secretariat

MS LUCIE BARBIN, Secretary, Prevention of Blindness and Deafness, Management of Noncommunicable Diseases, World Health Organization, 1211 Geneva 27, Switzerland (Tel +41 22 791 1823 – Fax +41 22 791 4772 – Email: barbinl@who.int)

DR ABDUL HANNAN CHOUDHURY, Medical Officer, Control and Prevention of Blindness (CBP) Department of Health Protection and Promotion (DHP), Regional Office for the Eastern Mediterranean (**EMRO**), WHO Post Office, Abdul Razzak Al Sanhoury Street, Nasr City, Cairo 11371 Egypt (Tel. 202 670 25 35 – Fax. 202 670 2492 – Email. choudhurya@emro.who.int)

Dr Denis DAUMERIE, Strategy Development and Monitoring for Eradication and Elimination, Prevention & Eradication, World Health Organization, 1211 Geneva 27, Switzerland (Tel. +41 22 791 2534 – Fax. +41 22 7914777 – Email: daumeried@who.int)

Dr (Ms) Olive Chifefe KOBUSINGYE, Regional Advisor, RA/DPR, a.i., WHO/AFRO, Box 6, Brazzaville, Congo (Tel + 47 241 39371 – Fax + 47 241 39514 – Email: kobusingyeo@afro.who.int)

MR MARC MALU, Clerk, Prevention of Blindness and Deafness, Management of Noncommunicable Diseases, **World Health Organization**, 1211 Geneva 27, Switzerland (Tel +41 22 791 2606 – Fax +41 22 791 4772 – Email: malum@who.int)

Dr Silvio P. MARIOTTI, Medical Officer, Prevention of Blindness and Deafness, Management of Noncommunicable Diseases, World Health Organization, 1211 Geneva 27, Switzerland (**CO-SECRETARY**) (Tel +41 22 791 3491 – Fax +41 22 791 4772 – Email: mariottis@who.int)

MS GLADYS PENA, Secretary, Prevention of Blindness and Deafness, Management of Noncommunicable Diseases, World Health Organization, 1211 Geneva 27, Switzerland (Tel +41 22 791 2606 – Fax +41 22 791 4772 – Email: penag@who.int)

Dr Serge RESNIKOFF, Coordinator, Prevention of Blindness and Deafness, Management of Noncommunicable Diseases, World Health Organization, 1211 Geneva 27, Switzerland (**SECRETARY**) (Tel +41 22 791 2652 – Fax +41 22 791 4772 – Email: resnikoffs@who.int)

DR JUAN CARLOS SILVA, Regional Adviser, Blindness Prevention, Organización Panamericana de la Salud, (AMRO/PAHO), Carrera 7, No. 74-21, Piso 9, Bogotá, B.C. Colombia (Tel + 57 1 347 83 73 / + 57 1 254 70 70 – Email: juanca@col.ops-oms.org)

Dr Madan UPADHYA, Regional Adviser, Disability, Injury Prevention and Rehabilitation, **WHO/SEARO**, Mahatma Gandhi Road, New Delhi 110002, India (Tel. +91 11 23 37 08 04 – Fax +91 11 23 37 01 97 – Email: upadhyam@whosea.org)

ANNEX 3: SUPPLEMENTARY TABLES

Revisions to update the data further are welcomed.

DATA RELATING TO THE COUNTRIES OF WORKING GROUP ONE

Country	Total population (2002)	TF/TI cases (all ages)	TT cases (using correction factors for >14 years)	UIG "A" component in areas of high endemicity	UIG "A" component in areas of low endemicity	UIG "S" component
Burkina Faso	12 624 328	1 195 699	213 028	10 351 949	-	202 676
Chad	8 347 705	1 016 889	69 747	7 703 262	-	62 044
Guinea Bissau	1 448 879	31 548	5531	-	94 645	4766
Guinea	8 359 030	267 919	21 770	2 163 317	-	19 606
Mali	12 622 744	1 352 706	75 154	8 722 316	-	66 432
Morocco	30 071 708	17 134	15 407	-	51 402	15 407
Mauritania	2 807 138	154 442	2836	2 807 138	-	29
Niger	11 544 151	2 042 055	76 262	10 205 029	-	66 057
Senegal	9 854 662	357 191	75 639	-	1 071 573	65 784

DATA RELATING TO THE COUNTRIES OF WORKING GROUP TWO

Country	Total population (2002)	TF/TI cases (all ages)	TT cases (using correction factors for >14 years)	UIG "A" component in areas of high endemicity	UIG "A" component in areas of low endemicity	UIG "S" component
Afghanistan	22 930 033	217 457	133 100	-	652 371	123 300
India	1 049 549 474	1 141 300	2 668 000	-	3 423 900	2418 000
Egypt	70 507 406	381625	68040	3 500 000	-	64540
Yemen	19 315 334	204 984	19230	1500000	-	17730
Nepal	24 608 866	445968	52632	6000000	-	46632
Pakistan	149 910 783	272677	16374	818030	-	2374
Oman	2 768 286	172	2115	-	517	2025
Sudan	32 878 228	3 614 367	693 895	32 878 228	-	661017

DATA RELATING TO THE COUNTRIES OF WORKING GROUP THREE

Country	Total population (2002)	TF/TI cases (all ages)	TT cases (using correction factors for >14 years)	UIG "A" component in areas of high endemicity	UIG "A" component in areas of low endemicity	UIG "S" component
Australia	19 543 961	7997	1090	121669	-	969
Brazil	176 257 327	1 064 218	26 817	-	3 192 654	26 817
Cambodia	13 809 532	1 295 839	98 192	11 392 864	-	86 799
China	1 302 307 069	26 917 240	3 080 352	137 718 251	18 778 508	2 746 211
Lao PDR	5 529 203	238 716	18 032	2 094 768	-	15 937
Mexico	101 965 013	116	357	-	347	224
Myanmar	48 852 484	68 910	16 937	-	206 729	0
Viet Nam	80 278 208	462 850	142 282	-	1 388 551	130 554

