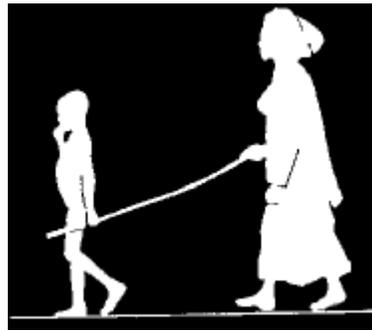


SUMMARY PROCEEDINGS

**FOURTH ANNUAL PROGRAM REVIEW OF CARTER CENTER-ASSISTED
TRACHOMA CONTROL PROGRAMS**

Increase Clean Faces! Decrease Flies!



**The Carter Center
February 24 –25, 2003**

**Funded by:
Conrad N. Hilton Foundation
Lions Clubs International Foundation**

THE
CARTER CENTER

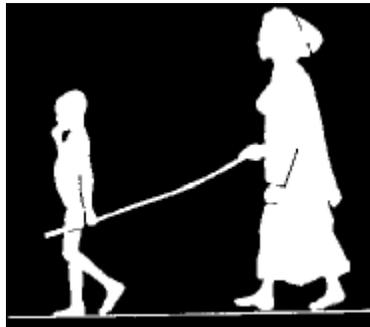
cnhf



SUMMARY PROCEEDINGS

**FOURTH ANNUAL PROGRAM REVIEW OF CARTER CENTER-ASSISTED
TRACHOMA CONTROL PROGRAMS**

Increase Clean Faces! Decrease Flies!



**The Carter Center
February 24 -25, 2003**



Increase Clean Faces!



Decrease Flies!

ACKNOWLEDGEMENTS

The Carter Center's Trachoma Control Program is funded through generous grants from the Conrad N. Hilton Foundation and the Lions Clubs International Foundation (LCIF). The fourth annual Program Review for Carter Center-assisted trachoma control programs was made possible through the generosity of the Hilton Foundation, LCIF and Novartis Ophthalmics, North America.

The individuals below assisted with the preparation of these proceedings. Their contribution and support are gratefully acknowledged.

Ms. Misrak Makonnen	The Carter Center
Ms. Robin Poovey	The Carter Center
Dr. Mamadou Diallo	The Carter Center

Note:

Inclusion of information in the Trachoma Program Review Proceedings does not constitute "publication" of that information.

EXECUTIVE SUMMARY

The fourth annual Program Review for Carter Center-assisted trachoma control programs was held on February 24-25, 2003 at The Carter Center's headquarters in Atlanta. The theme of the meeting once again was: ***Increase Clean Faces, Decrease Flies!*** As in previous years, the objectives of the Program Review were to assess the status of each national trachoma control program, identify challenges encountered in creating national trachoma control programs, assess impediments and problems in program implementation and discuss solutions, as well as to promote sharing and standardization of information. In this, our fourth year together, special attention was given to standardization of indicators for monitoring and evaluation and establishing ***ultimate intervention goals*** (UIGs) for trachoma control programs. Special presentations were given on school health, latrine promotion and data collection.

National and regional trachoma control program coordinators representing the ministries of health of Ethiopia, Ghana, Mali, Niger and Sudan attended. In addition, The Carter Center's resident technical advisors and country representatives from Ghana, Ethiopia, Mali, Niger, Nigeria and Sudan participated in the meeting. Representatives of the Conrad N. Hilton Foundation, Lions Clubs International Foundation (LCIF), Pfizer Inc, University of Durham, Helen Keller Worldwide (HKW), the International Trachoma Initiative (ITI), World Vision International, the U.S. Centers for Disease Control and Prevention (CDC) and the London School of Hygiene and Tropical Medicine also participated.

Each country team gave presentations on the current status of their regional or national trachoma control program and plans for the next year, followed by open discussions. This year, the country program presentations were again split in two: Facial hygiene and Environmental improvement (***F&E***) components were discussed on the first day, Surgery and Antibiotics (***S&A***) on the second. This structure has been very effective in focusing participants' attention on each aspect of the SAFE strategy, and encouraging in-depth and balanced examination of each national program. The presentations included epidemiological data and sociological studies on trachoma in each country, and an update on the status of program interventions being undertaken. Plans for monitoring and evaluation of the programs and program partnerships with other ministries and international development organizations were also presented. Discussions included successes, constraints, and challenges of the country programs.

There were tangible improvements in the quality and quantity of data presented in the 2003 Program Review. This was especially apparent for data on F&E, which led to enthusiastic and interesting in-depth discussions of challenges and successes in implementing hygiene improvements to control blinding trachoma. It is noteworthy that several programs are clearly moving toward documenting the impact of F&E activities. Two of the most significant accomplishments of the fourth annual program review were that each program director agreed to standardize reporting of program activities in 2003 and to estimate UIGs for their programs. The products of both of these efforts (standardized reports and estimated UIGs) will be presented at the 2004 Program Review

meeting in Atlanta. In this way, the participating national trachoma control programs will create new tools for planning and implementing the SAFE strategy, including managing campaigns for clearing the backlog of uncorrected trichiasis and mass antibiotic treatment in each region.

Recommendations for each of the countries on how to improve their trachoma control efforts were proposed and discussed by all participants. Recommendations are presented here on a country-by-country basis, but one general recommendation was unanimously and enthusiastically adopted: The participants wished Dr. Joseph Cook all the best on his retirement from the International Trachoma Initiative, and to thank him for his decades of commitment to tropical disease research and control, and especially for his leadership in the creation of the SAFE strategy and the ITI.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	iii
EXECUTIVE SUMMARY.....	iv
ACRONYMS.....	vii
INTRODUCTION.....	viii
GHANA TRACHOMA CONTROL PROGRAM.....	1
MALI TRACHOMA CONTROL PROGRAM.....	8
NIGER TRACHOMA CONTROL PROGRAM.....	12
SUDAN TRACHOMA CONTROL PROGRAM.....	15
ETHIOPIA TRACHOMA CONTROL PROGRAM.....	24
NIGERIA TRACHOMA CONTROL PROGRAM.....	30
SUMMARY TABLES AND GRAPHS.....	34
TIME.....	40
SCHOOL HEALTH.....	42
PROGRAM INDICATORS.....	44
LIONS MIDTERM EVALUATION.....	47
LATRINE PROJECT.....	49
APPENDIX I: THE DISEASE.....	51
APPENDIX II: PROGRAM REVIEW AGENDA.....	52
APPENDIX III: LIST OF PARTICIPANTS.....	54

ACRONYMS

ADRA	Adventist Development and Relief Agency
ATO	Annual Treatment Objective
CBM	Christoffel Blindenmission
CDC	U.S. Centers for Disease Control and Prevention
CMA	Christian Mission Aid
FGD	Focus group discussions
FMOH	Federal Ministry of Health
GOS	Government of Sudan
GRBP	Global 2000 River Blindness Program
HKI	Helen Keller International
ITI	International Trachoma Initiative
KAP	Knowledge, Attitudes, and Practices
LGA	Local Government Area
MOH	Ministry of Health
NGO	Non-Governmental Organization
NPPB	National Program for the Prevention of Blindness
NR	Northern Region (Ghana)
OLS	Operation Lifeline Sudan
PHC	Public Health Centers
SAFE	Surgery, Antibiotics, Face Cleansing & Environmental Improvement
SF	SightFirst
TCP	Trachoma Control Program
TRA	Trachoma Rapid Assessment
TF/TI	Trachomatous inflammation-Follicular/Intense
TT	Trachomatous Trichiasis
UIG/UTG	Ultimate Treatment/Intervention Goal
UWR	Upper West Region (Ghana)
WHO	World Health Organization
WVI	World Vision International

INTRODUCTION

Four Years of Program Reviews: Progress from 2000 through 2003

The Carter Center Trachoma Control Program began in 1998 with a generous grant from the Conrad N. Hilton Foundation which funded partnerships with national and regional trachoma control programs in Ghana, Mali, Niger, Yemen and Nigeria. In 1999, thanks to the Lions-Carter Center SightFirst Initiative, the Center expanded its trachoma control partnerships to include Ethiopia and Sudan. The Carter Center works directly with national and regional governments, local Lions Clubs and other partner organizations to achieve control of trachoma through community-based interventions, operations research, and advocacy. The national trachoma control programs of Mali, Niger, Sudan and Ghana benefited from donations of Zithromax from Pfizer Inc through the International Trachoma Initiative in 2002.

Carter Center partnership with the government of Yemen led to that country's first community-based trachoma prevalence surveys, done in four governorates in 2000-2001. Unfortunately, difficulties in communications and logistical coordination resulted in suspension of Carter Center support for the Yemen Trachoma Control Program in 2002.

One of the guiding principles of The Carter Center is to work **in partnership** to help implement health programs. The Center works closely with ministries of health, particularly with regional and national coordinators of trachoma control programs. The Center also collaborates with other international organizations and programs working in trachoma control such as the West Africa Water Initiative (WAWI), Christoffel Blindenmission (CBM), Sight Savers International (SSI), the World Health Organization (WHO), ORBIS, International Trachoma Initiative (ITI), Helen Keller Worldwide (HKW), the London School of Hygiene and Tropical Medicine and World Vision International (WVI). The Conrad N. Hilton Foundation and Lions Clubs International Foundation are the primary donors supporting The Carter Center's trachoma control activities.

Based on experience gained in its Guinea Worm Eradication and River Blindness Control Programs, The Carter Center focuses on health education and community mobilization – enabling and encouraging people to help themselves. In trachoma control, the Center assists ministries of health with an emphasis on the “F&E” components of the SAFE strategy. The Center also assists national trachoma control programs to do epidemiological, sociological and operations research, including prevalence surveys, rapid assessments and knowledge, attitudes and practices (KAP) studies to obtain information on trachoma and use that information for management.

The Carter Center began facilitating annual program review meetings as part of the Guinea Worm Eradication Program. Guinea worm program reviews became a significant component of the eradication effort, bringing national program coordinators together to discuss pertinent issues with their peers, setting standards and solving problems. Major donors and implementing partners also attend program review meetings, deepening their insights and opening doors for expanding effective partnerships. This concept has also

been applied successfully to the Global 2000 River Blindness Program and, since 2000, to the Trachoma Control Program.

The proceedings from previous Trachoma Control Program Review meetings document the great progress participating trachoma control programs (TCPs) have made. The executive summary of the first Summary Proceedings ended with the following statement:

Since this was the first such annual Program Review to be held for these trachoma control programs, which are all just getting underway, the available data were limited, but a solid beginning was made. These Proceedings provide a record to help document the maturation and future accomplishments of these programs.

Summary Proceedings, First Annual Program Review of Carter Center-Assisted Trachoma Control Programs, 2000, page 3.

In the first year (2000), only two trachoma control programs had national baseline data and interventions were poorly quantified. There were no reports of F&E activities, and denominators (annual targets) were few. A comparison of the 2000 summary tables (below) with the summary tables from this Program Review (2003) is a dramatic record of the accomplishments of the participating trachoma control programs.

In the second Program Review (2001), there were more prevalence data and better treatment data for surgery and antibiotics when compared with the previous year. However, there were still no quantitative F&E data. During that review meeting, standardized indicators for monitoring interventions were introduced and programs were encouraged to develop regular data reporting and line listings. At the 2001 meeting, none of the national trachoma control programs presented denominators – there were no targets. The development of *annual targets* and use of denominators in monitoring and evaluation indicators became important themes for the coming years.

By the third Program Review meeting (2002), the program directors had set annual targets, which was a great leap forward. National programs now had standards by which progress would be measured. These denominators gave deeper meaning to data on interventions, allowing programs to measure progress over the past year, and showed that program managers were carefully planning the direction of their programs for the year to come. The next step is to carefully plan the direction of programs over the *years* to come – that is, setting *ultimate intervention goals*.

In this year's Program Review, *ultimate intervention goals* (UIGs) were introduced. UIGs estimate the needs of trachoma control programs throughout entire trachoma-endemic areas, be they nations or states. This will allow program directors to plan activities over many years and then measure progress against a long-term standard. The simplest example of the need for UIGs is planning to eliminate the backlog of uncorrected trichiasis cases. It is meaningful when a national program reports the number of surgeries done over a one-year period measured against the *annual target*. However, it is more meaningful to measure the number surgeries done against the *ultimate number of surgeries necessary* to eliminate uncorrected trichiasis (i.e., the UIG

for “S”). The first comparison tells program managers how well they met an arbitrary objective for one year, usually based on estimated capacity. The second comparison tells program managers how much progress has been made toward meeting the GET 2020 goal of eliminating trachomatous trichiasis.

Over the past four years, participating national and regional trachoma control programs have matured greatly, first collecting and using epidemiological and sociological data, then developing monitoring and evaluation tools based on annual targets. This year, the national program directors participating in the Program Review committed their programs to the challenges of standardizing reporting and developing UIGs. The fourth annual Program Review of Carter Center-Assisted Trachoma Control Programs is another milestone in trachoma control.

**Summary tables from the first annual Program Review for Carter Center-assisted
Trachoma Control Programs, February 10-11, 2000, Atlanta**

**Trachoma Control Program Review 2000
Prevalence Data of Trachoma**

Country	Total Population	National Prevalence		Regional Prevalence		Notes
		TF/TFI	TT	TF/TFI	TT	
Mali	10,000,000	35% (1,350,000)	2.5% (85,700)	-	-	TFTI for < 10yrs TT for woman >15yrs
Ethiopia	61,000,000	-	-	-	-	
Ghana	18,000,000	-	-	-	-	TRA in two regions
Sudan	30,000,000	-	-	Malakal - 45% Halfa - 47%	10% 2.4%	TFTI for 1-10yrs TT for women > 30yrs
Niger	10,000,000	38% (1,321,468)	1.4% (68,299)	-	-	TFTI for < 10yrs TT for women >=15yrs

Antibiotics	Ghana	Mali	Niger	Sudan	Ethiopia
Azithromycin					
Treatment (1999)	0	0	0	0	0
Target Population	-	800,000 ¹	-	-	-
Percentage Coverage	-	-	-	-	-
Tetracycline Ointment					
Treatment (1999)	yes	yes	yes	yes	yes
Target Population	-	-	-	-	-
Percentage Coverage	-	-	-	-	-
Surgery					
Surgeries in 1999	120 ²	1,500 ²	704 ²	-	-
Target Population	-	85,700	68,299	-	-
Percentage Coverage	-	-	-	-	-

¹ for Koulikoro Region (year 2000)
550,000 <10% in Koulikoro Region

² Program Estimate

Ghana Trachoma Control Program

Presented by Dr. Maria Hagan, National Eye Care Coordinator & Dr. Daniel Yayemain, Trachoma Program Manager, Ghana. Carter Center assistance to Ghana is funded by the Conrad N. Hilton Foundation.

Background

Trachoma is the third leading cause of blindness in Ghana, following cataract and glaucoma. Blinding trachoma is most prevalent in the hot and dry areas of the northern part of the country, especially in the Northern and Upper West Regions (NR and UWR) (see maps). A trachoma rapid assessment (TRA3) was done in July 1999 with support from the national Trachoma Task Force, CBM and The Carter Center, using a modified WHO methodology. The TRA3 established that blinding trachoma exists in the NR and UWR and helped to prioritize trachoma-endemic villages for treatment and prevention activities. In March 2000, The Carter Center assisted the National Trachoma Control Program to do the first population-based trachoma prevalence survey in the Upper West and Northern Regions. Subsequently, other prevalence surveys and rapid assessments have been done by the Ghana TCP to map trachoma in the NR and UWR.

The Carter Center also provided technical and financial support for Ghana's first knowledge, attitudes and practices (KAP) studies in the UWR (December 1999) and NR (July 2000) utilizing household surveys, focus group discussions and direct community observations. The results of these studies were used during MOH program planning workshops in October 2000 and January 2001 in which district and regional plans for trachoma control were established.

The Ghana TCP is a regional program operating in two districts of the Northern and three districts in the Upper West Regions. The target districts have a population of 887,587 persons in 1,126 communities. The National Trachoma Control Task Force oversees TCP activities at the national level. This task force includes both governmental and non-governmental organizations working in trachoma control. In each trachoma-endemic region, a Regional Task Force plans, supervises and monitors trachoma control activities. It reports to the National Trachoma Control Task Force and provides feedback to the districts and other partners. A similar structure exists at the district level, which works closely with frontline workers to implement the SAFE strategy in 234 target communities.

In 2001, the Ghana TCP launched hygiene improvement campaigns in trachoma-endemic communities, training of 880 frontline workers including teachers, environmental health officers, community health workers and village volunteers. Social mobilization activities included one-on-one and group health education presentations and discussions, radio broadcasts and discussion programs, mobile video shows, community theater and durbars. In addition, 304 trichiasis surgeries were done and 71,438 people were treated with azithromycin.

Program Achievements in 2002

Hygiene Education, Face Washing and Environmental Sanitation (F&E)

In 2002, the Ghana TCP implemented the “F” and “E” components of the SAFE strategy in 234 villages (84% of annual target). ***A total of 1,365 frontline workers of which 623 live in the communities were trained to do F&E activities in trachoma-endemic communities.*** Health education by these frontline workers was done in communities and schools using posters, pictures and theater. In addition, with support from the BBC World Service Trust, local radio stations developed and broadcast trachoma jingles and radio spots throughout the year. Over 2,500 jingles were broadcast delivering simple and captivating messages in the principal local languages. These broadcasts helped intensify health education activities by creating awareness beyond the reach of frontline workers and in communities outside the program’s target areas. Building on the mass media campaigns for trachoma control, The Carter Center assisted the TCP to launch pilot ***radio listening groups*** in 20 selected communities in Wa District of the Upper West Region. The groups were given Freeplay windup radios by The Carter Center and organized to discuss hygiene and health issues after listening to health broadcasts. If successful, the project will be expanded in 2003. ***Trachoma Awareness Week***, which was held in March in both regions, featured mini-durbars in 24 communities and radio broadcasts of health education messages by distinguished personalities. ***Latrine construction and installation of water points*** was also done in highly trachoma-endemic villages during the year supported by the ITI and The Carter Center. In all, 54 latrines were constructed and thirty-six water points were installed in 2002.

Hygiene and sanitation lessons learned in 2002 included:

- Trachoma-endemic areas have inadequate potable water and latrines.
- There is a lack of water containers in schools for hand and face washing.
- Although many community members are aware of face washing as a preventive measure, translating knowledge into behavioral change is difficult.
- Face washing is usually done as the first activity in the morning, but not any time the face is dirty
- Linkage of environmental improvement activities with other health activities, e.g., deworming, malaria and diarrhea control, and agricultural improvements facilitates adoption by communities.
- It is difficult to separate farmers from their cattle, so health messages should focus on keeping the environment clean at all times, not removing cattle.

Surgery (S)

In 2002, three ophthalmic nurses were trained to do trichiasis surgery (50% of annual target). The program provided eyelid surgery for 426 trichiasis patients in 2002 (85% of annual target). To evaluate the quality of trichiasis surgery, 34 of the 102 patients who had trichiasis surgery done in 2000 or 2001 were reexamined in August 2002. Eight (24%) of those patients had recurrence of trichiasis during the follow up period, suggesting that recurrence of trichiasis is a significant problem for the Ghana TCP.

Trichiasis surgery follow up study, Ghana, 2002

	No. operations	No. recurrences	Percent recurrence
Males	7	2	29%
Females	27	6	22%
Both	34	8	24%

Other lessons learned by the Ghana TCP in implementing S in 2002 were:

- All individuals undergoing surgery should be made to understand what to expect from the surgery.
- Advanced cases of corneal opacity should be made to understand that the surgery would only relieve pain but not restore sight.
- Patients become disappointed when scheduled surgeries are cancelled.
- Satisfied clients give good testimony that increase acceptance by communities around them.
- Eye camps are a good means of accelerating reduction of trichiasis backlog, as many cases are operated at the same time.

Antibiotics (A)

In 2002, the Ghana TCP treated 104,370 persons with Pfizer-donated Zithromax, (104% of their annual target and an increase of 68% over the number of persons treated in 2001). Another 6,624 persons were treated with tetracycline ophthalmic ointment. No adverse reactions were reported. Lessons learned in implementing A in 2002 included:

- Individual decisions to take or refuse drug should be respected.
- Timing of registration and distribution must be appropriate, taking into consideration key events like farming, festivals and market days.
- Good cooperation from volunteers in the community enhance antibiotic distribution

Program monitoring and evaluation

The Ghana TCP was quite active in 2002 assessing and evaluating the program to improve management and identify challenges. With the assistance of The Carter Center, the first follow-up trachoma KAP study was done in June - July 2002. An evaluation of the mass media campaign was also done in June, in cooperation with the BBC World Service Trust. In November - December, the London School of Hygiene and Tropical Medicine's Trachoma Initiative Monitoring and Evaluation (TIME) team visited program areas. The second annual Ghana TCP program review meeting was held in December in Wa district of the Upper West Region, allowing program personnel and partners to review the year's activities and plan for 2003.

KAP study

The follow-up KAP study was done to evaluate progress made compared with the baseline study done in the same regions in 1999-2000. The study showed significant improvement in knowledge about trachoma transmission and prevention, however, it also suggested that there are still gaps in trachoma knowledge, particularly in the relationship between trachoma and

trichiasis; that general hygiene in households, compounds and communities still needs improvement; and that the program must intensify house-to-house inspection and strengthen monitoring and supervision.

Evaluation of mass media campaign

This study evaluated mass media campaign coverage, quality and impact. The study found that most respondents had heard about trachoma and trachoma radio spots. Almost 80% had heard trachoma jingles on the radio and 44% were able to sing at least one of the jingles. These results suggest that dissemination of health messages through mass media communication is effective and acceptable.

TIME evaluation

The Ghana TCP, in collaboration with the TIME team evaluated the entire national program to identify achievements and challenges, identify future priorities for stakeholders, and identify areas for improvement. The team recommended that the Ghana TCP assess the burden of trachoma throughout the Upper West and Northern Regions, evaluate trachoma in treatment communities after three rounds of annual azithromycin treatments to determine the need to continue or discontinue treatment campaigns, and to strengthen advocacy and networking to promote and implement the F & E interventions.

Expansion plan

To facilitate expansion of the TCP to include other trachoma-endemic communities in 2003, the Ghana TCP did a trachoma prevalence survey of 216 communities in the Northern and Upper West Regions. The study identified 17 communities where TF among children aged one to nine years was 20% or greater, and 82 communities where TT in persons forty and older was at least one percent. Based on these findings, the program will plan its expansion in 2003.

Targets for 2003

- Expand program to include 391 communities (from 234).
- Build 700 more latrines.
- Construct 50 new water sources.
- Intensify health education.
- Strengthen the School Health Program.
- Train 60 general nurses in primary eye care.
- Train new 12 new TT surgeons.
- Do 1,100 TT surgeries.
- Re-treat 104,000 persons and treat 36,000 persons with azithromycin.

Recommendations

The Ghana TCP should:

- Standardize indicators for reporting program interventions.
- Determine ultimate intervention goals for all components of the SAFE strategy.
- Establish ongoing monitoring and evaluation of post-operative trichiasis patients and do a large scale study of trichiasis surgical outcomes.

Summary of Trachoma Control Interventions in 2002 (January - December)
Ghana Trachoma Control Programme

DISTRICT	Wa	Sissala	Tamale	Savelugu	Tolon/Kum bugu	Other Districts	Summary
F & E Intervention villages							
Number of trained volunteers	92	9	28	40	64		233
Number of trained health workers	138	13	28	167	296		642
Number of trained teachers	62	34	20	105	37		258
Number of Environmental Health Workers	122	18	36	108	106		390
Others (Traditional Birth Attendance)	32	14	6	15	8		75
	0	0	0	0	90		90
Health education materials available	Yes	Yes	Yes	Yes	Yes		Yes
Number of villages receiving health education	92	9	28	40	64		233
% Coverage (villages with Health education)	100	100	100	100	100		100
Latrine constructed in 2002	35	2	1	2	0		40
Target for latrine construction in 2002	30	10	10	10	10		70
% Coverage (# of constructed latrines)	117	20	10	20	0		57
Antibiotics							
Azithromycin*** intervention villages							
Treatment (2002)	92	9	28	40	64		233
Target Population	41043	7458	10985	17744	27140		104370
Number of people registered	50328	9237	11255	20267	30390		121477
% Coverage of persons receiving Zithromax	52262	9237	14490	24511	30390		130890
	81.6	80.7	97.6	87.6	89.3		85.9
Tetracycline Oint.							
Treatments (2001)	1934	1370	723	1412	1139		6578
Target Population	4181	926	1159	1961	2431		10658
% Coverage	46	148	62	72	47		62
Surgery							
Surgeries (2002)*	96	22	55	70	120	64	427
Target Population	100	100	100	100	100		500
Coverage (%)	96	22	55	70	120		85
Number of trichiasis surgeons trained	3	0	0	0	0		3
Target number of trichiasis surgeons	6	0	0	0	0		6
Coverage (%)	-	-	-	-	-		-

* Additional surgery conducted at
 ** Knowledge, attitudes and practices study
 *** Zithromax available only for

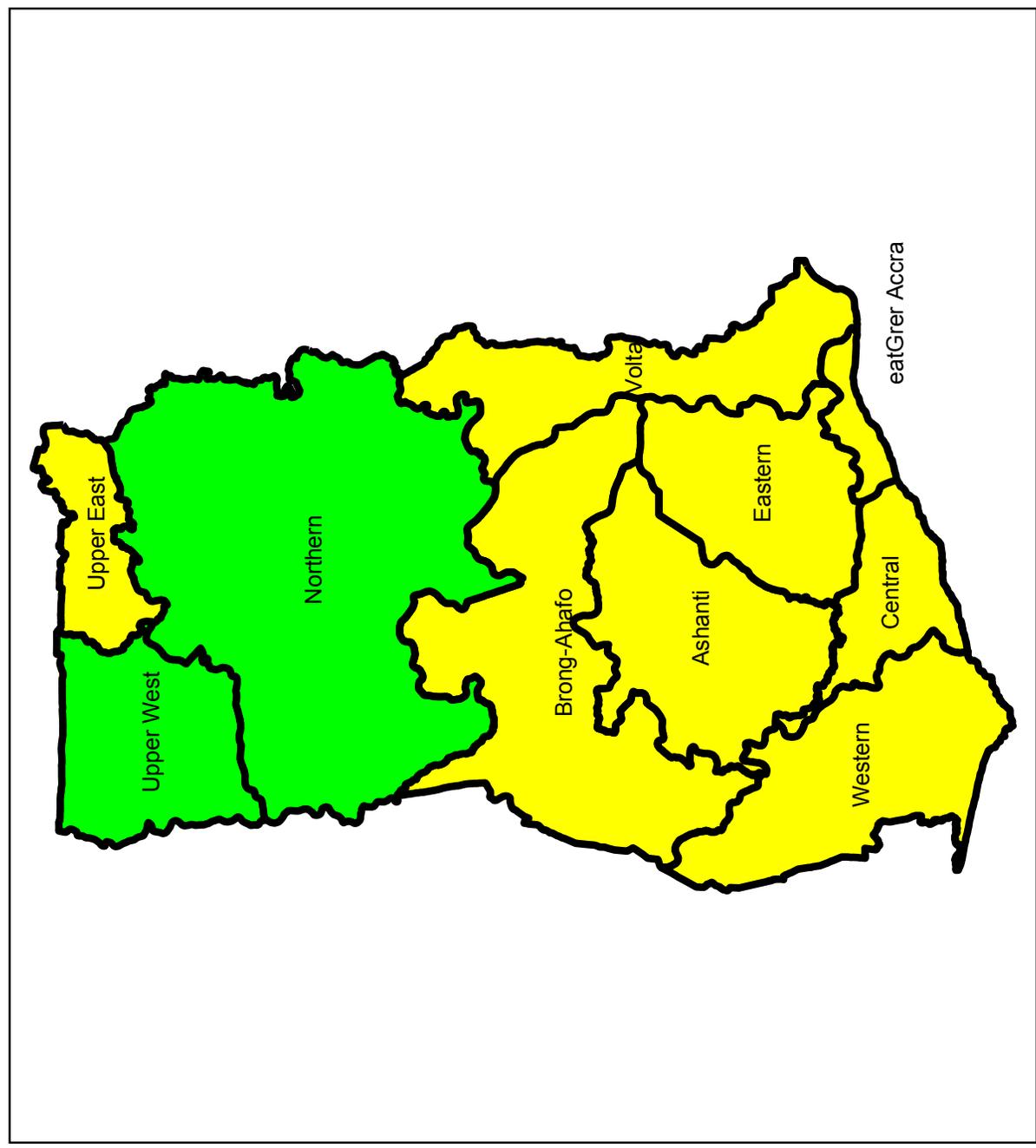
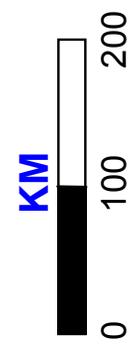
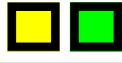
MAP OF GHANA

SHOWING TRACHOMA CONTROL REGIONS

Key
Regions

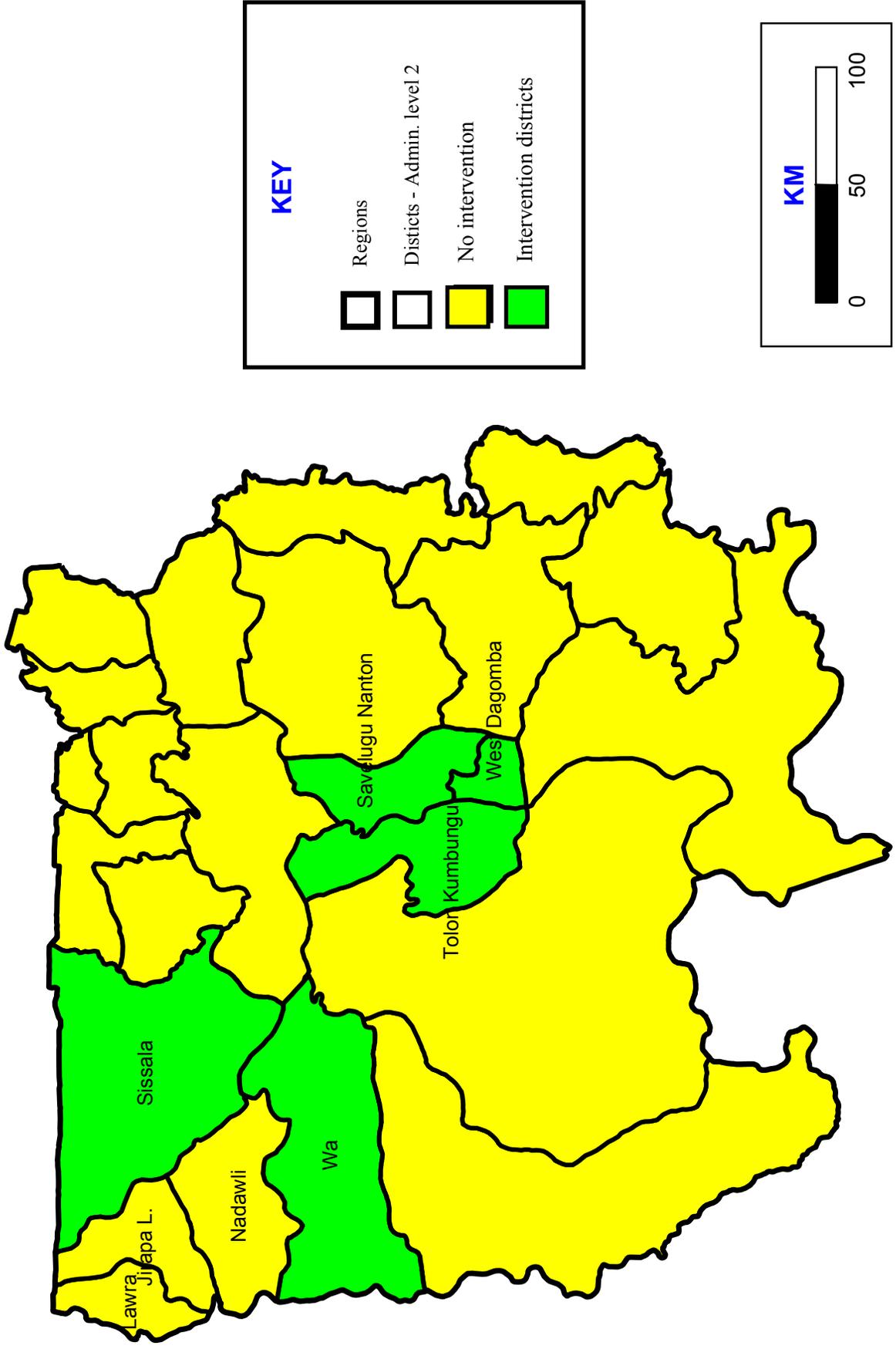


No intervention
Intervention



MAP OF NORTHERN GHANA

SHOWING THE DISTRICTS WITH TRACHOMA CONTROL ACTIVITIES



Mali Trachoma Control Program

Presented by Dr. Doulaye Sacko, National Coordinator, National Prevention of Blindness Program, Mali Ministry of Health. Carter Center assistance to Mali is funded by the Conrad N. Hilton Foundation.

Background

Blindness is a major public health problem in Mali. Surveys on blindness between 1980 and 1990 showed the major causes of blindness to be cataract (45%), trachoma (25%), and glaucoma (9%). The National Prevention of Blindness Program was established in 1994 and a trachoma component was added two years later. The first national trachoma prevalence survey was done in 1996-1997. Data showed that trachoma is endemic in each region of Mali. The overall prevalence of active trachoma (TF/TI) in children under 10 years of age was 35% and trichiasis among women over 15 years of age was 2.5% (see maps). The Mali Trachoma Control Program estimated that 85,000 individuals need surgery for trichiasis.

Knowledge, attitudes, and practices (KAP) surveys were done in 1996 and 2000 in the Koulikoro Region. They provided the national program with baseline sociological data for the development of health education strategies and materials. In October 1999, the Mali Trachoma Control Program was launched in Koulikoro in an official ceremony with the former head of state General Amadou Toumani Touré, now president of Mali, former U.S. President Jimmy Carter, and then Lions International President Jim Ervin.

Program achievements in 2002

Facial hygiene and environmental improvement (F&E)

In order to reach persons at risk for trachoma outside of areas with trained health educators, in 2002 the Mali TCP used **mass media campaigns (radio and television)** to broadcast general information about trachoma.

In September 2002, with support of The Carter Center, the program **assessed the status of TCP activities being done and needs for intervention in 381 villages in the Ségou Region**. The survey found that the main source of trachoma information for 35% of these villages was from national and local radio stations. In 85% of the villages, the majority of households have latrines. In 97% of the villages, the principal water source is a traditional well. About 25% of the villages do not have access to safe water year-round. To strengthen and expand F&E activities in two districts of Ségou region, the Mali TCP is using this survey. Based on the survey, the Mali TCP also revised its estimated number of villages receiving regular trachoma health education from 2,800 to 383.

In December 2002, Johns Hopkins University did a **KAP survey to assess F&E activities** in the Kayes and Koulikoro Regions with financial support from the ITI. The survey found that 66% to 98% of the regions' households have latrines, and that latrines were used by 76% to 100% of all household members. The proportion of children washing their faces twice daily ranged from 24% to 56%. The results and recommendations of this survey will be key to developing a national TCP health education plan.

Surgery (S)

The Mali TCP has found that 62% of trichiasis patients have been identified during outreach surgery campaigns (eye camps). In order to reach a greater number of trichiasis patients, 15 trichiasis eye camps were held in Mali in 2002. **Approximately 4,150 trichiasis patients received eye lid surgery in 2002.** The available data on trichiasis surgery in Mali is limited by the fact that surgeries performed in health centers are seldom reported to the national TCP.

In examining surgical uptake by trichiasis patients in 2002, the program found that 20% to 30% refused surgery. The program conducted a study to assess why some patients were hesitant to undergo surgery. Preliminary results indicated that the main reasons for refusal were:

- Lack of understanding of the corrective surgical procedure,
- Belief that traditional methods of treatment will be adequate, and
- Lack of funds.

Antibiotics (A)

Antibiotic distribution represented one of the strongest components of the Mali TCP in 2002. The program trained 3,200 community workers to assist in community-based azithromycin distribution. A total of **750,000 persons (107.1% of the initial 700,000 targeted) received Pfizer-donated Zithromax** during mass treatment campaigns in four health districts. These campaigns targeted children from 1 to 15 years of age and non-pregnant women living in rural trachoma-endemic villages. At the same time, 30,000 tubes of tetracycline ophthalmic ointment were distributed to persons not eligible for azithromycin treatment. In addition, tetracycline ophthalmic ointment was available to trachoma patients all year through primary health care clinics. The Mali TCP plans to expand Zithromax treatments to include children 6 months to one year of age and pregnant women based on new information from the ITI.

Advocacy

On October 10, Mali celebrated World Sight Day for the third consecutive year. In 2002 the celebration was expanded into **Prevention of Blindness Week** (October 11-16). The overall goal of the week of activities was to increase public awareness of blindness and sensitize decision makers to the importance of blindness prevention programs, including trachoma. The theme for this year in French was *le Mal à perte de vue, à portée de soins*. The slogan for the week was *Let's not close our eyes to the blindness of others.*

Targets for 2003

F & E

- Launch household latrine construction in the Ségou Region.
- Improve F&E supervision and monitoring in intervention areas.

- Develop a national TCP health education plan.

Surgery

- Operate on 5,000 more trichiasis patients.
- Reinforce public awareness of trichiasis and its treatment.
- Increase trichiasis surgery done in health centers.
- Work to increase surgery uptake rate.

Antibiotics

- Expand Zithromax distribution to include 1,200,000 persons.

Monitoring and evaluation

- Monitor TCP activities in intervention regions.

Recommendations

The Mali TCP program should:

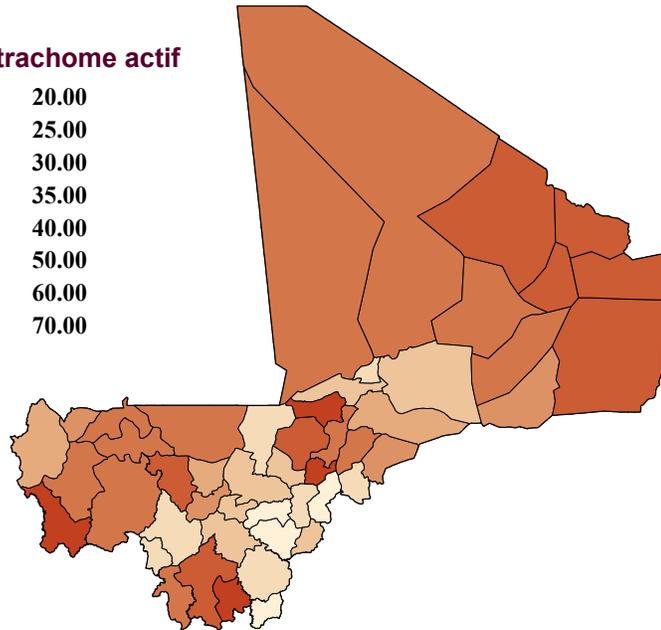
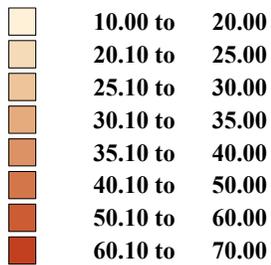
- Standardize indicators for reporting program interventions.
- Determine ultimate intervention goals for all components of the SAFE strategy.
- Finalize the five-year national plan of action (2003-2007) for trachoma control activities.
- Launch household latrine construction in the Ségou Region.
- Develop line listings for monitoring activities in program villages.
- Use Guinea worm volunteers for health education and surveillance activities in formerly Guinea worm-endemic villages.
- Conduct trachoma seasonality study.
- Rehabilitate 100 water sources in Kayes and Koulikoro Regions.

TRACHOME ACTIF PAR CERCLE AU MALI

ENQUETE NATIONALE SUR LE TRACHOME (1996)

Enfants de moins de 10 ans

Prévalence trachome actif

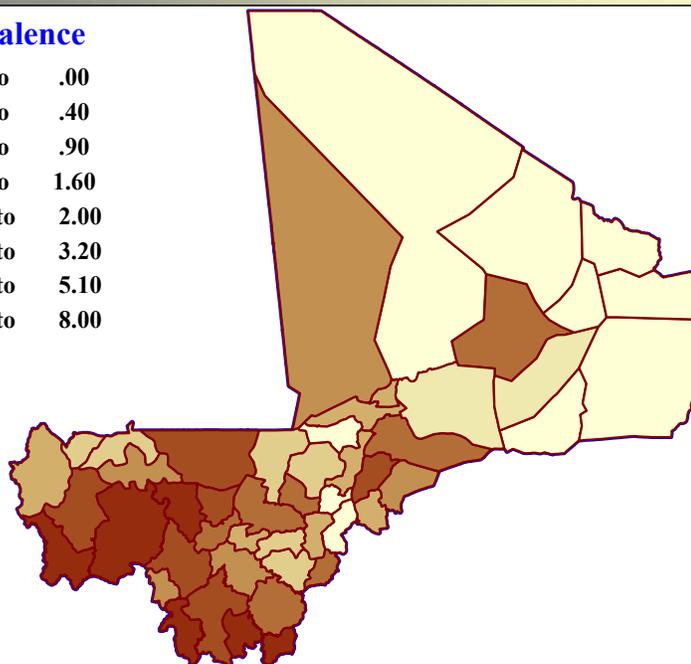
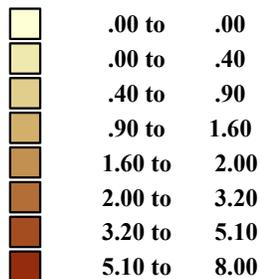


ENTROPION TRICHIASIS AU MALI

ENQUETE NATIONALE SUR LE TRACHOME (1996)

Femmes de plus de 14 ans

Prévalence



Niger Trachoma Control Program

Presented by Dr. Boubacar Kadri, Deputy Director, National Prevention of Blindness Program, Ministry of Health of Niger. Carter Center assistance to Niger is funded by the Conrad N. Hilton Foundation.

Background

Niger's National Prevention of Blindness Program (NPBP) was established in 1987. The Ministries of Health, Education, and Water & Social Development formed a National Trachoma Task Force in 1999. Representatives of partner health organizations including The Carter Center, local Lions Clubs, Helen Keller International, Christoffel Blindenmission, the Niger Association for the Blind, African Muslim Agency, and the World Health Organization are also Task Force members.

Trachoma prevalence surveys done in 1997-1999 with financial assistance from the European Union and The Carter Center found that an average of 44% of children under 10 years old had active trachoma (TF/TI) and 1.7% of women over 15 years old had trichiasis. Nationwide, an estimated 68,300 men and women needed trichiasis surgery. The highest prevalence of trachoma was identified in the Zinder, Diffa and Maradi Regions (see maps).

Program achievements in 2002

Throughout 2002, the Niger TCP implemented the SAFE strategy in the three most trachoma-endemic regions: Zinder, Diffa and Maradi

Facial hygiene and environmental improvement (F&E)

In 2002, to reach the targeted 276 villages, a total of **1,240 volunteers were trained** in TCP health education (no target was set), including community health workers and teachers from both public and Koranic schools. The program produced and distributed educational flip charts, games and posters. **Health education messages on trachoma were produced and broadcast** using public and private radio stations to reach persons at risk for trachoma throughout Niger. Other outreach activities, such as dramas, were performed by artists in villages and markets to reach those who might not have access to radio. The mass media campaign was done with support from the BBC World Service Trust.

The Zinder Region launched a community latrine promotion project in February in the Zinder Region with technical and financial assistance of The Carter Center and the International Trachoma Initiative (ITI). The project assisted villagers to **build 1,282 household latrines and 5 school latrines** in 50 villages (99% of annual target). To reduce the burden of water transportation and improve access to water in villages, fifty donkey carts were given to assist villagers. In addition, a total of **400 rural women were trained in traditional soap preparation** to promote better family hygiene. Traditional soap is made from readily available local materials: soda (made by filtering ashes through water), animal or plant oil, and water. Soap made in this way is affordable in the poorest of villages, and can even be used to generate income. (The Zinder project is discussed in detail in Mr. Kane's presentation "Zinder latrine promotion project, Niger".)

Surgery (S)

In 2002 a total of **4,592 patients received trichiasis surgery** (92% of annual target). Most (78%) of the operations were done during the trichiasis surgery camps where health services are provided free of charge in a location near to the patients. So far, these camps seem to be the most effective strategy for reaching trichiasis patients in rural villages. Eighteen outreach surgery camps were done in 2002. Trichiasis surgeries were also performed in integrated health clinics, but surgeons in clinics must charge for services as part of the national cost recovery policy. This has been a major constraint to uptake of trichiasis surgery in health care settings in 2002. In addition, the rate of reporting to the NPBP of trichiasis surgeries done in health clinics has been very poor.

Antibiotics (A)

With support from the ITI, the Niger TCP conducted its first mass distribution of Pfizer-donated Zithromax in 2002. A total of **95,000 women and children in highly trachoma-endemic villages received Zithromax** during mass treatment campaigns (95% of annual target). Tetracycline ophthalmic ointment was distributed to patients not eligible for Zithromax treatment.

Targets for 2003

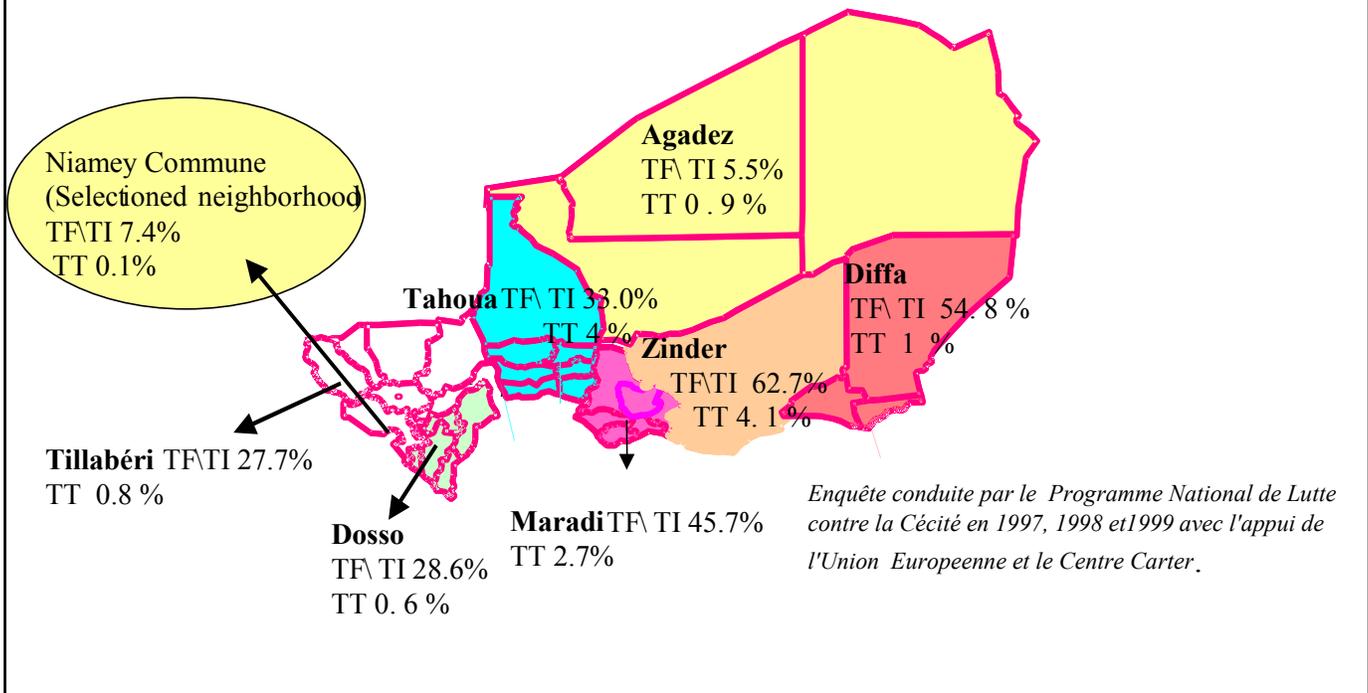
- Train 840 new community health workers, 490 public school teachers, 455 Koranic school teachers in TCP health education.
- Train 30 hygiene technicians and 30 health promoters in the SAFE strategy.
- Expand the mass media campaign by training 192 rural radio broadcasters and creating 180 radio listening clubs.
- Train 100 masons in latrine construction.
- Build 3,100 more household latrines.
- Train 90 more village women in traditional soap preparation.
- Train 60 additional trichiasis surgeons and 12 physicians as surgical supervisors.
- Continue outreach surgery camps and operate on 7,500 more trichiasis patients in 108 villages.
- Treat 784,000 women and children with azithromycin.

Recommendations

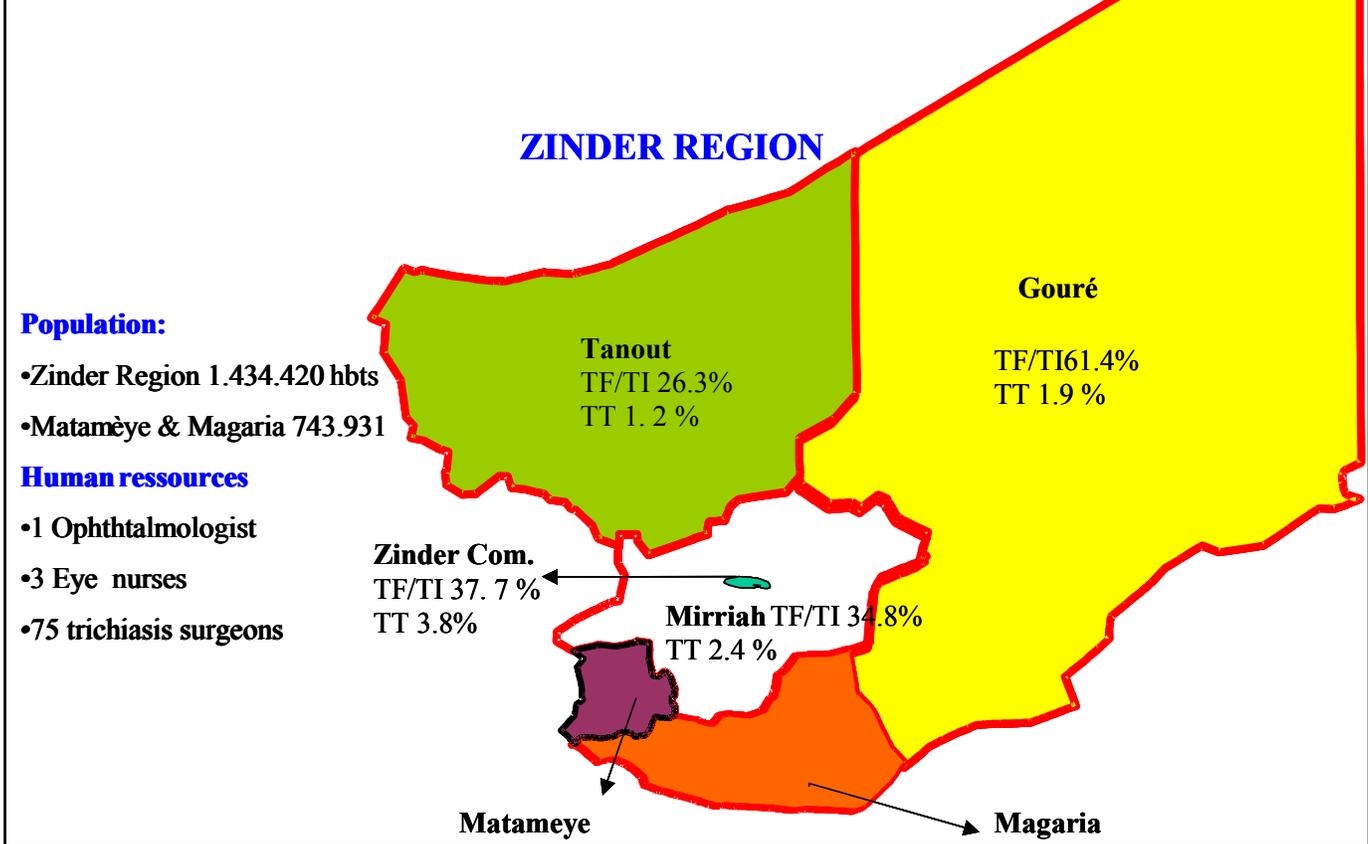
The Niger TCP should

- Standardize indicators for reporting program interventions.
- Determine ultimate intervention goals for all components of the SAFE strategy.
- Develop an action plan for trachoma control activities, including a monitoring and evaluation component with specific targets and benchmarks.
- Establish a surveillance system for the program in Zinder, Maradi and Diffa..
- Explore the possibility of involving local Lions to collaborate in trachoma control activities.
- Provide trichiasis surgery kits to new trainees and replace used trichiasis kits.
- Assess household latrines' acceptability, use and maintenance in Zinder.

**Prevalence of Active Trachoma in Children under 10 and
Prevalence of Trichiasis in Women over 15**



**Prevalence of Active Trachoma in Children Under 10
And Prevalence of Trichiasis in Women over 15**



Sudan Trachoma Control Program

Presented by Professor Mamoun Homeida, National Coordinator, Sudan Trachoma Control Program; Dr. Magdi Ali, Deputy National Coordinator, Sudan TCP; Mr. Mark Pelletier, Resident Technical Advisor, The Carter Center/Khartoum and Ms. Kelly Callahan, Resident Technical Advisor, The Carter Center/Nairobi, which serves areas of Sudan supported by the Operation Lifeline Sudan consortium. Carter Center assistance to Sudan is funded by the Lions-Carter Center SightFirst Initiative.

Background

Trachoma has long been known to be an important disease in Sudan, but little specific data other than hospital and clinical records were available until recently. In May 1999, a team from the Sudanese Federal Ministry of Health (FMOH) conducted the first population-based trachoma prevalence surveys in two areas of the country with the technical and financial assistance of The Carter Center. The Conrad N. Hilton Foundation provided funding to The Carter Center for these surveys. One survey was done in Wadi Halfa, in the north, and the other in Malakal, in the south (see map). Trachoma previously was believed to be a significant problem only in the north of the country, but the two surveys confirmed that trachoma is a common cause of severe illness and significant blindness in southern as well as northern Sudan.

The survey results, in part, led to the signing later that year of an agreement for the Lions-Carter Center SightFirst Initiative, which includes funding of on-going assistance to Sudan for control of onchocerciasis and trachoma. The three initial partners (FMOH, Lions International, and The Carter Center) then began working with two other nongovernmental organizations (Christian Mission Aid and MEDAIR) in the Operation Lifeline Sudan/South (OLS) consortium to plan a broad trachoma control effort in the country, based on the WHO SAFE strategy. Since tetracycline ointment was found to have a low level of acceptance by the population, a request was made to Pfizer Inc for a donation of Zithromax (azithromycin). In an extraordinary gesture, Pfizer began providing donated Zithromax to Sudan as a part of the International Trachoma Initiative in August 2000.

Sudan is the largest country in Africa and one of the poorest in per capita income. Its vast territory, poor infrastructure, and insecurity, especially in the southern part of the country, are major challenges to all public health work. Sudan has a population of about 30 million persons, of which at least 22 million live in the northern states. Sudan has been wracked by civil war for 36 of the 47 years since it gained independence in 1956. The latest phase of the on-going civil war, the longest lasting war in Africa, has been underway since 1983. Since 1989, humanitarian aid to southern Sudan has been carried out under the aegis of Operation Lifeline Sudan, a consortium of United Nations agencies and over 40 non-governmental organizations. The Government of Sudan controls almost all of the northern part of the country as well as some pockets of territory in the south, which is where most of the fighting is ongoing.

The Carter Center has been involved in Sudan since 1986, when the Center began an agricultural assistance project that lasted until 1992. Former President Jimmy Carter convened a meeting among civil war opponents in 1989, and negotiated a “Guinea Worm Cease-Fire” that halted the civil war for nearly six months in 1995. President Carter also negotiated an agreement between the governments of Sudan and Uganda in 1999, which led to the restoration of diplomatic relations between the two countries in 2001. The Carter Center has served since 1995 as the lead agency for assisting Guinea worm eradication on both sides in Sudan, and also facilitates coordination of onchocerciasis control efforts between the two sides from its offices in Khartoum and Nairobi. Sudan’s Trachoma Control Program is modeled on its Guinea Worm Eradication and Onchocerciasis Control Programs, including the Carter Center’s role in helping to coordinate efforts on both sides, in spite of the war. The Carter Center’s involvement as a major partner in these three public health programs in Sudan in turn facilitates its role in attempting to help bring peace to the country.

Leadership of the Sudan Trachoma Control Program (Sudan TCP) rests with the national Trachoma Technical Consultative Committee, which was formed in June 1999 as an organ of the Federal Ministry of Health. Activities in Government of Sudan (GOS)-controlled areas are coordinated and monitored from Khartoum by the FMOH with assistance from The Carter Center. Activities in OLS-assisted areas are coordinated and monitored from Nairobi by The Carter Center with assistance from partner NGOs and humanitarian units of the opposition forces. Local committees oversee activities in each of the operational areas. Meetings of the leadership of the GOS and OLS programs are held quarterly to maximize coordination of the national program. Program information from both sides is collected, analyzed, and reported by the national coordinator, who represents the national program at international meetings. The Sudan TCP launched its field activities in 2000 with the implementation of the SAFE strategy in the Malakal area.

Program Achievements in 2002, Areas served by the Government of Sudan (GOS)

In 2002, the Sudan Trachoma Control Program participated in the first national prevention of blindness workshop and launch of Vision 2020/Sudan. Trachoma control in Sudan was given high priority in the workshop and was an important element of region plans of action. Christoffel Blindenmission also participated in the workshop and committed itself to significant participation in prevention of blindness in Sudan, including support to the S component of SAFE. A national committee for prevention of blindness was formed, with governmental and NGO representatives. The Committee will be responsible for streamlining prevention of blindness activities in Sudan.

Hygiene Education, Face Washing and Environmental Sanitation (F&E)

In 2002, in Government of Sudan areas, **regular health education sessions** were done in 73 villages (72% of annual target). **School-based trachoma education** began with training of teachers in trachoma prevention messages. School children washed their faces each day in school, and a child-to-child approach was used to encourage students to carry trachoma control messages home.

Other health education strategies used included posters and *radio messages delivered in local languages*, which was found to be very effective. During the year, Malakal Radio began broadcasting trachoma messages, with the participation of program stakeholders and local dignitaries. The radio project was initiated by the TCP team from Khartoum, but was taken over and continued on a regular basis by trained local volunteers.

An environmental baseline survey was done in Malakal which showed that at the end of 2001, less than 32% of households had latrines and less than 22% of the population had access to latrines. Environmental improvement achievements in 2002 include 128 latrines built in Malakal with support from IRC and UNICEF, 23 water points installed in Malakal, and 170 latrines built in Renk with support from FAR.

As TCP activities began in Renk, *baseline trachoma prevalence and KAP* surveys were done. Over 38% of children had ocular or nasal discharge on their faces. Only 12% of survey respondents know what trachoma is, yet over 50% of respondents associated trachoma with dirt and flies.

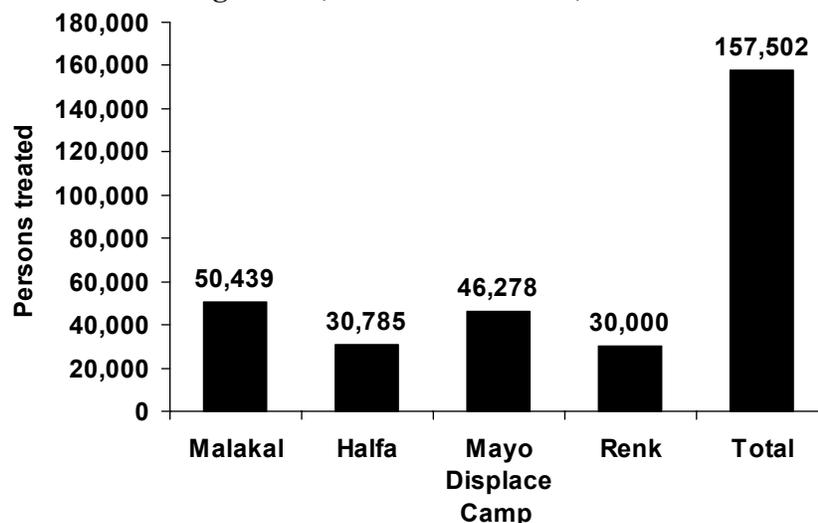
Surgery (S)

In 2002, a total of 729 trichiasis surgeries were done in GOS-supported areas of Sudan (12% of annual target). Forty three ophthalmic medical assistants were trained in the bilamellar tarsal rotation procedure, and 18 general medical assistants were trained in general eye care. The most important lesson learned in 2002 was that the program needs to have surgically trained medical assistants in each affected community rather than one centrally located surgeon.

Antibiotics (A)

In 2002, the GOS-supported TCP treated 157,502 persons with Pfizer-donated Zithromax (55% of annual target). Treatments covered eligible populations in four major areas (see graph and map). In each area, community volunteers were trained in Zithromax distribution. In all, eight trainers and 255 volunteers were trained, and 49 were retrained. Community-based drug distributors were found to be dramatically more effective than the centrally dispatched distributors.

Zithromax distribution, Sudan Trachoma Control Programme, GOS-served areas, 2002



Monitoring and evaluation, and operations research

The Sudan TCP continued to do rigorous monitoring and evaluation of activities. The program reported monthly from all program sites on all SAFE interventions, and monthly line listings of all villages were maintained and used for program management.

A special study was done to measure the impact of health education on recurrence of active trachoma in children aged 1-10 years after treatment with azithromycin. Two groups of 100 children in two villages were followed from May 2001 through August 2002. All were treated with Zithromax at the outset of the study. One village had ongoing home-based health education for six months. The village with health education had a significantly lower trachoma recurrence rate at six months, and again in August 2002, nine months later.

A follow-up trachoma prevalence survey was done in ten villages around Malakal which were first surveyed in 1999. All ten villages have been in the Sudan TCP since its launch in August 2000. The follow up survey was conducted before 2002 Zithromax treatments were done. There was a statistically significant decrease in follicular inflammatory trachoma (TF) in children 1-9 years old over the two year period (odds ratio = 0.17, $p < 0.0001$). Facial cleanliness was associated with lower TF in children (odds ratio = 0.37, 95% confidence interval = [0.24, 0.56]. Separate indicators of “clean face” were analyzed, showing that increased TF was associated with ocular or nasal discharge and with three or more flies on the face, but not with food on the face.

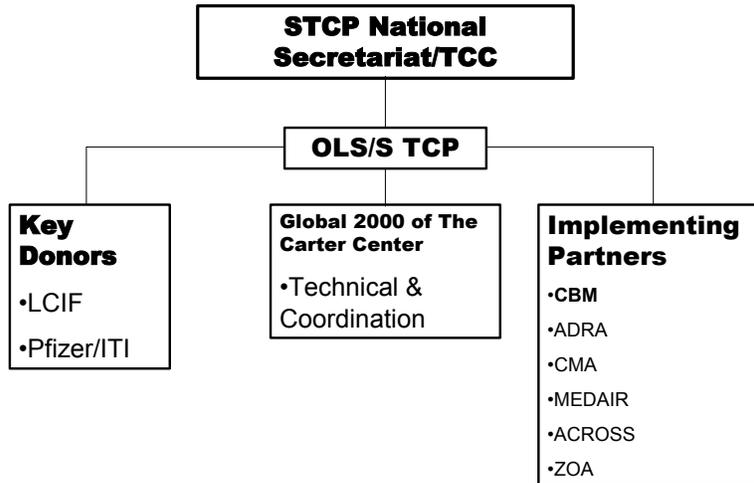
Targets for 2003

- Create trachoma clubs in schools.
- Develop plays films and songs in local languages.
- Train more health education volunteers, especially women.
- Do 3000 more trichiasis surgeries.
- Facilitate 500,000 azithromycin treatments.
- Decentralize the Sudan TCP, increasing community-based surgery and Zithromax distribution.

Program Achievements in 2002, Areas served by OLS

The OLS-supported Sudan Trachoma Control Program is working in areas with high prevalence of blinding trachoma, where trichiasis is found in children as young as 5 years old. There are strong cultural beliefs and practices that put the people at risk of trachoma. In addition, it is difficult for the program to gain access to many of those most at risk because of local insecurity and inaccessibility of many areas. This situation is complicated by a poor health infrastructure and minimal physical infrastructure. There are many mobile nomadic populations and a large number of internally displaced persons.

OLS/S Sudan Trachoma Control Program Background



Hygiene Education, Face Washing and Environmental Sanitation (F&E)

In 2002, the program **trained 218 volunteers who delivered TCP health education to 405 villages**. Reporting of health education activities was done on a regular basis and reported in line listings for each target village.

Women are involved in trachoma health education as hygiene promoters and peer educators to encourage facial cleanliness of children. Wherever possible, school health programs are encouraged. Anecdotal reports from partner NGOs have noted increased facial cleanliness in children. A consultant has been engaged to revise the current trachoma health education flip chart.

The challenges faced by the Sudan TCP in implementing F&E included limited access to populations due to migration, flooding, insecurity and lack of transport. There was a general lack of awareness in communities about the importance of facial cleanliness. Strong cultural beliefs and practices discouraging facial cleanliness in some ethnic groups was a special challenge as was the culturally enforced gender imbalance, which kept women from working in the program as peer educators and teachers.

AREA	TARGET VILLAGES 2002	NUMBER OF HEALTH EDUCATION SESSIONS IN 2002	VILLAGES WITH 1+ HEALTH EDUCATION	COMMENTS ON LINE LISTING OF TARGET VILLAGES
KATIGIRI	101	480	101	BEING DEVELOPED
KEEW	372	356	75	BEING DEVELOPED FROM GW EVs LIST
KIECH KUON	17	406	17	COMPLETED
LANKIEN	376	54	21	BEING DEVELOPED FROM GW EVs LIST
ORINY	44	1,003	20	COMPLETED (NEW VILLAGES IN 2003 TO BE ADDED)
PADAK	129	324	21	COMPLETED (NEW VILLAGES IN 2003 TO BE ADDED)
PALUER	104	102	20	BEING DEVELOPED
TALI	130	560	130	BEING DEVELOPED
TOTAL	1,273	3,285	405	

Estimates based on Month with highest number of Health Education Sessions

Latrine coverage and usage are very low in southern Sudan where strong traditional beliefs and practices make use of latrines unacceptable. Bush defecation is the main method of fecal disposal. Another challenge is that latrines may collapse during the rainy season in many areas where the black cotton soil is not solid enough for construction of pit latrines. In 2002, only **220 household latrines were built** in OLS TCP areas.

Water provision is also a challenge in OLS areas where only 27% of target villages have access to safe water. There is little money for funding borehole drilling and few NGOs are focusing on water provision. The same problems encountered in digging pit latrines confound water projects: complex geological structure, insecurity and inaccessibility.

Surgery (S)

There are an estimated 34,632 trichiasis patients in the OLS TCP areas. In 2002, the program facilitated 1,481 corrective surgeries, (87% of the annual target). The number of surgeries is improving thanks to increased support from Christoffel Blindenmission, which is the coordinating NGO partner for trichiasis surgery. CBM will organize trichiasis surgery camps (outreach programs), and train eyelid surgeons. In 2002, eight new trichiasis surgeons were trained. In May 2002, with support from The Carter Center, two of CBM's surgical trainers went to Kongwa, Tanzania for training in the bilamellar tarsal rotation surgical technique. The Carter Center also has been providing surgical consumables to NGO partners doing eyelid surgery.

The most important challenges in S begin with the enormous burden of uncorrected trichiasis cases. There are very few trained surgeons and an inadequate supply of surgical kits. The long distances people must travel over difficult and insecure terrain to have surgery is an important barrier.

Antibiotics (A)

In 2002, the OLS TCP treated 31,731 persons with Pfizer-donated Zithromax (79% of the annual target). Difficulties encountered in delivering antibiotic to villages in the program area have proven that mass Zithromax distribution can only take place in the dry season

(November – May). There are very few literate people to form treatment teams, and teams must cover long distances on foot for many days to reach some target villages. In 2002, there was a lack of food and accommodation for treatment teams. Some community distributors demanded cash payments. Insecurity and inaccessibility made distribution difficult, and a rumor that Zithromax is a contraceptive complicated mass distribution in some communities.

AREA	ESTIMATED POPULATION	ELIGIBLE POPULATION	PERSONS TREATED			ZITHROMAX TREATMENT CYCLE	COMMENTS
			ZITHROMAX 2001	ZITHROMAX 2002	TETRACYCLINE EYE OINTMENT 2002		
KATIGIRI	60,000	54,000		0	2,428		
KEEW	129,000	116,100	8,874	8,422	3,943	APR - DEC*	DOSE 2 COMPLETED
KIECH KUON	63,500	57,150		4,997	4,360	NOV -MAY	DOSE 1 IN NOV 2002
LANKIEN	100,000	90,000	16,024	6,962	3,094	MAY - DEC*	10,000 DOSE 2 PERSONS NOT ACCESSIBLE IN 2002
ORINY	35,000	31,500	5,263	11,350	1,994	NOV - MAY	DOSE 2 IN JAN 2003
PADAK	48,500	43,650		0	966		DOSE 1 IN 2003
PALUER	70,000	63,000		0	142		
TALI	55,000	49,500		0	2,452		DOSE 1 IN 2003
TOTAL	561,000	504,900	30,161	31,731	19,379		

	FIRST DOSE
	SECOND DOSE

* NEED TO CHANGE TREATMENT CYCLE TO AVOID DISTRIBUTION DURING THE RAINS

Targets for 2003

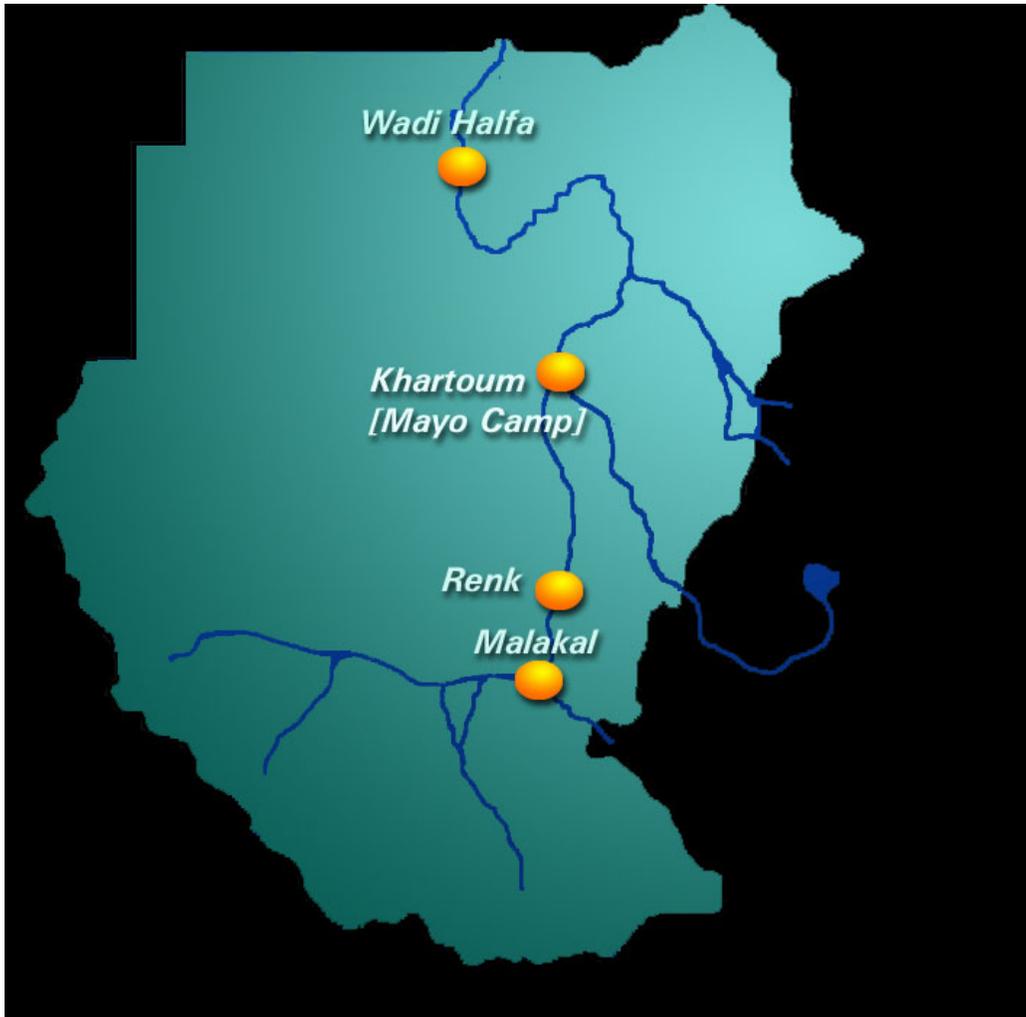
- Prioritize health education to mothers.
- Provide regular health education in 1,117 villages.
- Increase school health programs.
- Increase eye surgery outreach to villages.
- Recruit and train volunteers who move with nomadic peoples.
- Increase number of female peer educators.
- Advocate for support from traditional leaders for latrines.
- Provide 500 new household latrines.
- Build 426 demonstration latrines in markets, churches, PHC facilities, etc.
- Encourage burying feces where latrines are not used.
- Increase awareness about trichiasis surgery (increase acceptability/demystify).
- Train more eyelid surgeons and provide each with surgical kits.

Recommendations

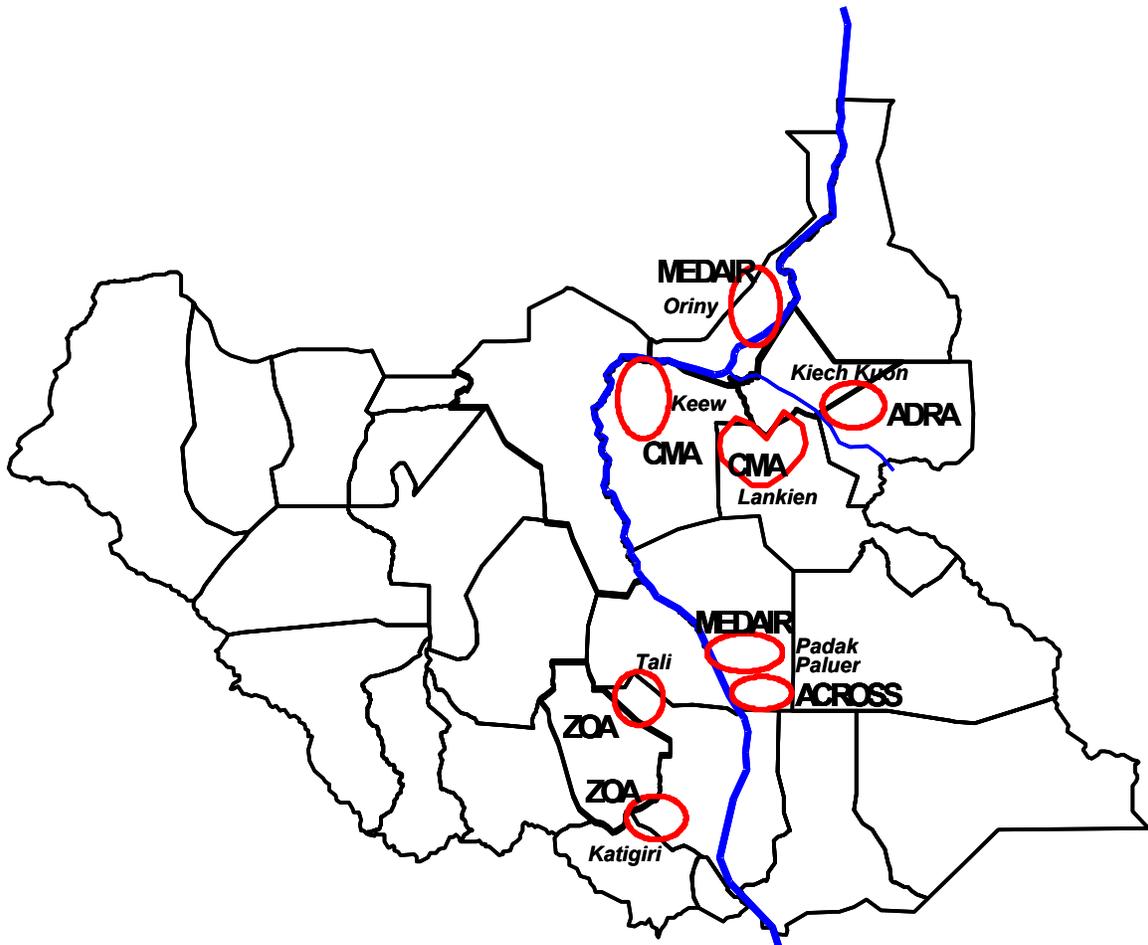
The Sudan TCP should:

- Standardize indicators for reporting interventions throughout Sudan.
- Determine ultimate intervention goals for all components of the SAFE strategy.
- Complete the national trachoma prevalence survey in rural areas.
- Continue implementing the entire SAFE strategy in all targeted trachoma-endemic villages.

**Sudan Trachoma Control Program, Government of Sudan-Assisted
Areas of Intervention, 2002**



Sudan Trachoma Control Program, Operation Lifeline Sudan/South-Assisted Areas of Intervention, 2002



Ethiopia Trachoma Control Program

Presented by Mr. Zelalem Abera, Regional Trachoma Coordinator of Amhara Region. Carter Center assistance to Ethiopia is supported by the Lions-Carter Center SightFirst Initiative.

Background

The prevalence of blindness in Ethiopia, estimated at 1.25%, is thought to be the highest in the world. In addition, an estimated six million Ethiopians suffer from low vision. The two major causes of blindness are believed to be cataract (40%) and trachoma (30%). Although a nationwide population-based survey of trachoma has not yet been done, the National Committee for the Prevention of Blindness (NCPB) of the Federal Ministry of Health estimates about one million Ethiopians live with trichomatous trichiasis and ten million more suffer from active trachoma (TF/TI).

In October 2000, The Carter Center, with funding from the Lions-Carter Center SightFirst Initiative, began assisting the Amhara Regional Health Bureau (RHB) in trachoma control. Four districts in the South Gondar Zone (Dera, Ebinat, Estie and Simada) were selected to launch activities (see map). The program area included 155 sub-districts with a total population of over one million persons.

In December 2000, the Amhara RHB, the Prevention of Blindness Team of the Federal Ministry of Health and The Carter Center conducted a community-based trachoma prevalence survey. A knowledge, attitudes and practices (KAP) survey was done in January 2001 in the four pilot districts. These surveys provided baseline data used to develop a program plan of action for implementing the SAFE strategy in the South Gondar Zone.

The prevalence survey data were consistent with reports that Ethiopia has extremely high level blinding trachoma. Extrapolating from the study results, the Amhara RHB estimated that there were 36,000 trichiasis patients in need of surgery and almost 300,000 children with inflammatory trachoma in need of antibiotic treatment in the four districts. The KAP survey was both qualitative and quantitative, including focus group discussions, informal interviews and a household survey. The findings were used to develop a school health curriculum and health education materials such as posters, flip charts, pamphlets, and a community workers' training manual. A five-year (2001-2005) plan of action for the South Gondar Zone TCP was drafted in a program-planning workshop which brought together staff from the regional, zonal and district health bureaus, as well as non-governmental partners including Ethiopian Lions Clubs, The Carter Center, ORBIS International, World Vision International and Christoffel Blindenmission.

Program Achievements in 2002

Hygiene Education, Face Washing and Environmental Sanitation (F&E)

In this early stage of developing the Zonal TCP, training of program personnel is essential. In 2002, **1,080 persons were trained in trachoma control** (88% of the annual target). Those trained were 131 health workers, 238 public school teachers, 550 community volunteers and 161 community leaders. During the training, health education materials produced with support from The Carter Center and the BBC World Service Trust, such as flip charts, posters, brochures, booklets for the school health program, and videocassettes, were used and distributed. Thanks to these trained program personnel, regular **health education was implemented in 138 villages** (119% of the annual target).

A pilot **school health program was launched in three schools** in Dera using a curriculum focusing on the F&E of SAFE (see report on Ethiopia School Health Program). Trachoma was taught as part of the regular curriculum for grades 1-4 and through *trachoma clubs* and *sanitation clubs* for grades 5-8 grades. Baseline data on face washing, defecation, refuse disposal and community clean-up practices were collected from the clubs for future monitoring and evaluation.

With technical and financial support from the BBC World Service Trust and ITI, short messages on trachoma control and prevention have been broadcast on Ethiopia's national radio. In addition, interviews with key health personnel on trachoma and the development of the trachoma control program have complemented these messages.

In 2002, a total of **1,333 latrines were built** (56% of annual target). Hygiene projects funded by FINNIDA accounted for 884 of those latrines. Another 400 SanPlat latrine slabs were constructed by the South Gondar TCP which were provided free of charge to homeowners who dug their household latrine pit. To further explore fly control, a technician from the Amhara RHB began doing **entomological research** to describe and characterize eye seeking flies in trachoma-endemic villages and their breeding environments. This research is being done in collaboration with the University of Addis Ababa, The Carter Center and U.S. Centers of Disease Control and Prevention.

Surgery (S)

In 2002, eleven trichiasis surgeons were trained (138% of the annual objective). Since the beginning of the program, 19 trichiasis surgeons have been trained in the four program districts, which is 48% of the number of surgeons who will ultimately need to meet the goal of correcting all trichiasis. Local Lions Clubs in Ethiopia supported these activities through a grant awarded to them by Lion's Clubs International's SightFirst Advisory Committee in January 2002 to train 40 trichiasis nurses and provide necessary equipments for surgery. In addition, another Carter Center-supported project in Ethiopia, the Ethiopian Public Health Training Initiative, supported training of 10 trichiasis surgeons at Dilla Hospital in southwestern Ethiopia.

In 2001, 50 trichiasis surgery kits were purchased for the program by The Carter Center from a WHO-recommended supplier. Trichiasis surgeons in the South Gondar program were not satisfied with the quality of the instruments, which were found to be of poor

quality. In 2002, with support from WHO, Lions International and The Carter Center, the 50 defective surgical kits were replaced. In addition, local Lions Clubs purchased another 50 surgical kits, through the SightFirst grant. Surgical tables, autoclaves and consumables were purchased and delivered to surgeries throughout the four districts.

Altogether, **4,019 trichiasis surgeries were done** in 2002 (67% of annual target). The baseline trachoma prevalence survey suggested that there were 36,000 persons with uncorrected trichiasis in the four program districts. Using this number to estimate the program's ultimate intervention goal (UIG) for surgery (as of 2002), the total trichiasis surgeries done by the program in 2001-2002 represent 13% of the UIG.

Number of trichiasis surgeries by district, South Gondar Zone

	Dera	Ebinat	Estie	Simada	DT*	Total
2001	193	415	0	0	51	659
2002	709	713	1,305	1,112	180	4,019
Total	902	1,128	1,305	1,112	231	4,678

* Debre Tabor Zonal Hospital.

Antibiotics (A)

Tetracycline ophthalmic ointment

The Carter Center provided 50,000 tubes of tetracycline ophthalmic ointment to be distributed in all four districts. Tetracycline ophthalmic ointment is dispensed by health clinics and during trichiasis surgical outreach campaigns. Each patient diagnosed with inflammatory trachoma is given two tubes of ointment. In 2002, **7,964 persons were treated with tetracycline ophthalmic ointment.**

Azithromycin treatment

In 2002, the ITI and Pfizer Inc approved an extraordinary donation of Zithromax to the South Gondar Zone TCP. The annual target was to treat 100,000 persons with azithromycin in Ebinat District. However, distribution was postponed until 2003 because of delays in delivery of the Zithromax to the Amhara Region.

Targets for 2003

Each year, during the annual South Gondar Zone TCP review meeting, each district sets its own annual program objectives. Below is a summary of the objectives for 2003.

Hygiene improvement

- Train 58 health workers, 132 schoolteachers, 55 community leaders and 356 volunteers in 155 trachoma-endemic villages on trachoma control and prevention.
- Implement health education strategies in 100% of the 155 target villages.
- Build 2,500 more household latrines.
- Finish pilot test of the trachoma prevention school health curriculum and expand the school health program to other schools.

Surgery

- Train 11 additional trichiasis surgeons and give refresher training to all 19 trichiasis surgeons already trained.
- Do 11,280 more trichiasis surgeries.
- Do two surgical outreach campaigns per year per district.

Antibiotics

- Implement mass treatment of 18 villages with high prevalence of TF.
- Treat 77,000 persons with tetracycline ophthalmic ointment.
- Treat 100,000 persons with azithromycin.

Recommendations

The Ethiopia TCP program should:

- Continue implementing the entire SAFE strategy in all targeted trachoma-endemic villages.
- Establish a sustainable monitoring and evaluation system and begin collecting routine surveillance data.
- Use standardized indicators for reporting interventions
- Determine ultimate intervention goals for all components of the SAFE strategy.

Summary of Trachoma Control Interventions in 2002 (January - December)
Carter Center-assisted Trachoma Control Program, South Gondar Zone, Ethiopia

DISTRICTS	DERA	EBINAT	ESTIE	SIMADA	SUMMARY
Population	248,652	234,650	335,450	241,163	1,059,915
Number of villages	29	34	55	37	155
Baseline prevalence survey (2000)					
% TF (children 1 to 9 yrs)	49.6	78.8	67.4	52.8	62.4
% TFTI (children 1 to 10 yrs)	81.2	94.7	90.2	84.7	87.9
% TT (women 40 and above)	23.2	20	18.3	18.6	19.9
% of children with clean faces (children 1 to 10yrs)	0	4	14.3	0	5.8
Baseline KAP** (2001)					
F & E - # of intervention targeted villages:	22	26	41	28	116
Number of villages with Health education	25	33	50	30	138
% Coverage (villages with Health education)	114%	127%	122%	107%	119%
Number of trained volunteers	119	101	218	112	550
Number of trained health workers*	28	28	40	33	129
Number of trained community leaders	29	68	30	34	161
Number of trained school teachers	73	79	0	86	238
Health education materials available	Yes	Yes	Yes	Yes	Yes
Latrine constructed in 2002	1,053	115	100	65	1,333
Targeted for latrine construction in 2002	600	600	600	600	2,400
% Coverage (# of constructed latrines)	175.5%	19.2%	16.7%	10.8%	55.5%
% of villages with water supply ****	0	0	0	0	0
Antibiotics					
Azithromycin*** - # of intervention villages:	N/A	18	N/A	N/A	18
Treatments (2002)		0			0
Target Population		100,000			100,000
% Coverage of persons receiving Zithromax		0			0
Tetracycline Oint. - # of intervention villages:	29	34	55	37	155
Treatments (2002)*	1,664	1,500	2,200	2,125	7,489
Target Population					
Coverage (%)					
Surgery - # of intervention villages:	29	34	55	37	155
Surgeries (2002)*	709	713	1,305	1,112	3,839
Target Population	1,500	1,500	1,500	1,500	6,000
Coverage (%)	47	48	87	74	64
Number of trichiasis surgeons trained	2	3	4	2	11
Targeted number of trichiasis surgeons	2	2	2	2	8
Coverage (%)	100	150	200	100	138

** Knowledge, attitudes, and practices study (qualitative & quantitative)

*** Zithromax available only for Ebinat

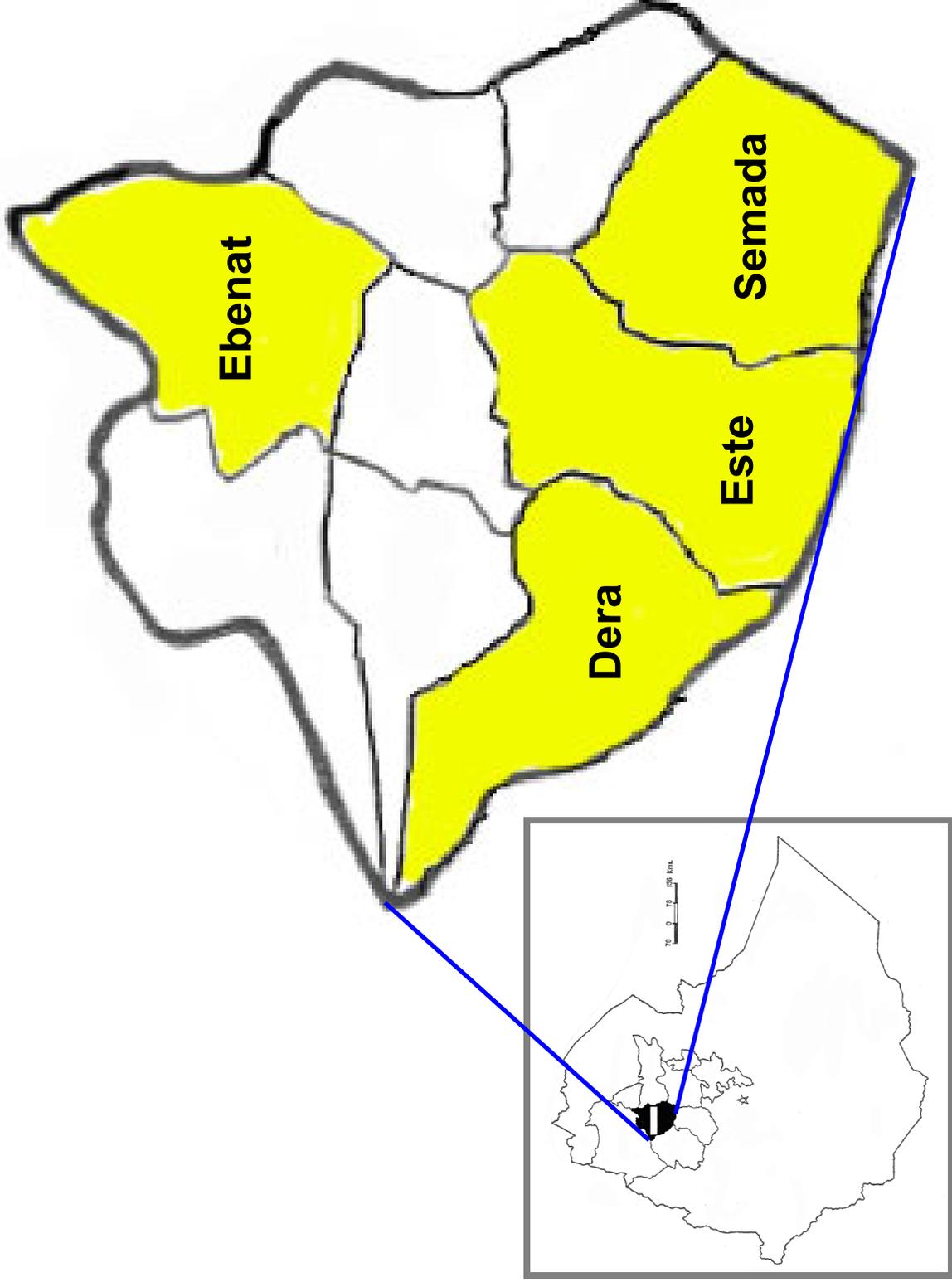
* Additional health workers trained at Debretabor Hospital: 2

* Additional tetracycline ointment tubes used at Debre Tabor Hospital: 475

* Additional surgeries at Debre Tabor Hospital: 180

**** % of villages in which at least 50% of households have access to water supply within 1 km (30 minutes)

Ethiopia Trachoma Control Program South Gondar Zone, Amhara Region



Nigeria Trachoma Control Program

Presented by Dr. Nimzing Jip, Desk Officer for Trachoma, The Carter Center, Nigeria. The Carter Center assistance to Nigeria for trachoma is supported by the Conrad N. Hilton Foundation.

Background

A national population-based trachoma prevalence survey has not yet been done in Nigeria. A review of existing hospital data, university dissertations and anecdotal reports suggested that trachoma is a significant cause of blindness in the Northeastern and Northwestern Zones of Nigeria. Since October 2000, prevention of blindness partners have done trachoma prevalence surveys in four states and trachoma rapid assessments in five other states. In this way, trachoma in Nigeria is steadily being mapped. Nigeria does not yet have a national trachoma control program. Trachoma control is done under the auspices of the National Blindness Prevention Committee. The National Coordinator of the National Blindness Prevention Committee is also the coordinator for trachoma control programs. In 2000, The Carter Center/Nigeria began working with state and local health authorities to help build trachoma control programs in Plateau and Nasarawa States, where they are already supporting Guinea worm eradication, and onchocerciasis, lymphatic filariasis and schistosomiasis control efforts.

The Carter Center/Nigeria's trachoma control program, working in partnership with state ministries of health and NGO partners, seeks to reduce active trachoma in children by through application of the SAFE strategy. The program will assist in implementing a balanced SAFE strategy with an emphasis the F&E, primarily through health education and environmental improvement campaigns.

Program Achievements in 2002

Prevalence Surveys

The Ministries of Health for Plateau and Nasarawa States, with assistance from The Carter Center/Nigeria **conducted the first population-based trachoma prevalence surveys of Plateau and Nasarawa** beginning in April 2002. The survey results show moderate levels of trachoma in both states, below the WHO thresholds for declaring trachoma to be "a public health problem" (see maps). However, data suggest that there are pockets of intense trachoma within the local government areas (LGAs), and it is clear that there is a need for SAFE activities in parts of both states. The following table summarizes key indicators by state. The table shows the range of average clean faces in children examined by the survey teams. A clean face was defined as one without ocular or nasal discharge. On average, children in most LGAs had relatively clean faces during the study period. Similarly, the presence of household latrines is reported by LGA. Household latrine coverage varies greatly from one LGA to another, with the lowest percentage in Plateau State, particularly Kanke LGA.

Trachoma prevalence survey, Plateau and Nasarawa States, Nigeria, 2002

	Plateau (N = 6,243)	Nasarawa (N = 6, 105)
TF/TI (1-9 yrs)	7%	8%
TS (M&F ≥30 yrs)	26%	9%
TT (F ≥40 yrs)	3%	2%
Clean faces (1-9 yrs)	64% – 92%	53% - 98%
Household latrine coverage	2% - 43%	42% - 84%

The survey data were analyzed by LGA. This analysis helped the Nigerian team to target the two LGAs in each state with the greatest trachoma burden for launching pilot program activities: **Langtang North** and **Langtang South** in Plateau, and **Doma** and **Kokona** in Nasarawa (see map). The total target population is 412,970 persons in 96 villages. The Carter Center/Nigeria TCP data manager used these baseline survey data to construct Nigeria's first linelisting for trachoma control program management.

KAP surveys

To get baseline sociological data for the TCP, **qualitative focus group discussions and quantitative KAP surveys** were done in Plateau and Nasarawa States. Data collection was completed in October. Data analyses gave program managers important information on risk behaviors for trachoma, health beliefs and channels of communication for developing health education strategies and support materials. Results from both states were similar. Most respondents knew what active trachoma (TF/TI) and trichiasis are, and could recall the names for these conditions in local languages. However, most did not realize that the two conditions are related. Only 1% - 3% of the respondents knew the cause of trachoma, and few knew how the disease is transmitted. Between 22% and 29% knew how to prevent trachoma. In Plateau State, 45% of respondents had no access to latrines, and 61% reported indiscriminate disposal of refuse. In Nasarawa State, 38% of respondents had no access to latrines, and 65% reported indiscriminate disposal of refuse.

In focus group discussions, eye disease was considered an important health problem in both states. Things believed to cause active trachoma included dirt, dust, staring at an infected person, not washing one's face and sharing belongings with infected persons. Respondents believed that flies are a problem, but did not associate them with trachoma. Channels for health communications include village heads, radio and health workers.

Survey recommendations:

1. Educate people on:
 - Causes of active trachoma and trichiasis
 - Relationship between active trachoma and trichiasis
 - Relationship between environmental risk factors and active trachoma
 - Non-relationship between trachoma and traditional beliefs
2. Encourage construction and use of toilets and keeping children's faces clean.

Hygiene Education, Face Washing and Environmental Sanitation (F&E)

Health education sessions were held in 20 villages in Kanke LGA, Plateau State, during 2002. The sessions targeted traditional rulers, women leaders, religious leaders (both Christian and Moslem), teachers and youth leaders. In immediate reaction to the health education campaign, the head of Dari village promised that the next time we are in the village every household should have built a latrine, including himself.

Surgery (S)

The prevalence survey found significant trachomatous scarring and trichiasis. The program has targeted the LGAs with the highest prevalence of trichiasis for interventions. Surgery will be done in partnership with other NGOs.

Antibiotics (A)

The Nigeria TCP trained eight ophthalmic nurses to screen for active trachoma and twenty village volunteers were trained to distribute tetracycline ophthalmic ointment. The program then did trachoma screening in 66 villages using rapid assessment methodology. Twenty two villages were selected for treatment activities.

Targets for 2003

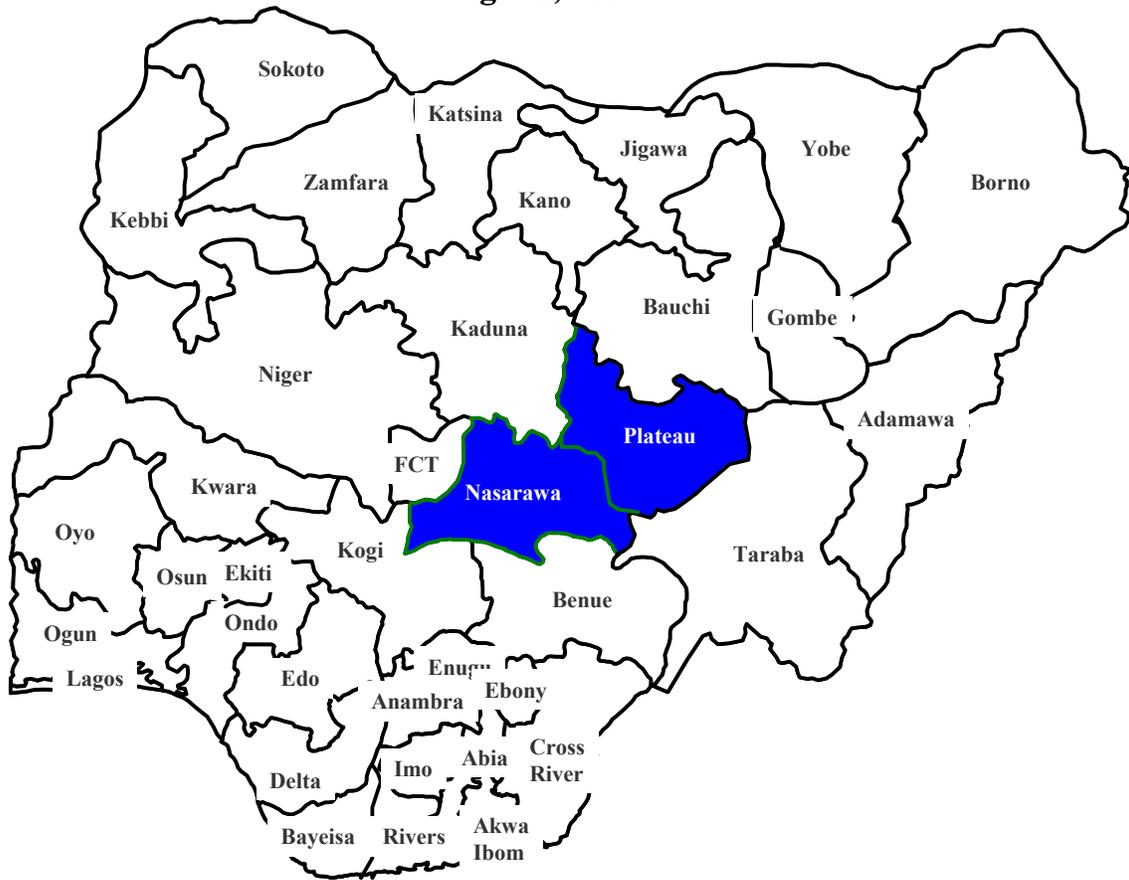
- Continue targeted distribution of tetracycline ophthalmic ointment.
- Continue screening to identify more trachoma-endemic villages.
- Design and print health education materials.
- Develop health educational theater pieces and radio messages.
- Begin regular supervision at all levels of the program.

Recommendations

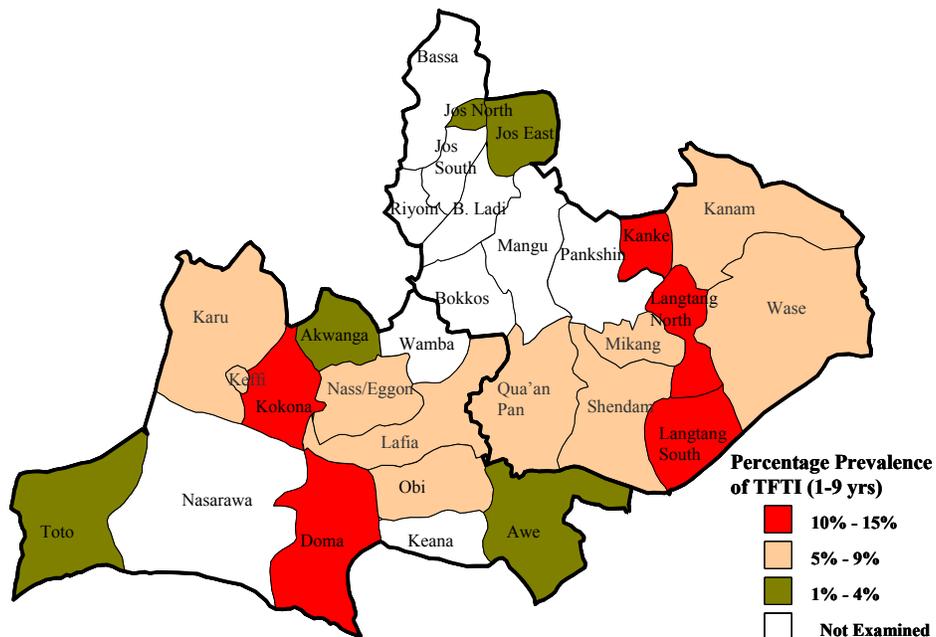
The Nigeria TCP should:

- Begin implementing the entire SAFE strategy in all targeted trachoma-endemic villages.
- Finalize health education materials and strategies based on KAP survey data.
- Establish trachoma health education programs in all pilot LGAs.
- Establish a sustainable monitoring and evaluation system and begin collecting routine surveillance data.
- Use standardized indicators for reporting interventions
- Determine ultimate intervention goals for all components of the SAFE strategy

**Carter Center-assisted trachoma control program states
Nigeria, 2002**



**Prevalence of Active Trachoma in Children (1-9 yrs) by LGA
Plateau & Nasarawa States, 2002**



Summary Tables and Graphs
Trachoma Control Programs Status

Summary of Trachoma Control Interventions (January- December 2002)

	Ghana	Mali	Niger	Sudan		Ethiopia S. Gondar ^a	Nigeria ^b 2 States ^c
				GOS	OLS/S		
F & E							
Number of villages with hygiene education	235	383	276	73	1,479	138	0
Number of villages targeted for hygiene education	280	2,800	276	102	1,617	116	96
Percent coverage - Hygiene education	84%	14%	100%	72%	91%	119%	0%
Number of latrines constructed	53	0	1,032	128	220	1,333	0
Targeted number of latrines	300	N/A	1,050	N/A	N/A	2,400	20 villages
Percent coverage - latrine constructed	18%	-	98%	-	-	-	0%
Number of water sources provided	4	0	0	0	0	0	0
Targeted number of water sources	30	N/A	N/A	N/A	N/A	N/A	20 villages
Percent coverage - water sources	13%	-	-	-	-	-	0%
Antibiotics							
Azithromycin intervention villages:	280	433	72	73	N/A	18	N/A
Treatments (2002)	104,370	750,000	91,723	60,252	31,731	0	0
Target Population	100,000	600,000	100,000	287,000	40,000	100,000	0
Coverage (%)	104%	125%	92%	21%	79%	0%	N/A
Tetracycline Oint. intervention villages:	280	17 HC^d	286	102^e	N/A	157	300
Treatments (2002)	10,000	30,000	1,815	Yes	17,192	7,964	0
Target Population	10,000	700,000	N/A	N/A	-	-	150,000
Coverage (%)	100%	4%	-	-	-	-	0%
Surgery intervention villages:	280	17 HC^d	286	N/A	N/A	157	300
Surgeries (2002)	426	1,008	2,708	646	1,481	4,019	0
Target Population	500	5,000	5,000	6,000	1,700	6,000	1,000
Coverage (%)	85%	20%	54%	11%	87%	67.0%	0.0%

a. South Gondar Zone is one of three areas beginning interventions in Ethiopia

b. Interventions have not yet begun

c. Plateau and Nasarawa States

d. Health center-based activities offering services to villages within 50 km

e. Nomadic areas of intervention, interventions not defined by "village"

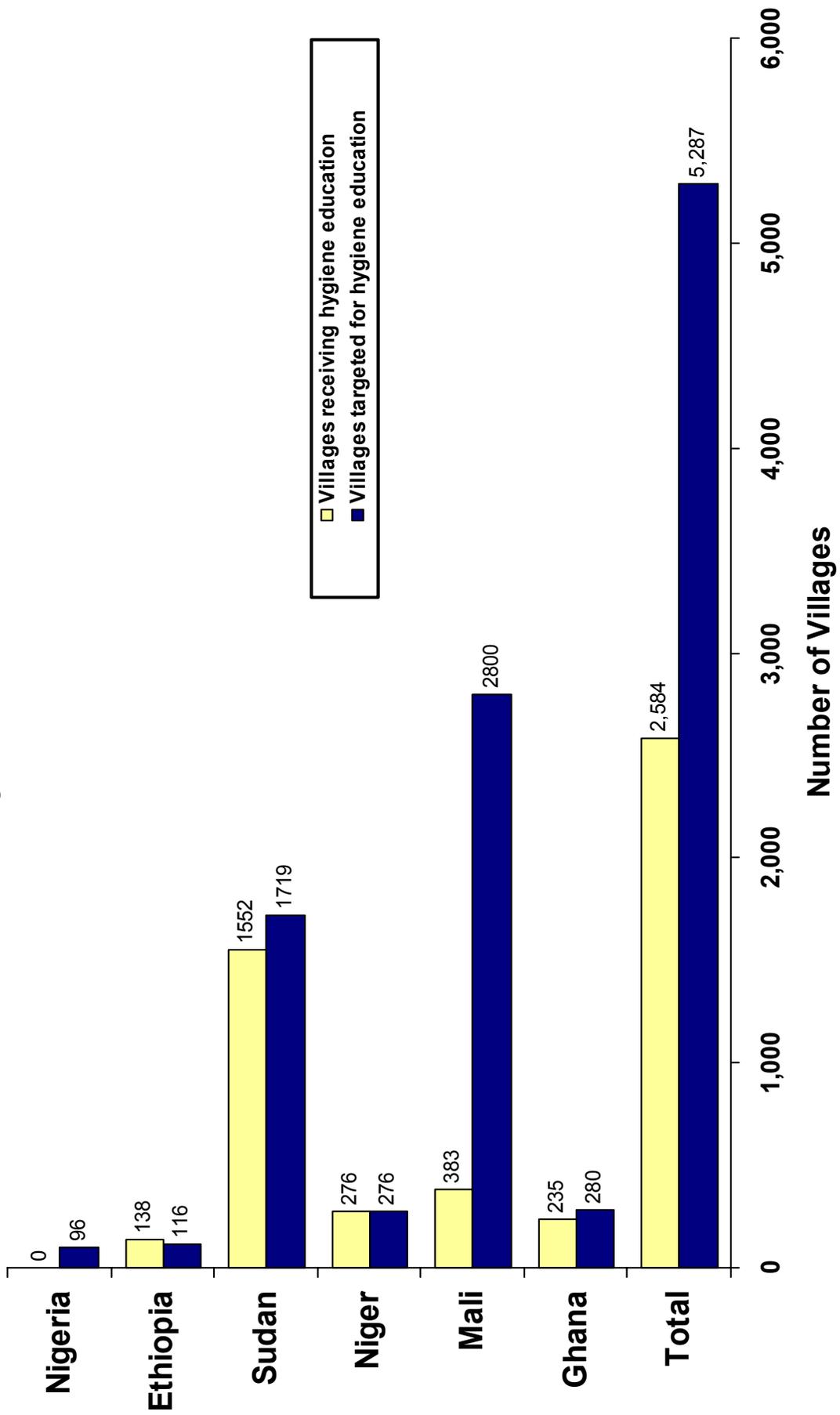
Trachoma Control Program Annual Targets 2003

Carter Center-assisted Trachoma Control Programs

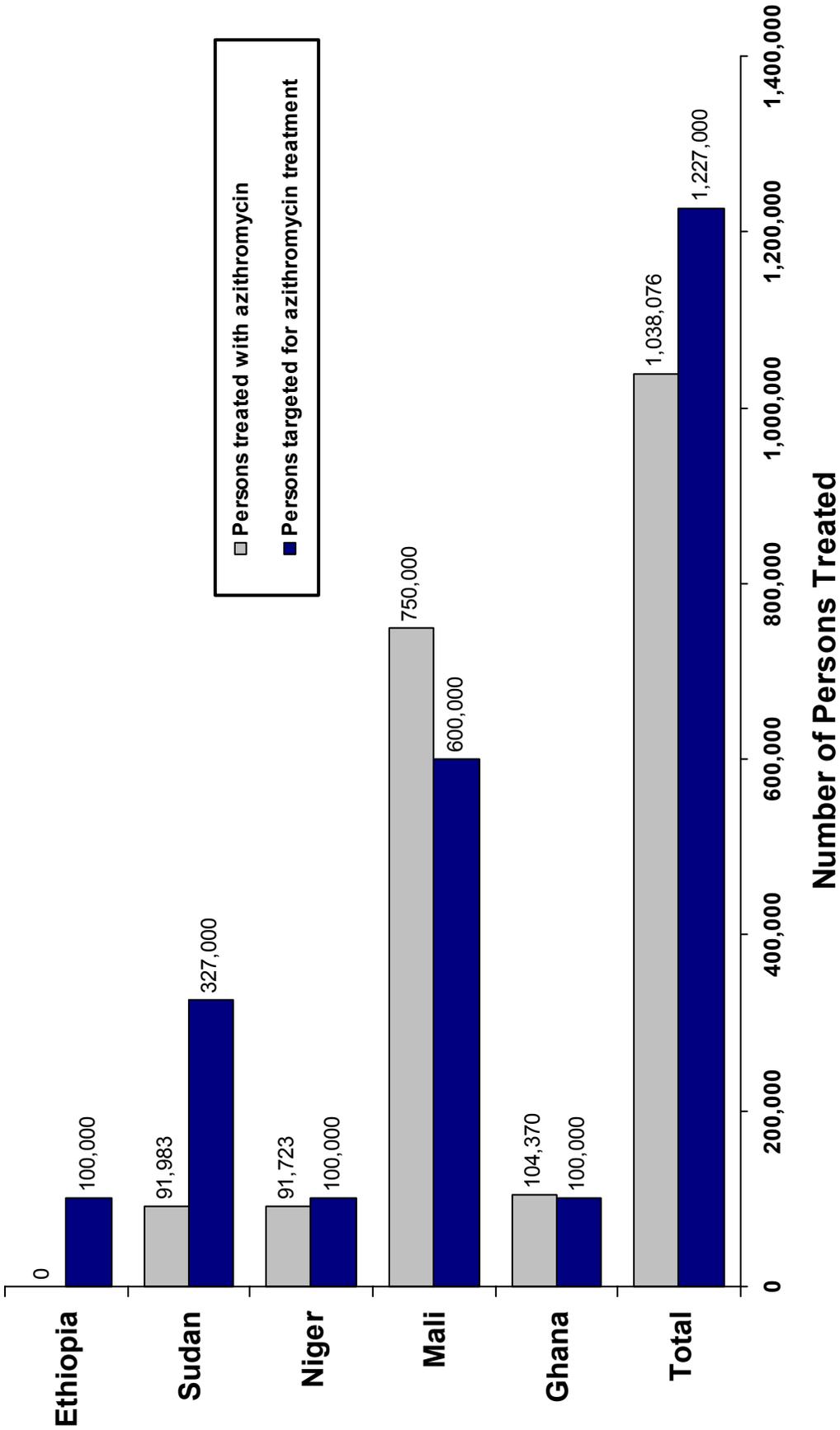
	Ghana	Mali	Niger	Sudan		Ethiopia S. Gondar	Nigeria 2 states
				GOS	OLS/S		
F & E target villages:	391	581	976	108	1,479	155	180
Health education	391	581	976	1,296	1,117	155	180
Latrine provision	700	450	3,100	1,200	926	2,500	200
Water provision	30	150	25	30	-	-	-
Antibiotics							
Azithromycin target villages:		670	800	108	1,068	18	N/A
Mass treatment	140,000	1,200,000	784,000	500,000	100,000	100,000	
Tetracycline Oint. target villages:			800	108	1,479	155	180
Treatments	14,000	-	16,000	5,000	20,000	77,000	240,000
Surgery target villages:				108	1,479	155	40
Routine (health center-based)		700	1,875	1,500	4,350		-
Outreach campaigns (Eye Camps)	1,100	4,300	5,625	1,500	2,000		400
Total	1,100	5,000	7,500	3,000	6,350	11,280	
Monitoring, Eval. & Surveillance							
Prevalence survey (regions)	2 regions	2 regions	2 regions	1 area	5 areas	3 districts	-
KAP survey (regions)	-	1 region	-	2 areas	1 area	3 districts	-
Establish surveillance (regions)	2 regions	3 regions	3 regions	1 area	-	All 7 districts	4

“-” indicates that the program has not set goals; **N/A** indicates data do not apply

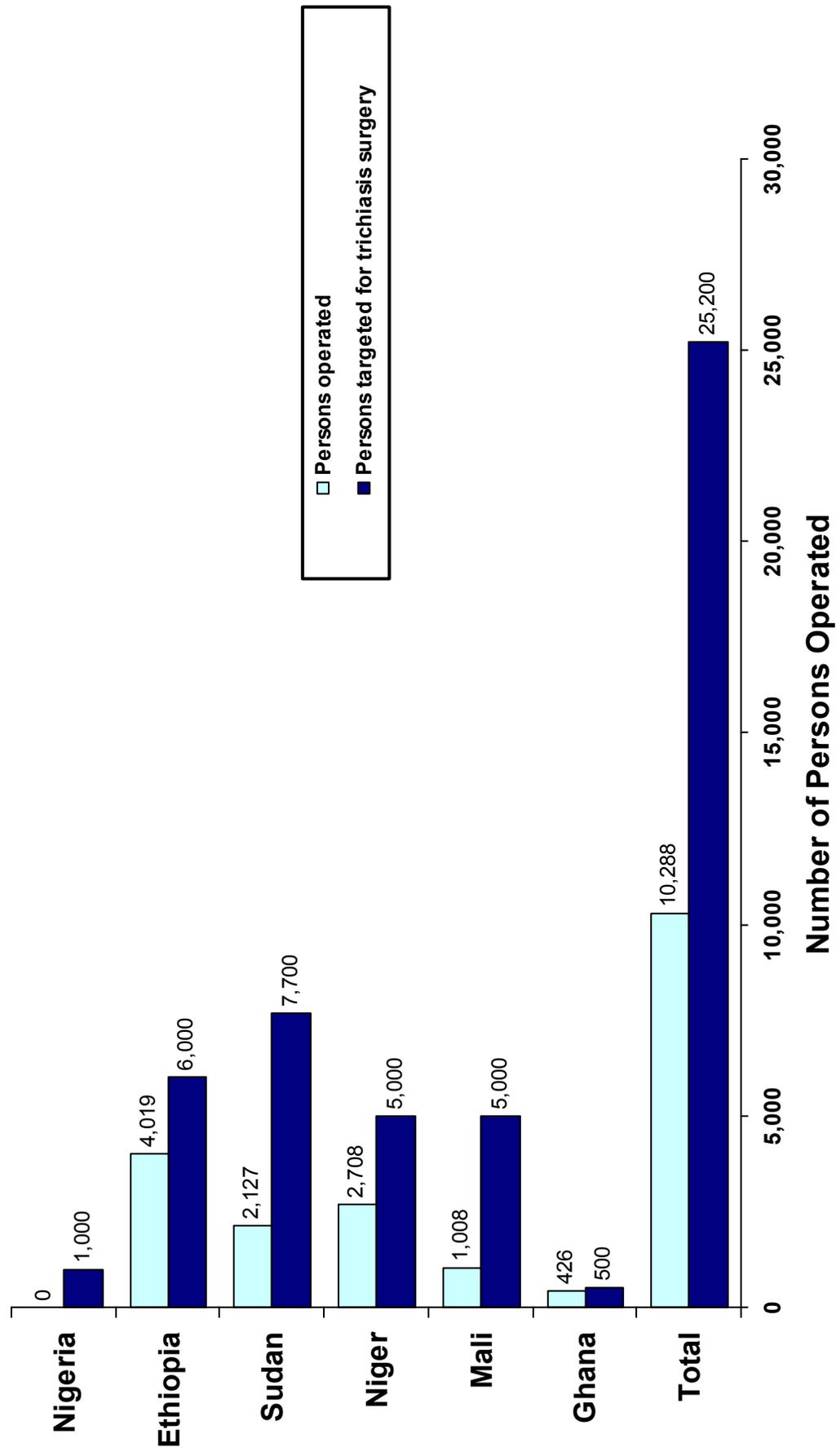
**Figure 1. Number of villages receiving hygiene education, by country
Carter Center-assisted trachoma control programs
January - December 2002**



**Figure 2. Number of persons treated with azithromycin, by country
 Carter Center-assisted trachoma control programs
 January - December 2002**



**Figure 3. Number of persons having received trichiasis surgery, by country
 Carter Center-assisted trachoma control programs
 January - December 2002**



Trachoma Initiative in Monitoring & Evaluation (TIME)

Presented by Dr. Anthony Solomon, London School of Hygiene and Tropical Medicine.

The Trachoma Initiative in Monitoring & Evaluation, or “TIME,” is an initiative of the London School of Hygiene and Tropical Medicine funded by the International Trachoma Initiative (ITI). In his report, Dr. Solomon discussed the questions the TIME team is grappling with. Dr. Solomon’s presentation was entertaining and visually interactive, which is difficult to translate into a short written summary. Nonetheless, this report attempts to capture the main points.

The goal of all trachoma control programs is to improve the eye health of their target populations, progressing from blinding trichiasis to healthy conjunctivas through application of the SAFE strategy. Program managers inevitably must answer certain important questions. These include:

1. How do we know whether we are moving towards our goal?
2. How can we determine if we are getting there in the best possible way, and when are we likely to arrive?
3. How do we know when we have arrived?

The first of these questions is answered through program *monitoring*. The second is answered through *evaluation*. The third requires consensus on the meaning of “eliminate”.

In 2001, the International Trachoma Initiative requested that the London School of Hygiene and Tropical Medicine establish a common framework to evaluate trachoma control activities *supported by ITI*, and to implement a mechanism for monitoring future activities. The project commenced in May 2002, working with ITI-supported trachoma control programs in Ethiopia, Ghana, Mali, Morocco, Niger, Nepal, Tanzania and Vietnam. The TIME team is composed of Professor Allen Foster, Professor David Mabey, Dr Hannah Kuper, Dr John Buchan, Ms Marcia Zondervan and Dr Anthony Solomon.

TIME held a workshop in London in August 2002 to examine ways to help trachoma control programs improve and standardize monitoring and evaluation. In the workshop, protocols for country visits by the TIME team were developed and the schedule of visits planned. In addition, the team offered to evaluate partner national TCPs.

(At this point, Dr. Solomon acknowledged the TIME team’s debt to the ongoing work done by the participants in The Carter Center-supported Trachoma Control Program Review meetings, and the *WHO meeting for the development of guidelines for assessment of the elimination of blinding trachoma* (November 2001). Those experts have done a great deal to define goals and indicators for monitoring and evaluation of trachoma control programs. TIME is intended to complement and build on this work.)

In developing standards for monitoring SAFE activities, the TIME team first considered process indicators to measure SAFE activities:

Monthly process indicators:

S – Number of people with TT operated per month.

A – Number of people receiving antibiotics per month.

F&E – This is more difficult, and will probably have to be country-specific.

Annual process indicators:

S – Annual TT achievement (ATTA)

A – Annual antibiotic achievement (AAA)

F&E – Annual achievement on nationally-defined indicators for F&E

The team then considered the following outcome and/or impact indicators, which tell us if we are achieving our goals:

1. Prevalence of TF
2. Prevalence of TT
3. Blindness from trachoma

The TIME team's method for research is to do participatory evaluations of ITI-supported TCPs, using both quantitative and qualitative techniques. Evaluations of Ghana and Morocco have been completed to date. The evaluations consider the following questions:

- How completely has the trachoma-endemic area been assessed?
- How well are S, A, F and E being done?
- What is the beneficiary's view?
- What is the management and organization of the program

The last question that TIME is currently grappling with is: How do we define "elimination of blinding trachoma?" Some possible answers being considered are:

- TF < 5% in 1-10 year old children
- TT < 1% in 40+ year olds, and <0.5% in 10+ year olds
- Blindness due to trachoma < 5% of all blindness.

Ethiopia School Health Program

Presented by Ms. Misrak Makonnen, Senior Program Officer for The Carter Center's Trachoma Control Program.

Background

In October 2000, the South Gondar Trachoma Control Program was launched in four districts of the South Gondar Zone, Amhara Region, Ethiopia. Trachoma prevalence and KAP studies done in December 2000 and February 2001, respectively, provided baseline information for the program. Schoolteachers in the intervention districts were interviewed as part of the KAP survey. These interviews revealed that most schoolteachers had not been trained in trachoma control and had minimal knowledge of the disease or its prevention.

There are 176 schools, 1,494 teachers and 87,102 students in grades 1-8 in the four TCP districts of South Gondar Zone. Teachers teach lessons on HIV/AIDS, malaria, the common cold and hygiene as part of the standard biology curriculum. Some schools even have school sanitation committees that clean the school compound and classrooms weekly. In general, schoolteachers were very interested and enthusiastic about introducing trachoma health education in their schools. They requested posters, theater pieces, jokes, and role-plays on trachoma prevention. Teachers also expressed their need for a structured guide to teaching trachoma prevention.

Curriculum Development

Discussions between The Carter Center and the Amhara Regional Health and Education Bureaus led to the formation of a working group charged with developing a school health curriculum. Library and internet-based research found that except for very useful individual lesson plans on the Helen Keller International (HKI) website, no curricula on trachoma control were available. Therefore, a trachoma prevention curriculum was developed by the working group with corresponding health education materials, including select lesson plans from HKI. The draft curriculum was then reviewed during a health education workshop conducted in Bahir Dar in October 2001.

The main components of the curriculum are:

- Teacher's guide
- Key educational messages
- Model activities
- List of teaching aids
- Eight units with specific objectives, and
- Final (9th) unit on planning *Trachoma Prevention Day*.

The curriculum covers all components of the SAFE strategy with an emphasis on F&E, personal and environmental hygiene and sanitation. In addition, it encourages students to identify other problems related to hygiene in their own communities and come up with their own solutions. It also includes various activities encouraging students to interact with other community members (e.g., clean up campaigns, *Trachoma Prevention Day*). The content of each unit can be adjusted to fit the grade level. An evaluation sheet for teachers has been included at the end of each unit to get feedback from teachers for quality management. Initial feedback from teachers has already suggested that the curriculum should be shortened and translated into Amharic.

Implementation

The new curriculum is being pilot tested in three schools in the Dera District (of South Gondar Zone) since December 2002, where 71 teachers were trained in trachoma control and prevention. Health education materials, such as training manuals, posters, flipcharts and a trachoma storybook, were distributed. Trachoma was taught as part of the regular curriculum in grades 1-4 (3,639 students), and through *trachoma clubs* and *sanitation clubs* for grades 5-8 grades (3,634 students). The health clubs had approximately 50 students in each age group.

Baseline data on key behavioral indicators were collected from club participants. The table below summarizes several of these findings for students living in semi-urban and rural areas.

Sanitation practices, rural and semi-urban students

Hygiene Practices	Positive Responses	
	Semi-urban	Rural
Latrine available at home	61%	5%
Most recent defecation was in latrine or pit	66%	8%
Practice sanitary refuse disposal (burn, bury or use small container)	34%	8%
Participate in community clean-ups	61%	18%

Additional 232 schoolteachers in the other intervention districts have now also been trained in trachoma control and prevention and given health education materials by the TCP, although they were not included in the pilot project to implement the curriculum. Once results are obtained from the pilot schools, the program will expand to other schools. The South Gondar Trachoma Control Program hopes to share their experiences with similar TCP school health programs in both Ethiopia and abroad in the years to come.

Using indicators to measure program coverage

Presented by Dr. Frank Richards, Medical Epidemiologist, Division of Parasitic Diseases, U.S. Centers for Disease Control and Prevention

Periodic mass treatment with ivermectin in endemic communities prevents eye and skin disease due to onchocerciasis. As part of the international global partnership to control onchocerciasis, The Carter Center's Global 2000 River Blindness Program (GRBP) assists the ministries of health in eleven countries to distribute ivermectin (Mectizan®, donated by Merck & Co.). The GRBP priorities are to maximize ivermectin treatment coverage and related health education and training efforts, and to monitor progress through regular reporting of ivermectin treatments. In 2002, the program assisted in providing a total of 8,964,429 treatments for onchocerciasis. In 2003, the GRBP expects to surpass 50 million ivermectin treatments since the program began in 1996.

To improve data reporting and analysis, the GRBP developed indices for measuring program coverage which have been field tested for years and are now accepted by the African Program for Onchocerciasis Control (APOC), the Mectizan Donation Program and NGO partners in river blindness control. The GET 2020 Alliance faces a similar challenge to define and standardize indicators for the coverage of program interventions. Because the interventions of the SAFE strategy cover a broader range than those used in onchocerciasis control, the terms *annual treatment objective* and *ultimate treatment goal* may be inappropriate for trachoma control programs and may be replaced by *annual target* and *ultimate intervention goal*.

The GRBP has important lessons to share with trachoma control programs.

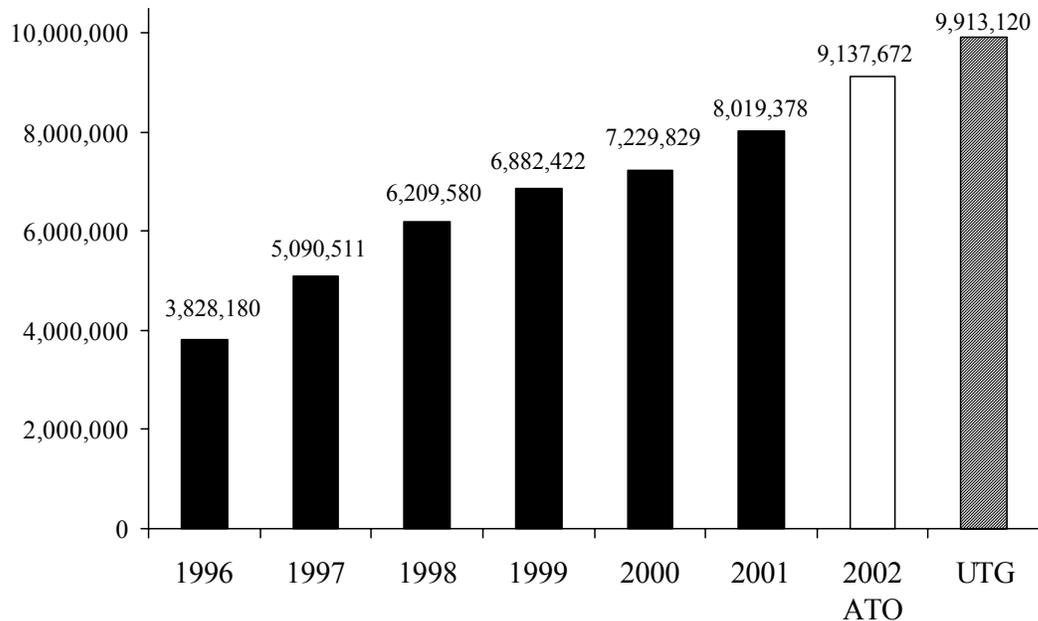
GRBP treatment indices

Treatments are reported as the numbers of persons or villages treated by state or province for the month. Cumulative treatment figures are compared to annual treatment objectives (ATOs). ATOs are established based on projections of program capacity and are contractual – the contract with the Mectizan Donation Program is based on this number. The ATO is expected to be the same figure used in the annual request for tablets submitted to the Mectizan Donation Program. Communities targeted for mass distribution campaigns receive the quantity of Mectizan needed to treat all eligible persons that year. In practice, the ATO is established in projections based on age eligible estimates and its accuracy is expected to improve over time. GRBP program directors are urged to define their ATOs using the latest epidemiological mapping information and village census data from the most recent treatment rounds. Program maturation allows treatments to approach the UTG. The ATO is also the standard used in a year to measure progress toward achieving the program's objective. Having achieved 50% ATO six months into the treatment year is a positive sign for management.

As programs mature, ATOs are refined and become better approximations of the total number of at-risk persons who are eligible for treatment, which is the ultimate treatment. But where does this refinement process end? When do we know that the annual targets

will not need further refining? The process ends when the ATO equals the total number of persons living in the entire program area who will need treatment.

**GRBP-assisted Programs: Mectizan Treatments, 1996-2001
with 2002 Annual Treatment Objective (ATO)
and Ultimate Treatment Goal (UTG)**



Full geographic coverage and the ultimate treatment goal

Full geographic coverage is reached when the program is able to extend mass treatment services to all at-risk villages in the assisted area. The ultimate treatment goal is defined as the sum of eligible populations living in all at-risk villages in the assisted area. That is, the UTG is that number of persons estimated to ultimately require Mectizan treatment once a program has the capacity to provide full geographic coverage. At the point when the program can demonstrate it has treated the UTG, it is said to have reached *full coverage*. In other words, full coverage is the point at which the number of annual treatments = ATO = UTG. GRBP program progress is judged by the ability to meet ATO objectives and to increase those objectives over a reasonable time to reach full geographic coverage and the ultimate treatment goal.

Comments:

Lessons for trachoma control programs

The excellent experience of onchocerciasis control programs has shown that ATOs, *full geographic coverage* and UTGs are practical and useful tools for program planning and

management. Our challenge is to adapt these tools to be useful for managing trachoma control programs. To do that, we need to recognize the significant differences in terminology, time and space between onchocerciasis and trachoma control strategies.

Terminology

To embrace the entire range of SAFE interventions (because, for example, we do not think of latrines as “treatments”), *ATO* can be replaced by *annual target* and *UTG* can be replaced by *Ultimate Intervention Goal (UIG)*.

Time and space

At this early stage, trachoma control programs evaluate progress one year at a time by setting *annual targets*. However, to achieve the goals of the GET 2020 Alliance, we need to plan a 10-17 year timeline for eliminating blinding trachoma from all countries. And because trachoma is endemic throughout vast regions, huge areas will need to be covered during that period. None of the Carter Center-assisted TCPs have achieved full geographic coverage yet. UIGs are a useful tool for assisting program managers to plan for achieving the goals of GET 2020. Whereas onchocerciasis programs use ATOs and UTGs to plan and evaluate a single intervention (delivery of Mectizan) over a set period of time, treating the same population over and over, trachoma control may involve at least four strategies (S, A, F and E) done at different times in different places. Given the limited resources with which programs must work, a “rolling strategy” may be best. Such a strategy would involve mass treatment of a geographic area for three to four years to slow transmission of *Chlamydia trachomatis* while long term F&E interventions are established. Once those improvements in hygiene and sanitation are strong enough to prevent transmission of trachoma in the target area, mass azithromycin treatment can roll on to another trachoma-endemic area, or be discontinued altogether. In this model, trichiasis surgery would be offered in all areas until there are no more uncorrected trichiasis cases. The goal of F&E interventions is to achieve permanent, sustainable improvements. The challenge is now to determine what would be a reasonable time for implementing mass antibiotic treatment before rolling on. ATOs and UIGs will be useful tools in meeting that challenge.

A more complete discussion of the GRBP’s ATOs and UTGs can be found in Dr. Richard’s article:

Richards FO, et al. The Carter Center's assistance to river blindness control programs: establishing treatment objectives and goals for monitoring ivermectin delivery systems on two continents. *Am J Trop Med Hyg.* 2001 Aug;65(2):108-14.

Midterm Evaluation of Lions-Carter Center SightFirst Initiative

Presented by Ms. Rebecca Teel Daou, Manager, Humanitarian Programs Department, Lions Clubs International Foundation.

In August 1999, Lions International approved a \$16.2 million, five-year SightFirst grant to create the Lions-Carter Center SightFirst Initiative. This initiative funds Carter Center-supported trachoma control programs in Ethiopia and Sudan, as well as river blindness control programs in Ethiopia, Nigeria, Uganda, Brazil, Colombia, Ecuador, Guatemala, Mexico and Venezuela. Trachoma control activities in Ethiopia target the South Gondar Zone of the Amhara Region. Specifically, four districts (Dera, Ebinat, Estie and Simada) were selected by the Amhara Health Bureau for Lions-Carter Center support. These districts have very high rates of inflammatory trachoma and trichiasis. Baseline trachoma prevalence and KAP surveys were used to develop a five-year plan to implement the SAFE strategy in the target districts. The plan includes doing corrective trichiasis surgery on 36,000 patients, treatment of at least 10,000 children with active inflammatory trachoma each year and providing 157 target villages with ongoing health education.

From December 12-14, 2003, an evaluation team from Lions International visited the South Gondar Zone Trachoma Control Program. The team included Dr. Gopal Prasad Pokharel, consultant ophthalmologist, World Health Organization and consultant to the Lions SightFirst Advisory Committee; Professor Henry S. Adala, consultant ophthalmologist, Lions District 411 and Ms. Rebecca Teel Daou, LCIF. The team visited field program sites and met with program personnel. The Lions team also evaluated Lions/Carter Center river blindness control programs in Ethiopia and Uganda.

Report on Dera District

- 726 (48%) of 1,500 planned trichiasis surgeries completed in 2002
- Slow start to distribution of antibiotics
- Health education provided in 20 (69%) of 29 target villages
- Few latrines have been constructed

Report on Ebinat District

- 1,014 (68%) of 1,500 planned surgeries completed
- Antibiotics provided to 1,563 (16%) of 10,000 target persons
- Health education provided in 292 (78%) of 376 target villages
- 100 (17%) of 600 planned pit latrines have been constructed

Local Lions' Involvement

Local Lions Clubs have been involved in trachoma control in the Amhara Region supporting the Lions-Carter Center Initiative and in complementary projects. In 2002, SightFirst awarded a grant to local Lions for trichiasis surgery training and purchase of 50 trichiasis surgical kits to facilitate 9,000 TT surgeries. Another SightFirst grant to local Lions provided for training eye care nurses. Lions have also been active advocates

for trachoma control at the national level, including the development of the Five Year National Eye Care Plan for Ethiopia.

Recommendations

First of all, the evaluation team emphasized that although the targets were not fully achieved, they were impressed by the TCP's professionalism and the progress made under difficult circumstances. The evaluation team recommended that LCIF extend their support of Lions-Carter Center TCP field activities through August 2005. Specifically, they recommended:

- The program increase the number of trichiasis surgeons.
- Continuing education should be offered for trichiasis surgeons and include maintenance and sterilization of instruments.
- Mass treatment with tetracycline ophthalmic ointment should be started until Zithromax becomes widely available.
- Health education efforts should be enhanced and expanded to target children not in schools.
- The Amhara Health Bureau should explore means of sustaining the supply of consumables for trichiasis surgery.
- Lions and the TCP should increase national advocacy efforts for trachoma control.
- Water supply efforts should target trachoma-endemic areas where feasible.

Zinder Latrine Promotion Project, Niger

Presented by Mr. Salissou Kane, The Carter Center, Niger

Transmission of blinding trachoma by eye-seeking flies, particularly *Musca sorbens*, has been well established through research by Dr. Paul Emerson and others. Where flies are a problem, the most efficient means of control is to reduce fly breeding sites, and one of the best ways to accomplish this is for people to use latrines instead of defecating on the ground. Promotion of latrine use is very important in Zinder, the most highly trachoma-endemic region of Niger. Zinder is also a region with few to no latrines in rural areas (anecdotal reports suggest that 0% - 2% of rural households have latrines). To control fly populations and strengthen trachoma control activities in the region, the Niger TCP, in collaboration with The Carter Center, launched a pilot latrine promotion project in February 2002.

The *Zinder Latrine Promotion Project* builds on the success of the *Integrated Village Water, Hygiene and Sanitation Program*, which Niger's Ministry of Water and Ministry of Health implemented in the Dosso Region. The director of the hygiene and sanitation components of the Dosso program, Mr. Ali Amadou, is The Carter Center's technical consultant for the latrine promotion project.

The objectives of the project are to:

1. Improve environmental hygiene knowledge and practices in 30 target villages.
2. Build at least 1,050 SanPlat latrines during the first year (2002).
3. Promote sustainable latrine use in target villages with a long-term goal of making latrines available to at least 50% of rural households.

Villages were eligible to participate in the project if they had a community health worker, a school teacher (either public or Koranic school), and a reliable source of water. Early in 2002, the chief regional sanitary technician and project staff visited eligible villages to discuss the project with local leaders. Thirty villages, with a total of 56,957 inhabitants, were selected to participate in the project. In each selected village, about 35 beneficiary households were selected.

In February, eleven sanitary technicians were trained in trachoma control and latrine construction. Seventy masons were trained in the construction of SanPlat (sanitary platform) latrines and began working in March. The average cost to build a household latrine was about US\$40 (24,000 FCFA), which was shared between the household and the project. The Carter Center supplied tools, cement and iron rebar for masons (valued at US\$14 [8,400 FCFA]), as well as hygiene education materials and training for Ministry of Health sanitarians and village volunteers. Each village and beneficiary household supplied labor and materials for digging the latrine, funding the masons' work and building the latrine enclosure (valued at US\$26 [15,600 FCFA]).

The hygiene education aspect of the project promotes trachoma prevention through facial cleanliness and environmental clean up campaigns. In addition, hygiene education integrates key lessons in personal hygiene, such as hand washing before each meal and after using the toilet,

and increasing washing of clothes and towels. Important lessons in environmental hygiene include composting solid wastes for fertilizer, constructing seepage pits to collect waste water and improving storage of food preparation materials. Because commercially manufactured soap is prohibitively expensive, as is the cost of commercial soap ingredients, the project also assists by training villagers in the production of traditional soaps using local materials.

By the end of the year, the Zinder latrine promotion project had constructed 1,032 household SanPlat latrines. This suggests that 13% of households in the 30 target villages had a latrine, more than a six fold increase over the initial latrine coverage. In addition, in many villages, the latrine promotion project assisted villagers to renovate and improve traditional latrines. In some cases, villagers constructed SanPlat latrines on their own. When the International Trachoma Initiative proposed funding latrines in Zinder, the project's sanitary technicians trained new masons in latrine construction. They built 232 additional household latrines and five school latrines.

During this initial phase, we learned some key elements which, we believe will be important for the success of the project:

- Involve the community in all steps of the process.
- Carefully train all masons and technicians.
- Do a baseline assessment of village hygiene.
- Integrate health education into the process.
- Teach latrine maintenance.
- Share experience and lessons learned with partners.

At the end of one year, the Zinder Latrine Promotion Project has led to a significant increase in the number of rural households with latrines in the 30 target villages. The project hopes to continue until it reaches 50% of households. In mid-2003, the project will assess the acceptability, use and maintenance of latrines, and explore sustainability issues.

APPENDIX I: The Disease

Trachoma is the world's leading cause of preventable blindness. The World Health Organization estimates that 6 million people are blind due to trachoma, most of whom are women, and another 540 million – almost 10 percent of the world's population – are at risk of blindness or severe visual impairment. Recently, health economists at Johns Hopkins University conservatively estimated the annual economic burden of trachoma at \$2.9 billion. In addition to the macroeconomic cost, trachoma causes personal tragedy – its consequences harm families and entire communities. Trachoma is caused by repeated infections of the eyelids by the bacterium *Chlamydia trachomatis*. Blindness from trachoma is not treatable, not even in the best of situations, yet trachoma can be prevented through simple hygiene. Most cases occur in rural, arid areas of developing countries, such as the Sahelian region of Africa, where access to clean water, latrines and primary health care services are limited.

The early, acute stage of the disease is called *inflammatory trachoma* (TF/TI), and is most common among children. Women are repeatedly exposed to inflammatory trachoma in their role as primary caretakers of children. It is therefore not surprising to find that women develop chronic trachoma two to three times more often than men. Trachoma is transmitted through discharge from the eyes and nose of infected individuals, which may be passed to others on hands, towels and clothing, or by flies, which are attracted to ocular and nasal discharges. As a trachoma patient's eyelids are repeatedly infected with chlamydia, subsequent scarring of the conjunctiva deforms the eyelid margin, resulting in eyelashes turning inward and rubbing against the cornea. This condition, called *trichiasis* (TT), causes pain and scarring of the cornea, which eventually leads to blindness.

Recent developments have brought new hope that we can effectively control this disease. In 1987, eye care experts and the World Health Organization (WHO) developed a simplified trachoma grading scale, which facilitated and standardized the diagnosis and identification of all stages of trachoma. In 1996, WHO established the GET2020 Alliance, which brings international non-governmental development organizations, donors and researchers together to work collectively in controlling trachoma. In addition, with support from the Edna McConnell Clark Foundation (EMCF) and WHO, the *SAFE strategy* was created to control trachoma through community-based interventions.

Another important development was the finding that the oral antibiotic *azithromycin*, taken once or twice annually, is as effective in preventing chronic trachoma as six weeks of daily treatment with tetracycline eye ointment, the previously recommended therapy. To assist ministries of health in implementing the "A" component of the SAFE strategy, the International Trachoma Initiative (ITI), formed through the collaboration of EMCF and Pfizer Inc in 1998, is managing a significant donation of Zithromax, Pfizer's brand of azithromycin, for treatment of trachoma in selected developing countries.

APPENDIX II: AGENDA
Fourth Annual Program Review
Carter Center-Assisted Trachoma Control Programs
The Carter Center, Cecil B Day Chapel
February 24 - 25, 2003

Monday, February 24

7:15am	Shuttle pick-up at hotel	
7:30 - 8:00	<u>Breakfast in Ivan Allen Foyer</u>	
8:00 - 8:30	Welcome and introductory remarks	Dr. James Zingeser
F & E		
8:30 - 8:50	Ghana Presentation	Dr. Maria Hagan
8:50 - 9:10	Mali Presentation	Dr. Doulaye Sacko
9:10 - 9:30	Niger Presentation	Dr. Kadri Boubacar
9:30 - 10:10	Sudan Presentation	Prof. M. Homeida Dr. Jeremiah Ngondi
10:10 - 10:25	<u>Coffee Break/Ivan Allen Foyer</u>	
10:25 - 10:45	Ethiopia Presentation	Mr. Zelalem Aberra
10:45 - 11:05	Nigeria Presentation	Dr. Nimzing Jip
11:05 - 12:30	Discussions/recommendations	
12:30 - 1:45	<u>Lunch in Ivan Allen Foyer (optional museum tour)</u>	
1:45 - 2:00	Group Photo	
Special Sessions		
2:00 - 3:00	Niger Latrine Project	Mr. Salissou Kane
3:00 - 3:15	<u>Coffee Break/Ivan Allen Foyer</u>	
3:15 - 3:25	LIONS Midterm Evaluation	Ms. Rebecca Daou
3:25 - 5:00	Ethiopia School Health Initiative	Mr. Zelalem Aberra Ms. Misrak Makonnen
5:30	Shuttle departure	

Tuesday, February 25

7:15am Shuttle pick-up at hotel

7:30 - 8:00 Breakfast in Ivan Allen Foyer

S & A

8:00 - 8:20 Ghana Presentation

Dr. Maria Hagan

8:20 - 8:40 Mali Presentation

Dr. Doulaye Sacko

8:40 - 9:00 Niger Presentation

Dr. Kadri Boubacar

9:00 - 9:40 Sudan Presentation

Prof. M. Homeida
Dr. Jeremiah Ngondi

9:40 - 10:00 Ethiopia Presentation

Mr. Zelalem Aberra

10:00 - 10:15 Coffee Break/Ivan Allen Foyer

10:15 - 10:35 Nigeria Presentation

Dr. Nimzing Jip

10:35 - 12:00 Discussions/recommendations

12:00 - 1:00 Lunch in Ivan Allen Foyer

Special Sessions

1:00 - 1:15 ATO's and UTG's - Setting Program Targets

Dr. Frank Richards

1:15 - 1:50 Collecting data at the community level

Dr. Daniel Yayemain

1:50 - 2:00 Update on TIME Study

Dr. Anthony Solomon

2:00 - 3:00 Updates on using TCP indicators

All countries
Dr. James Zingeser

3:00 - 3:15 Coffee Break/Ivan Allen Foyer

3:15 - 5:00 General conclusions and reflections

Dr. Donald Hopkins

5:30 Shuttle departure

APPENDIX III: List of Participants

Ethiopia

Dr. Asefa Worku
Mr. Teshome Gebre (Carter Center)
Mr. Zelalem Abera

Ghana

Dr. Maria Hagan
Dr. Daniel Yayemain
Mrs. Nwando Diallo (Carter Center)
Mr. Eric Dumakor (Carter Center)

Mali

Dr. Doulaye Sacko
Dr. Mamadou Bathily (Carter Center)
Mr. Yaya Kamissoko (Carter Center)

Niger

Dr. Kadri Boubacar
Mr. Salissou Kane (Carter Center)
Mr. Ali Amadou (Carter Center)

Nigeria

Dr. Emmanuel Miri (Carter Center)
Dr. Nimzing Jip (Carter Center)

Sudan

Prof. Mamoun Homeida
Dr. Magdi Ali
Ms. Kelly Callahan (Carter Center)
Dr. Jeremiah Ngondi (Carter Center)
Mr. Mark Pelletier (Carter Center)

The Carter Center

Dr. Donald Hopkins
Dr. James Zingeser
Dr. Frank Richards
Mr. Craig Withers
Ms. Nicole Kruse
Dr. Mamadou Diallo
Ms. Misrak Makonnen
Ms. Robin Vinson
Ms. Jennifer Moore
Ms. Shandal Sullivan
Mr. Stan Miano
Ms. Dana Lee
Ms. Laura Lester
Ms. Emily Howard

Conrad N. Hilton Foundation

Ms. Dyanne Hayes
Ms. Rose Arnold

Lions Clubs International Foundation

Ms. Rebecca Teel Daou

US Centers for Disease Control and Prevention

Dr. Robert Wirtz
Dr. Ellen Dotson
Dr. Stephen Blount
Mr. Ross Cox

Helen Keller Worldwide

Ms. Manisha Tharaney

International Trachoma Initiative

Mr. Jeffrey Mecaskey

University of Durham

Dr. Paul Emerson
Ms. Sophie Masson

Pfizer Inc

Ms. Heather Lauver

World Vision USA

Dr. Joseph Riverson
Dr. Fe Garcia
Mr. Samuel Jackson

London School of Hygiene and Tropical Medicine

Dr. Anthony Solomon