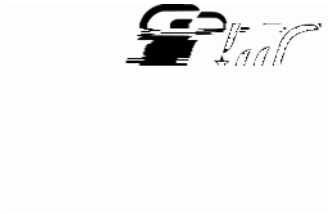


Figure A: Impact in Africa

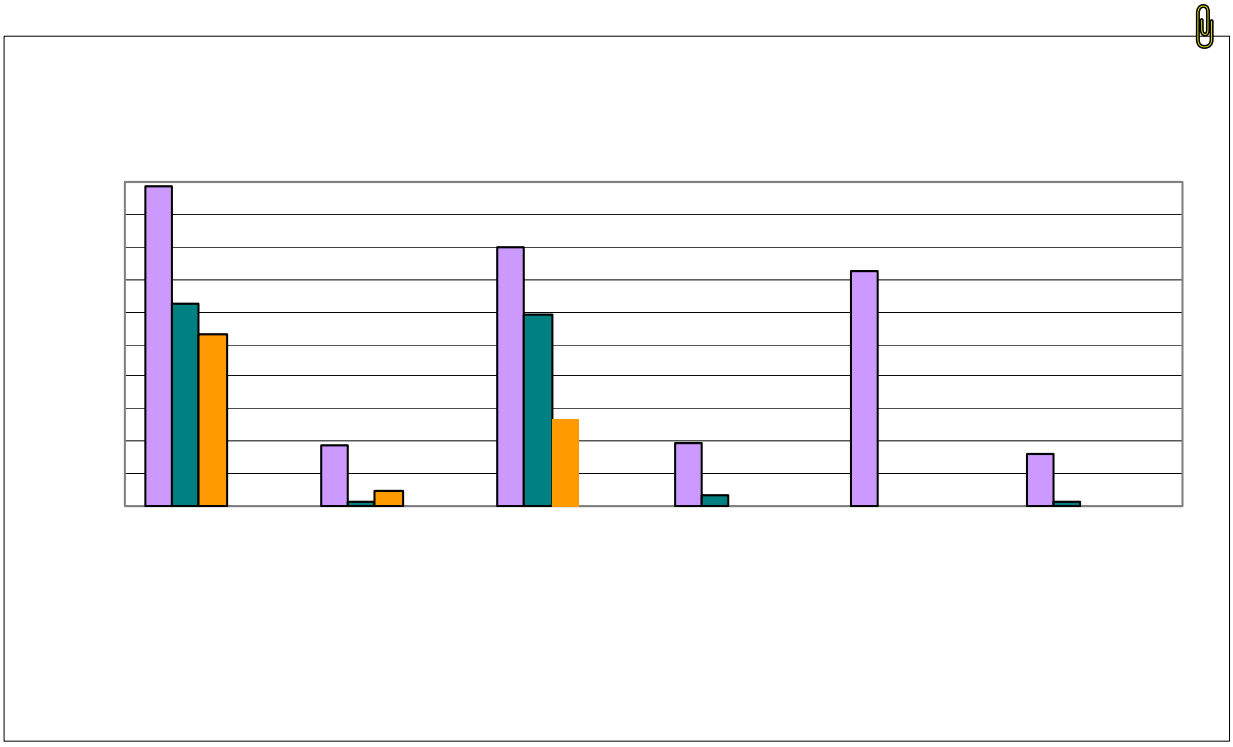
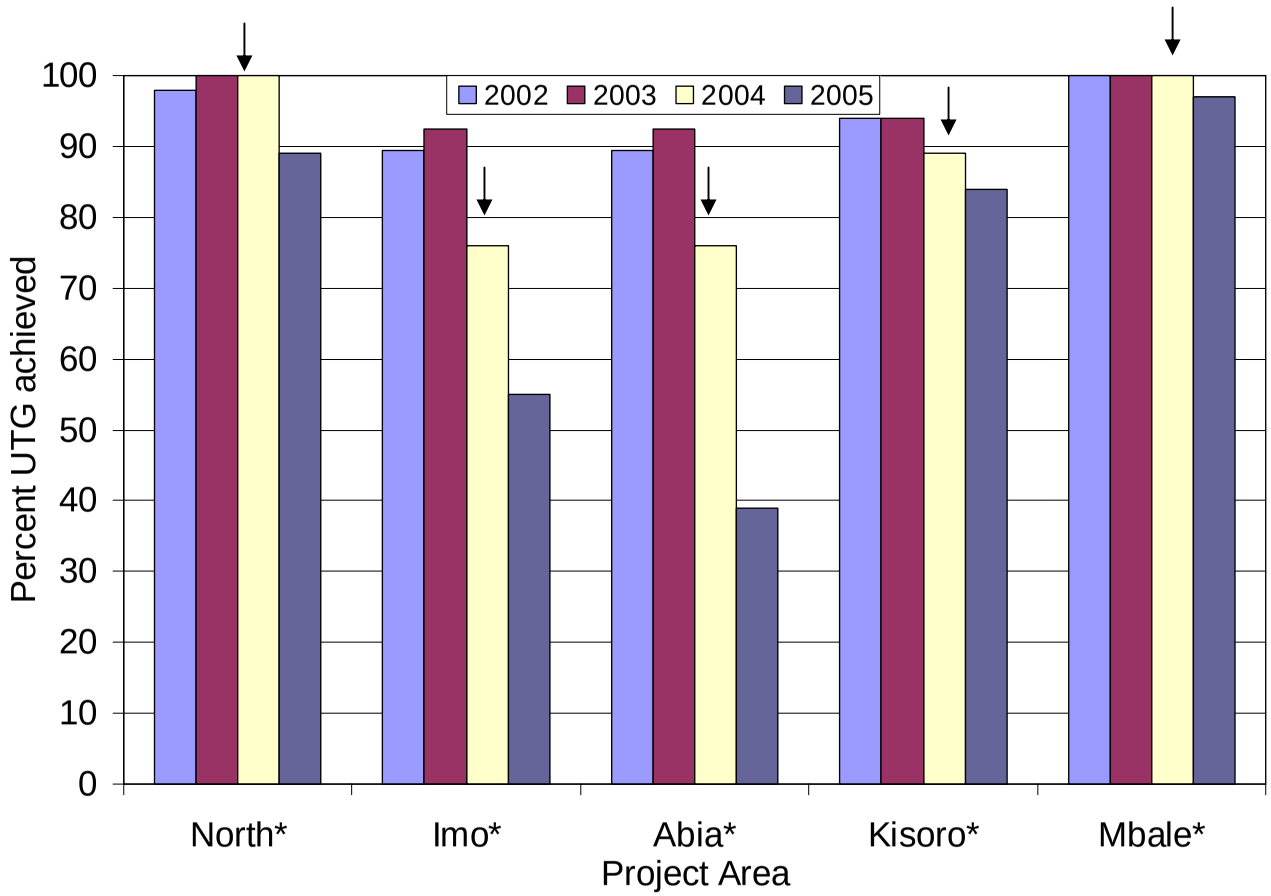


Figure B: UTG coverage of projects which participated in the Post-APOC, Post-NGDO trial in 2004 and 2005, in which Carter Center did not fund activities



↓ Arrows indicate when Carter Center funds were stopped.

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INTRODUCTION AND OVERVIEW

The River Blindness Program of The Carter Center assists the ministries of health of 11 countries (Figure 1) to distribute Mectizan® (ivermectin, donated by Merck & Co., Inc.) through programs that aim to control or eliminate onchocerciasis. Human onchocerciasis, caused by the parasite *Onchocerca volvulus,* is an infection is characterized by chronic skin and eye lesions. Onchocerciasis is transmitted by small black flies that breed in rapidly flowing rivers and streams, thus leading to the common name for the disease, "river blindness." The World Health Organization (WHO) estimates that approximately 17.6 million people are infected and 770,000 are blinded or severely visually impaired in the 37 endemic countries. Approximately 123 million people live in endemic areas worldwide and are therefore at risk of infection; more than 99% of those at risk reside in Africa. Periodic mass treatment with Mectizan® prevents eye and skin disease caused by *O. volvulus* and may also be used to reduce or even interrupt transmission of the disease.

Local Lions Clubs and the Lions Clubs International Foundation (LCIF) are special partners of The Carter Center in the battle against river blindness (RB). When The Carter Center assumed the functions of the River Blindness Foundation (RBF) in 1996, we also entered into RBF's former collaboration with local Lions Clubs in Cameroon and Nigeria for community mobilization, health education, and supervision of Mectizan® distribution activities. Since 1997, LCIF has generously provided grants through their SightFirst Initiative to The Carter Center for the control of river blindness and trachoma, including a five year grant of $16 million in 1999. Through the SightFirst Initiative, LCIF and The Carter Center expanded their partnership to encompass controlling river blindness in five countries in Africa (Cameroon, Ethiopia, Nigeria, Sudan, and Uganda) and eliminating river blindness altogether in the six endemic countries of the Americas (Brazil, Colombia, Ecuador, Guatemala, Mexico, and Venezuela).

In 2003, the Bill & Melinda Gates Foundation made a $10 million challenge grant to The Carter Center in support of our elimination efforts in the Americas. The grant provided $5 million as an outright contribution and challenged the Center to raise an additional $5 million, which would be matched dollar-for-dollar by the Gates Foundation. LCIF, with a pledge of $2 million, and many other donors helped the Center meet the challenge by the end of 2005.

Other partners in Africa and the Americas include Merck & Co., Inc., the U.S. Centers for Disease Control and Prevention (CDC), WHO, the African Program for Onchocerciasis Control, and The World Bank, as well as other foundations, industries, international bilateral donors, and other nongovernmental development organizations (NGDOs).

The River Blindness Program hosted its tenth annual Program Review on February 20-22, 2006, at Hilton, Addis Ababa in Ethiopia. The review is modeled after similar reviews developed by The Carter Center and CDC for national Guinea Worm Eradication Programs, beginning with Pakistan in 1988 (see Annex 1 for background

information on Carter Center activities). The main purposes of the review were to assess the status of each program, celebrate successes, and determine impediments and problems in program implementation.

Program review attendants included the following: Carter Center country representatives Dr. Albert Eyamba (Cameroon), Mr. Teshome Gebre (Ethiopia), Ms. Peace Habomugisha (Uganda), Dr. Emmanuel Miri (Nigeria), and the resident technical advisors of Sudan (Mr. Steven Becknell in Juba (GoSS) and Mr. Raymond Stewart in Khartoum). Dr. Mauricio Sauerbrey, director of the Onchocerciasis Elimination Program for the Americas (OEPA), presented progress made in the six endemic countries in the Americas. Other technical staff members included Drs. Abel Eigege and Emmanuel Emukah (Nigeria), and Mr. Abate Tilahun (Ethiopia). Ministry of Health representatives included Dr. Daddi Jima (Ethiopia), Dr. Richard Ndyomugyenyi (Uganda), Dr. Marceline Ntep (Cameroon), Dr. Ambrose Onapa (Uganda), and Dr. Y.A. Saka (Nigeria). Special guests included Dr. Uche Amazigo (Director of APOC); Dr. Samson Baba (Southern Sudan Onchocerciasis Task Force); Dr. Tebebe Berhan, Mr. Getachew Desta, Mr. Mayur Kotari, Mr. Ramendra Shah, Mr. George Stavrou, Mr. Getachew Temeche, and Dr. Kebede Worku (Lions, Ethiopia); Mr. Fa

In the Americas, Mectizan® treatments are given twice per year with the goals being to both eliminate clinical manifestations of onchocerciasis by 2007 and to interrupt transmission of the disease so that ocular

Experiences of the Post-APOC, Post-NGDO sustainability trial

The African Program for Onchocerciasis Control (APOC)/WHO and The World Bank have scaled down their support in recent years to all Carter Center assisted projects in Africa. These projects have received or will receive funds for capital equipment replacement and funds for advocacy, but will no longer get funds for delivery of Mectizan® from APOC Trust fund

Twenty-four Carter Center assisted areas are no longer receiving APOC support. Five of these were selected for a Post-APOC, Post-NGDO (PAPN) trial in 2004 and 2005: North Province (Cameroon), Imo and Abia States (Nigeria), and Kisoro and Mbale Districts (Uganda). All of these were the highest scoring Carter Center assisted areas on their APOC sustainability evaluation in their respective countries. The Carter Center withdrew funding for activities in 2004 and 2005 in order to test what could happen when activities are turned over to the full responsibility of the national, state, and local governments. Figure 6 shows the treatment performance in these areas from 2003 (when they were fully funded) to 2005. Table 2 shows the coverage in each of the Carter Center projects with respect to APOC year.

The improved version of the presentation format developed for the 2004 Program

Better information is needed on CDD attrition, CDD training, and CDD retraining. Indices for CDDs should include CDDs/village, CDDs/population targeted, CDDs/persons treated, and CDDs/kinship group.

Carter Center program staff are encouraged to complete the Emory IRB ethics test, and are required to do so where research on human subjects is or will be taking place.

The presentation format should continue to be modified to simplify data presented on each slide, using more graphs and fewer tables.

All projects should send CDD training proposals to APOC, with a focus on kindred approach.

Enhance CDC collaboration in Nigeria, OEPA and other countries (particularly those interested in elimination).

Encourage APOC to deal with cross border issues.

To invest in integration with other diseases, we would first need formal Carter Center Board approval; however, if the government wants to support integration in areas where we work, we cannot refuse to participate.

Figure 2: Carter Center-Assisted Programs:

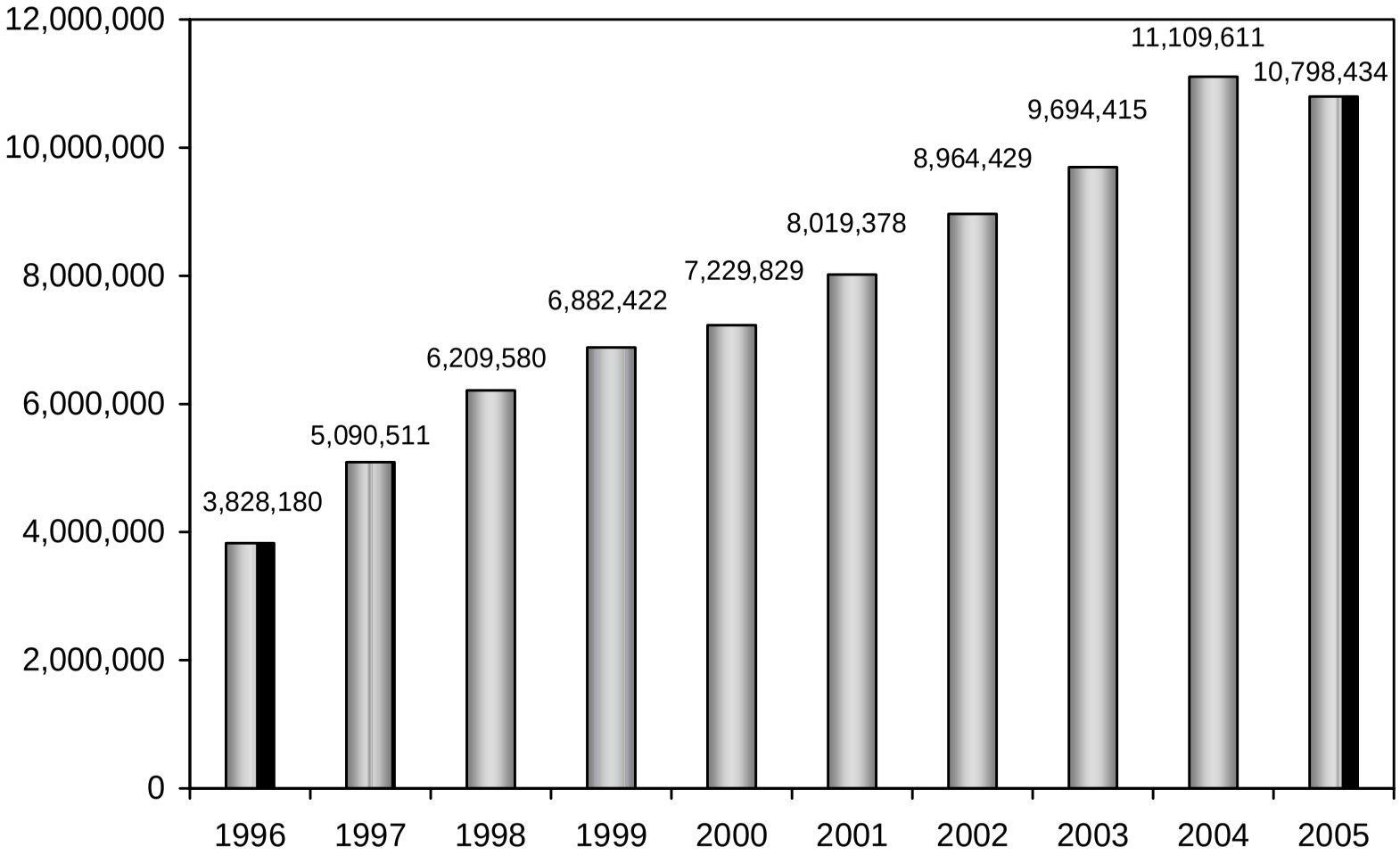
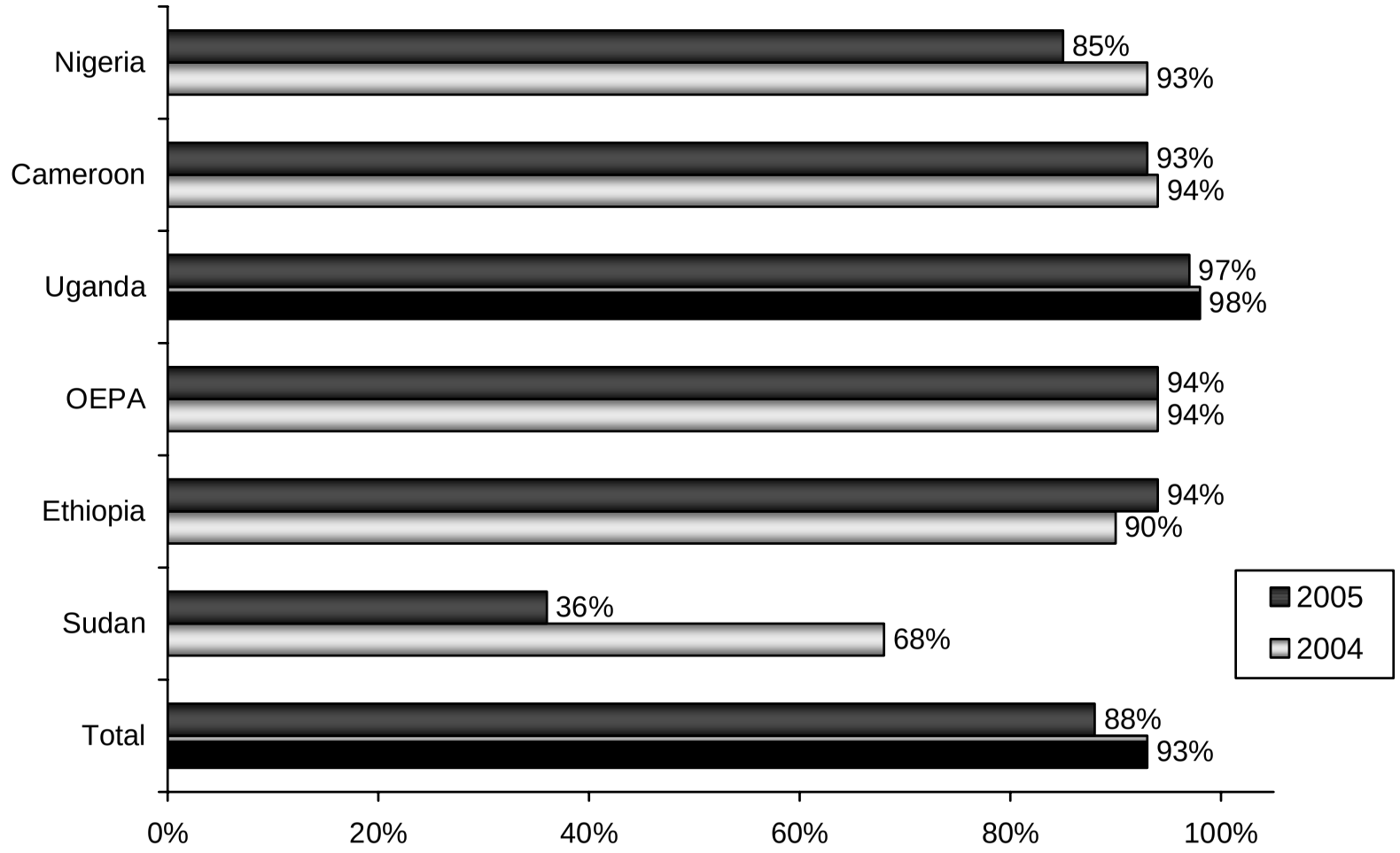


Figure 3: Carter Center-Assisted Programs: Percent of Ultimate Treatment Goals reached in 2004 and 2005



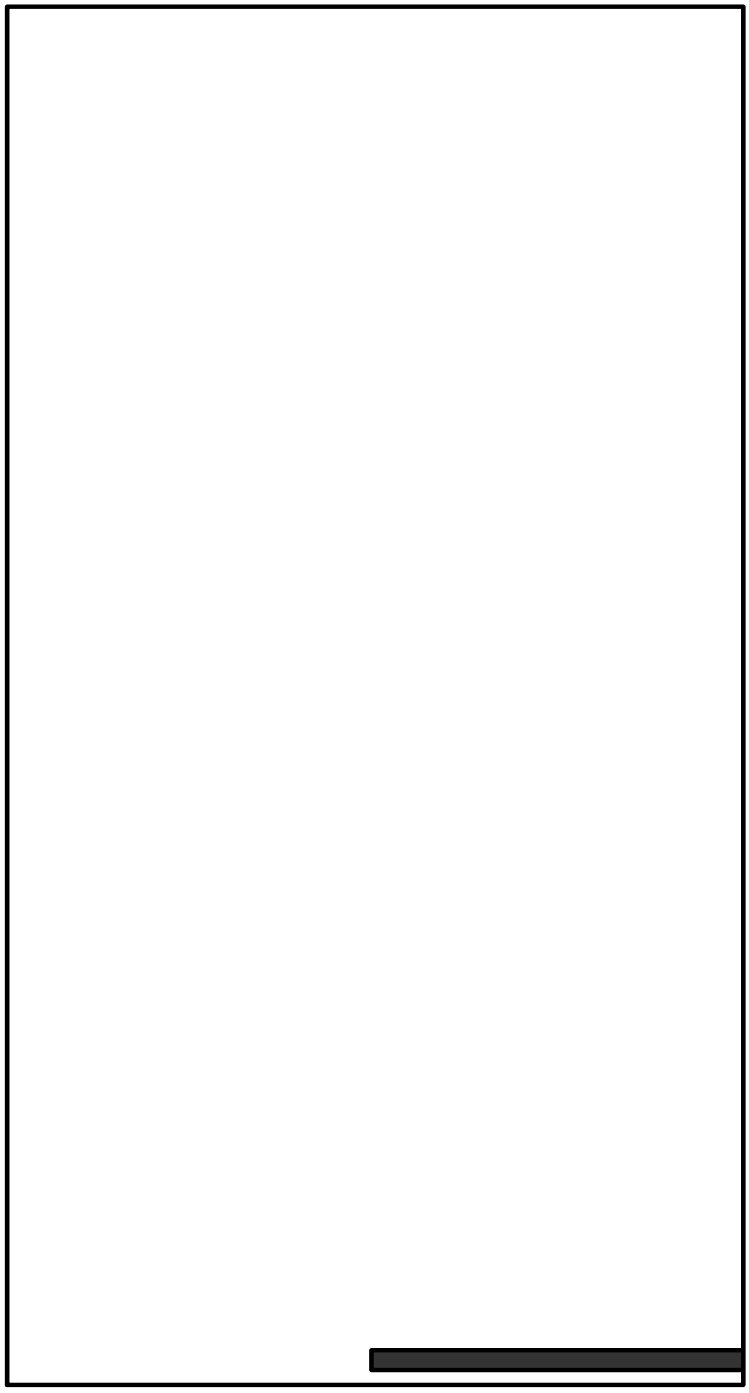


Figure 5: <u>Annual</u> Mectizan Treatments, Carter Center-Assisted and Carter Center / Lions-Assisted Programs

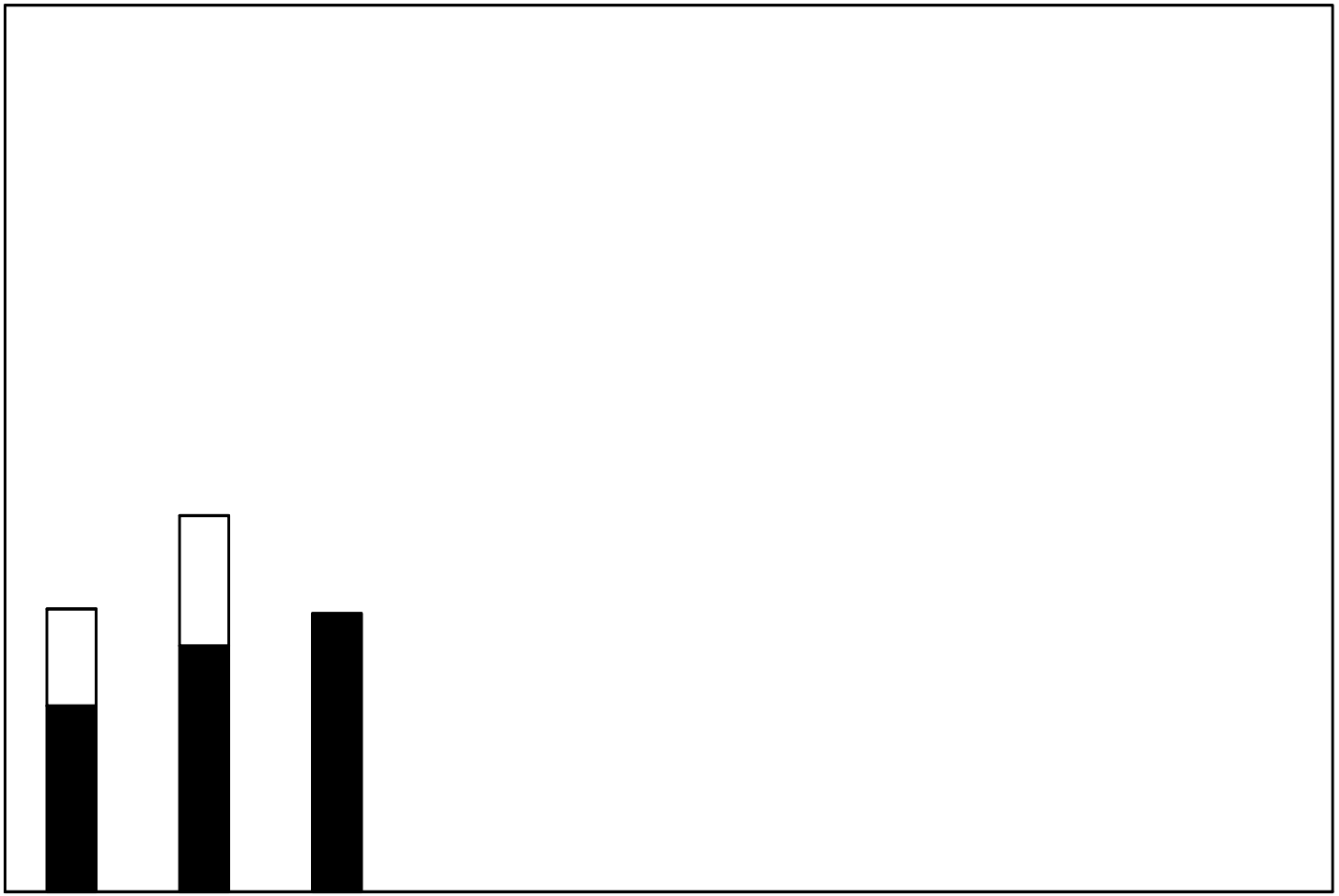
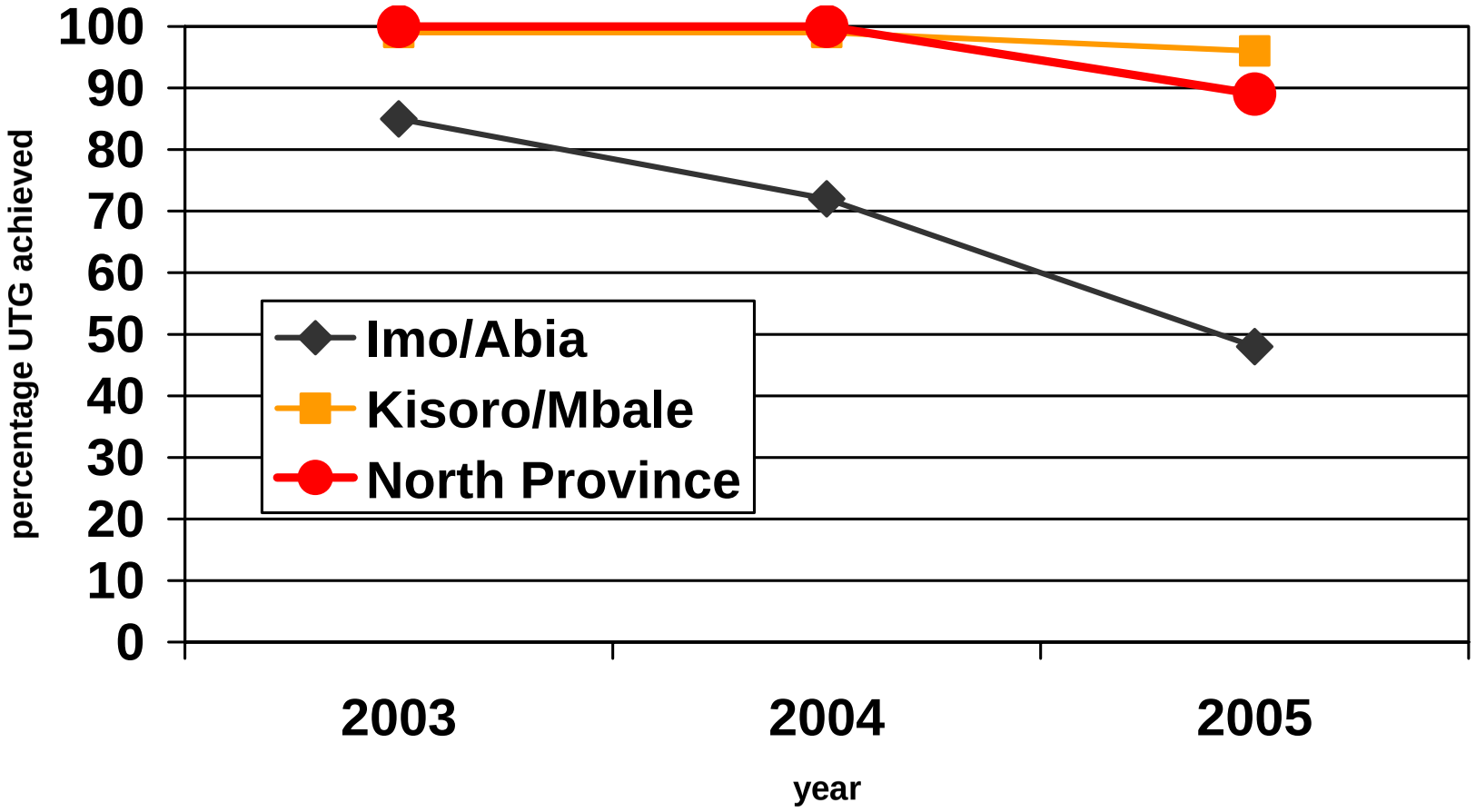


Figure 6: Post-APOC, Post-NGDO Projects
Mass Treatment Coverage, 2003 – 2005*



* In 2003, APOC funding ceased and Carter Center withdrew activity funding to test post-APOC, post-NGDO scenario.

Table 1: Onchocerciasis: 2005 Mectizan mass treatment figures for The Carter Center River Blindness Program-assisted areas in Nigeria, Uganda, Cameroon, Ethiopia, and collaborative programs in Latin America (OEPA) and Sudan

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL	% ATO	% ALL RBP TX
NIGERIA	***UTG=**	**4,847,289**		**ATO(arv)=**	**7,917**										
Treatments	0	17,117	171,617	147,745	92,227	495,134	1,524,148	674,094	159,396	464,871	290,368	215,292	**4,252,009**	88%	41%
Villages treated	0	15	141	72	128	754	2,215	1,095	418	750	624	121	**6,333**	80%	24%
UGANDA	***UTG=**	**1,049,867**		**ATO(arv)=**	**2,360**										
Treatments	0	13,263	154,086	154,711	62,587	100,744	110,731	155,435	165,238	79,822	24,804	0	**1,021,421**	97%	10%
Villages treated	0	31	227	502	273	367	371	485	516	213	189	0	**2,360**	100%	9%
CAMEROON	***UTG=**	**1,502,412**		**ATO(arv)=**	**3,392**										
Treatments	0	0	0	0	0	193,995	0	65,296	167,887	269,792	280,813	413,590	**1,391,373**	93%	13%
Villages treated	0	0	0	0	0	531	0	173	268	849	1,299	453	**3,573**	105%	14%
OEPA	****UTG(2)=**	**908,852**		**ATO(arv)=**	**1,950**										
Treatments	0	0	0	0	0	426,204	0	0	0	0	0	428,998	**855,202**	94%	8%
Villages treated	0	0	0	0	0	1,833	0	0	0	0	0	1,859	**1,846**	95%	7%
ETHIOPIA	***UTG=**	**2,680,868**		**ATO(arv)=**	**13,842**										
Treatments	0	0	0	0	0	307,059	94,536	1,376,283	26,465	632,582	95,042	0	**2,531,967**	94%	25%
Villages treated	0	0	0	0	0	1,207	722	7,573	0	2,585	0	0	**12,087**	87%	46%
SUDAN	***ATO=**	**759,742**													
Treatments	17,893	19,591	18,319	2,731	16,064	0	0	0	0	0	0	194,334	**268,932**	35%	3%
TOTALS	***ATO=**	**11,749,030**		**ATO(arv)=**	**29,461**										
Treatments	**17,893**	**49,971**	**344,022**	**305,187**	**170,878**	**1,523,136**	**1,729,415**	**2,271,108**	**518,986**	**1,641,401**	**885,361**	**1,252,214**	**10,320,904**	**88%**	**100%**
Villages treated	**0**	**46**	**368**	**574**	**401**	**1,652**	**2,586**	**1,753**	**1,202**	**1,812**	**2,112**	**2,433**	**26,199**	**89%**	**100%**

RBP-assisted cumulative treatments (1996 - 2005) = 76,577,813
2005 total passive treatments = 10,789,434

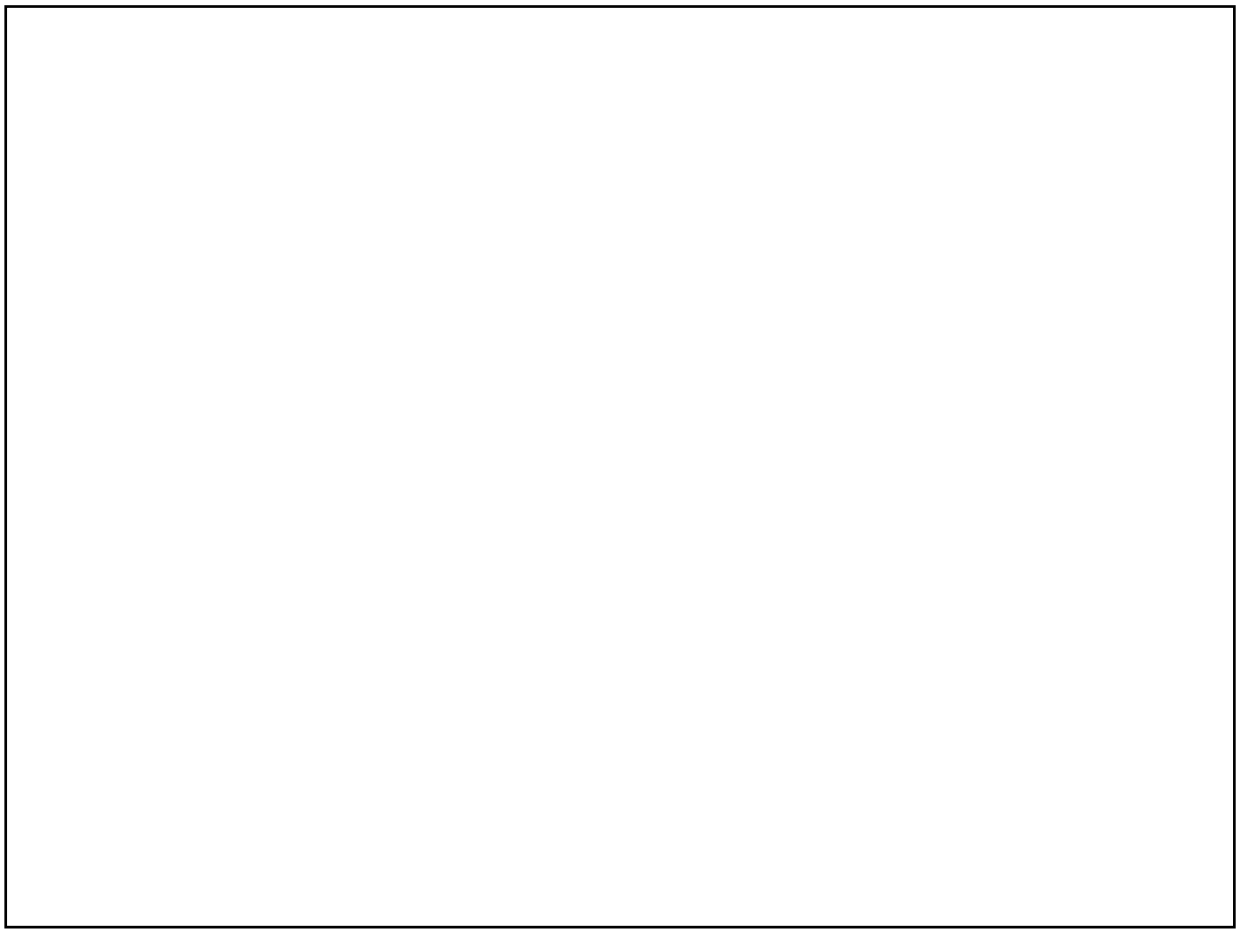
***ATO**: Annual Treatment Objective, **UTG**: Ultimate Treatment Goal
OEPA figures reported quarterly, **UTG(2) is the Ultimate Treatment Goal times 2, since OEPA treatments are semiannual

The total number eligible for treatment in

In August 2005, President Carter wrote to President Chavez of Venezuela to communicate these recommendations to the highest levels of government.

IACO 2005:

The fifteenth annual InterAmerican Conference on Onchocerciasis (IACO 2005) was held in Caracas, Venezuela in November 2005. The meeting was organized by OEPA and PAHO, with financial support from the Bill & Melinda Gates Foundation, Lions Clubs International Foundation and Merck & Co. In addition to representatives from the six national programs and the sponsoring agencies, the meeting was attended by representatives from the Mectizan® Donation Program, nongovernmental development organizations involved in Mectizan® distribution in endemic areas, CDC and academic institutions. A large contingent of Lions attended the meeting, representing local Lions Clubs in five of the six endemic countries (Brazil absent), and the LCIF headquarters in Oakbrook, IL.



From left to right: Lions attendees Dr. Manuel Bautista Plaza, Dr. Florencio Cabrera Coello, Mr. Carlos Samuel Arévalo, Mr. Ramiro Peña Constante, Mrs. Blanca García de Ortiz, Mrs. Xiomara Elena Mata de Sánchez, Mrs. Margarita Garrido de Peña, Dr. Libardo Bastidas Passos, and Ms. Holly Becker are joined by Dr. Mauricio Sauerbrey on the far right.

The IACO 2005 theme was "OEPA's contribution to reducing blindness and improving visual health in the Americas." Each country reviewed the current status of visual health related to onchocerciasis in the 13 foci, and each concluded that the evidence indicates that no new cases of blindness attributable to onchocerciasis had occurred since 1995. IACO 2005 concluded that the widespread use of ivermectin has resulted in improved visual health in all endemic foci. However, the conference also noted the need to conduct additional ophthalmological surveys in at least four of the 13 foci during 2006 in preparation for a 2007 progress report to PAHO on how close the region has come to ending reversible onchocerciasis ocular morbidity (Figure 16) (defined by OEPA as <1% prevalence microfilaria in the anterior segment of the eye in sentinel villages in endemic foci).

In terms of the goal of interrupting transmission of the parasite in the region, a presentation was made at IACO 2005 about studies conducted in 2004–2005 in the Guatemalan focus of Santa Rosa by CDC and OEPA. The conference concluded that these data showed absence of transmission in Santa Rosa.

Other recommendations from IACO 2004 included the need for:

- A meeting of entomologists prior to the next IACO to review available data and move toward the use of 'annual transmission potentials' (ATPs);
- An adult worm antigen detection test to determine when all adult worms have been eliminated from an area (now being developed by The Scripps Research Institute in California with support from Mr. John Moores);
- Independent coverage surveys to verify reported treatment levels at the community level;
- Implemention of the Venezuelan Government's "Yanomami Health Plan;"
- Work in 2006 in anticipation of a 2007 report to PAHO on the progress toward the goal of the 1991 PAHO resolution (elimination of new ocular morbidity in the region).

Transmission interruption in the 13 foci:

It is believed that transmission has been interrupted in Santa Rosa (Guatemala), and suppressed in five of the other 12 foci: Oaxaca and North Chiapas (Mexico), Huehuetenango and Escuintla (Guatemala), and Lopez de Micay (Colombia).

Editor's Note on the Program Coordinating Committee (PCC) meeting in May 2006:

The 26th meeting of the OEPA steering committee (the PCC) took place from May 9-10, 2006 at the OEPA headquarters in Guatemala City. Some key conclusions and recommendations from that meeting are included in this document as a supplement the 2005 Program Review Proceedings.

1. Santa Rosa: The PCC revisited the 2004-2005 data collected for the Santa Rosa focus, together with the IACO 2005 conclusion related to absence of transmission, in a meeting with high level Guatemalan Ministry of Health officials and CDC OEPA technical personnel. The PCC conclusion was as follows:

In the Guatemalan focus of Santa Rosa, the PCC reviewed the epidemiological and treatment history of that focus, along with recent entomological, ophthalmologic, and serological field studies completed by the MOH, CDC and OEPA. The PCC noted, with reference to WHO Certification guidelines, that the data indicate no recent transmission in the area, and no eye disease attributable to onchocerciasis. Accordingly, the PCC unanimously recommended to the Ministry of Health of Guatemala that it suspend Mectizan® treatment in that focus (the MOH is currently considering the recommendation). The PCC recommended to OEPA that support be provided to the MOH and CDC to help Santa Rosa maintain epidemiological surveillance for recrudescence of the disease for the time period recommended by the WHO guidelines. The PCC noted with satisfaction that this is the first of the 13 foci in the Americas where such a recommendation has been made.

2. PCC noted that the perceived requirement to achieve (as indicated by the upper 95% confidence limit) <1 infective fly in 10,000 flies in order to declare suppression of transmission, is a misinterpretation of the WHO Certification guidelines. It expressed concern that this was being established as 'fact' in publications in medical literature. In fact, the WHO guidelines recommend a minimum sample size of 10,000 flies, and 'absence or near absence' of infective flies in those samples. The PCC noted that even 0 infective flies in a 10,000 fly sample would not provide the necessary power to determine (as indicated by the upper 95% confidence limit) <1 infective fly in 10,000. The PCC also noted that obtaining more than the 10,000 flies per site is frequently 00101 2(pthoe76ecessalble 5n6(resa

RECOMMENDATIONS 2006 for OEPA

Focus on improving treatment coverage in southern Venezuela.

As much as possible of the 13-foci table should be completed in 2006.

Switch to ATO and R_o analysis of PCR data by the end of 2006.

Improve data management in sentinel villages, consider monitoring individuals or cohorts, and establish serological (OV-16) monitoring.

Stop treatments in Santa Rosa, if the Government of Guatemala and the PCC agree.

Assist the Mexican program in the important four times-per-year treatment protocol being conducted in Chiapas.

Work with CDC/MERTU to determine next steps with *Wolbachia* antibiotic or other macrofil trials.

Continue to develop antigen detection tests.

Consider adding other interventions (nodulectomy, focal vector control), when appropriate, that could be applied in specific foci.

Maintain CDC lab involvement, particularly in serology, nodule histology, entomology, and drug studies.

Seek more Lions involvement, to help maintain program visibility and support.

Work on improving the coverage surveys being performed.

Promote community surveys for validating the level of community involvement, health education, training and coverage. Implement the scoring system to monitor community participation.

Complete PCR in all collected flies banked in the region prior to IACO 2007.

Establish mathematical transmission models for all foci, with particular urgency to do so in *S. ochraceum* areas.

Conduct certification exercises in Escuintla (Guatemala) in collaboration with CDC.

Figure 8: Population at risk in the Americas 2005

Country	Population at risk	%	Eligible Population	%	Endemic Communities	%
Brazil	9,483	2%	7,522	2%	17	1%
Colombia	1,410	0%	1,179	0%	1	0%
Ecuador	23,386	5%	20,021	4%	119	6%
Guatemala	199,558	39%	174,812	38%	518	27%
Mexico	168,819	33%	152,303	34%	670	34%
Venezuela	113,019	22%	98,589	22%	625	32%
Total	515,675	100%	454,426	100%	1,950	100%

UTG(2)= 908,852

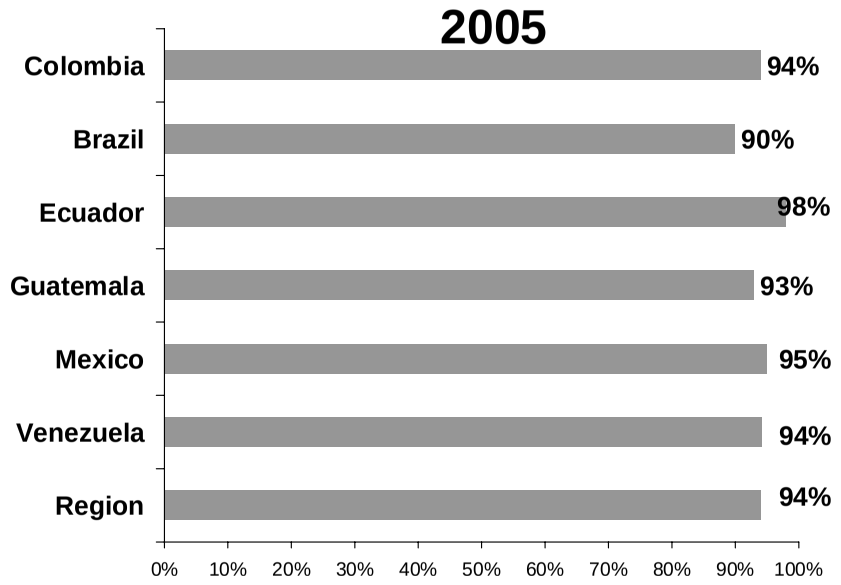

2005
Colombia
94%
Brazil
90%
Ecuador
98%
Guatemala
93%
Mexico
95%
Venezuela
94%
Region
94%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

Figure 11: Treatment Coverage of UTG(2) reached in 2005, by focus

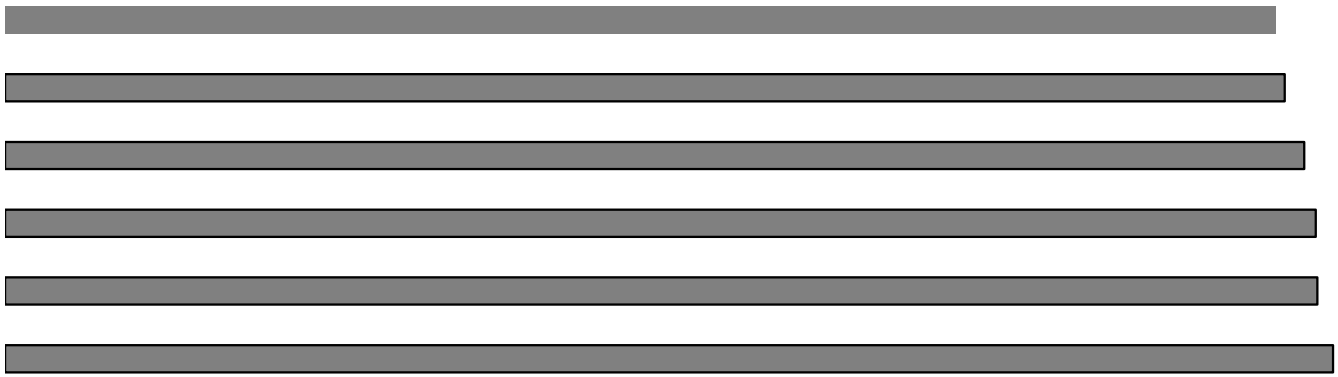


Figure 12: Percentage of communities (n = 1950) in which >85% of eligible population was treated with ivermectin in 2005, by focus

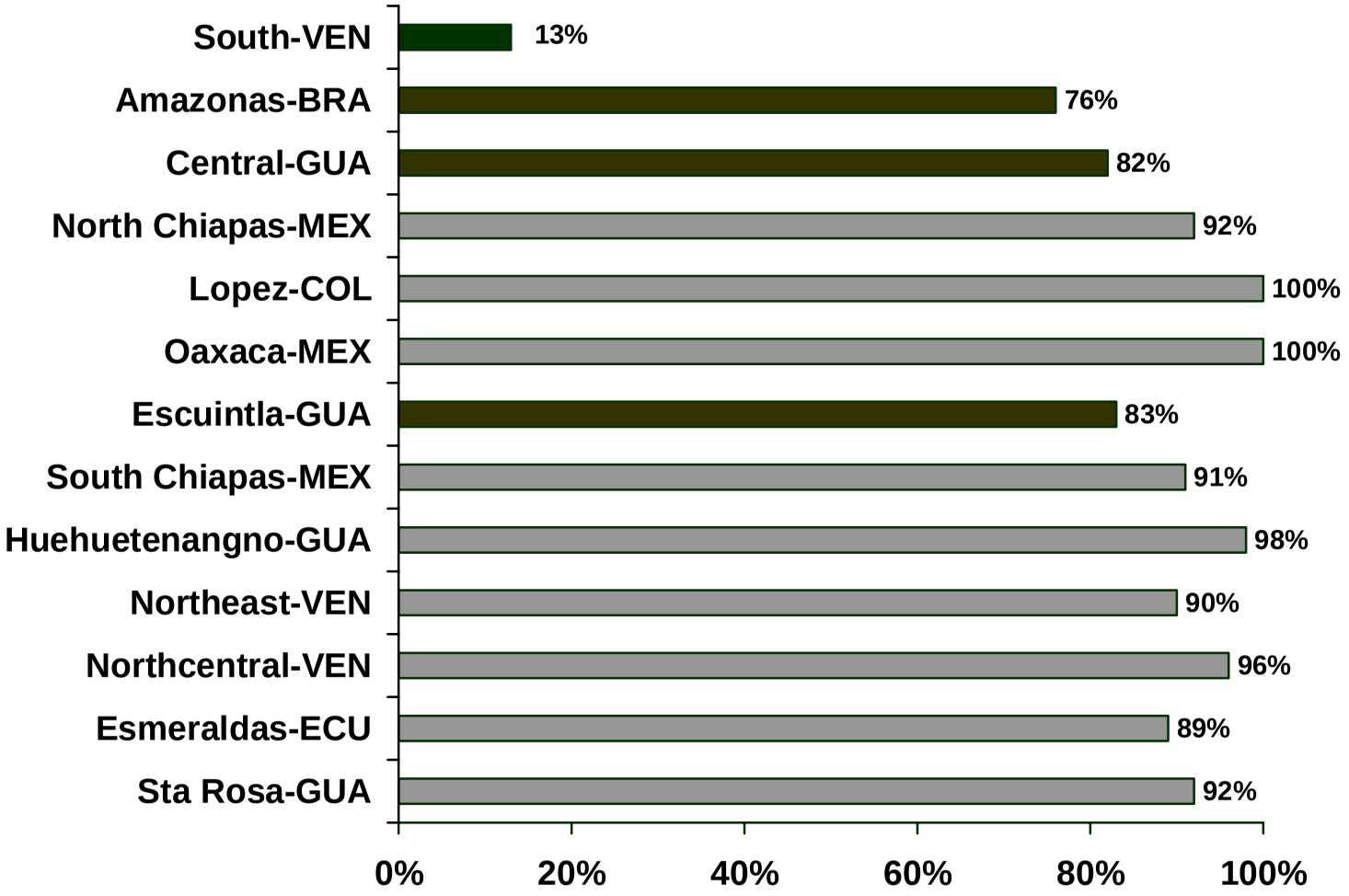


Figure 13: Population at risk in the Americas, 2006

Country Program	Population at risk	%	Eligible population (UTG)	%	# Communities	%
Brazil	9,905	2%	7,946	2%	18	1%
Colombia	1,227	0%	1,196	0%	1	0%
Ecuador	24,378	5%	20,947	5%	119	6%
Guatemala	198,559	39%	177,710	39%	520	27%
Mexico	163,400	32%	151,561	33%	670	34%
Venezuela	111,192	22%	99,484	22%	625	32%
Total	**508,661**	**100%**	**458,844**	**100%**	**1,953**	**100%**

UTG(2)= 917,688

Figure 14: Population at risk in the Americas in each focus, 2006

Country	Focus	# Communities	Population at risk	%	Eligible Population	%
Brazil	Amazonas Roraima	18	9,905	2%	7,946	2%
Colombia	Lopez de Micay	1	1,227	0%	1,196	0%
Ecuador	Esmeraldas-Pichincha	119	24,378	5%	20,947	5%
Guatemala	Huehuetenango	43	30,051	6%	27,259	6%
	Escuintla	117	49,616	10%	45,224	10%
	Santa Rosa	37	10,923	2%	9,818	2%
	Foco Central	323	107,969	22%	95,409	22%
Mexico	Foco Norte o Chamula	13	7,092	1%	6,528	1%
	Foco Sur o Soconusco	559	109,716	23%	102,698	23%
	Oaxaca	98	46,592	10%	42,335	10%
Venezuela	Nor Central	45	13,033	3%	11,842	3%
	Nor Oriental	465	91,839	19%	82,573	19%
	Sur	115	6,320	1%	5,069	1%
Total		**1,953**	**508,661**	**100%**	**458,844**	**100%**

UTG(2)= 917,688

Figure 15: Brazil: Relationship Between Rivers and Onchocerciasis Endemicity

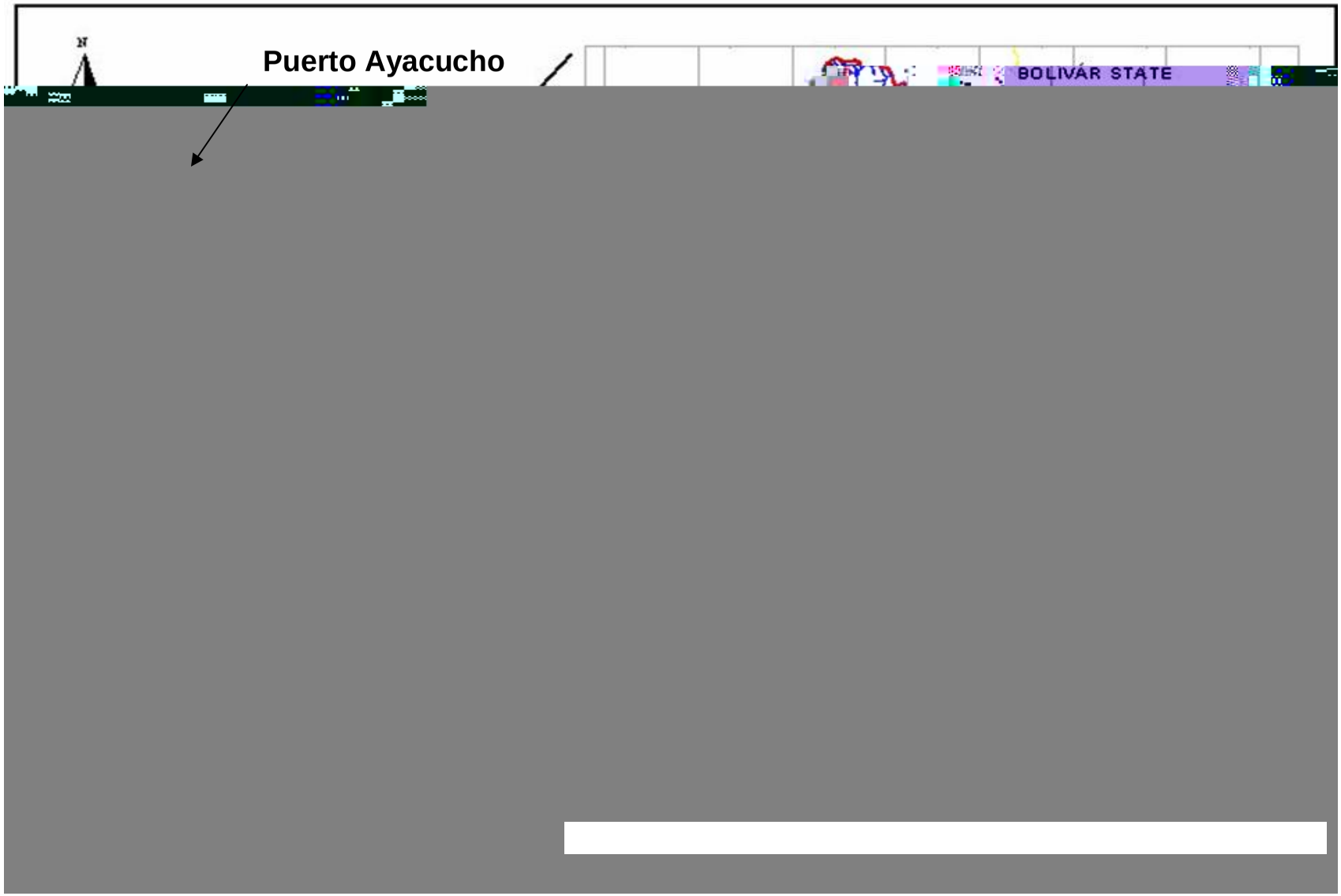


Table 3: Treatments in the Americas by country, 2002 – 2005

OEPA 2005

			first round		second round		Total Treatments	
Countries	**UTG**	**UTG(2)**	**treated**	**% UTG**	**treated**	**% UTG**	**Cum**	**% UTG(2)**
Brazil	7,522	15,044	6,834	91%	6,649	88%	13,483	90%
Colombia	1,179	2,358	1,048	89%	1,161	98%	2,209	94%
Ecuador	20,021	40,042	19,452	97%	19,933	100%	39,385	98%
Guatemala	174,812	349,624	161,956	93%	164,690	94%	326,646	93%
Mexico	152,303	304,606	144,685	95%	143,171	94%	287,856	95%
Venezuela	98,589	197,178	92,229	94%	93,394	95%	185,623	94%
Total	**454,426**	**908,852**	**426,204**	94%	**428,998**	94%	**855,202**	**94%**

OEPA 2004

			first round		second round		Total Treatments	
Countries	**UTG**	**UTG(2)**	**treated**	**% UTG**	**treated**	**% UTG**	**Cum**	**% UTG(2)**
Brazil	6,787	13,574	6,180	91%	6,933	102%	13,113	97%
Colombia	1,182	2,364	1,155	98%	1,131	96%	2,286	97%
Ecuador	20,044	40,088	19,393	97%	19,461	97%	38,854	97%
Guatemala	163,924	327,848	154,126	94%	154,198	94%	308,324	94%
Mexico	154,817	309,634	143,374	93%	145,061	94%	288,435	93%
Venezuela	97,804	195,608	92,405	94%	93,434	96%	185,839	95%
Total	**444,558**	**889,116**	**416,633**	**94%**	**420,218**	**95%**	**836,851**	**94%**

OEPA 2003

			first round		second round		Total Treatments	
Countries	**UTG**	**UTG(2)**	**treated**	**% UTG**	**treated**	**% UTG**	**Cum**	**% UTG(2)**
Brazil	6,436	12,872	6,304	98%	6,184	96%	12,488	97%
Colombia	1,163	2,326	1,156	99%	1,168	100%	2,324	100%
Ecuador	20,029	40,058	19,044	95%	19,418	97%	38,462	96%
Guatemala	160,418	320,836	154,185	96%	154,069	96%	308,254	96%
Mexico	155,570	311,140	140,185	90%	143,208	92%	283,393	91%
Venezuela	96,306	192,612	85,912	89%	88,233	92%	174,145	90%
Total	**439,922**	**879,844**	**406,786**	**92%**	**412,280**	**94%**	**819,066**	**93%**

OEPA 2002

			first round		second round		Total Treatments	
Countries	**UTG**	**UTG(2)**	**treated**	**% UTG**	**treated**	**% UTG**	**Cum**	**% UTG(2)**
Brazil	6,420	12,840	6,073	95%	6,150	96%	12,223	95%
Colombia	1,163	2,326	1,124	97%	1,140	98%	2,264	97%
Ecuador	20,121	40,242	18,655	93%	19,048	95%	37,703	94%
Guatemala	159,303	318,606	145,299	91%	150,640	95%	295,939	93%
Mexico	158,617	317,234	140,529	89%	146,597	92%	287,126	91%
Venezuela	87,471	174,942	60,921	70%	53,006	61%	113,927	65%
Total	**433,095**	**866,190**	**372,601**	**86%**	**376,581**	**87%**	**749,182**	**86%**

Table 4: Epidemiological Indicators of the 13 Foci endemic for Onchocerciasis in the Americas (June 13, 2006)

		Baseline	Second to last	Last	Baseline	Last	Baseline	Second to last	Last	Baseline	Second to last	Last
1	Mexico - Oaxaca	7.3% (1993)	0% (1999)	0% (2004)	5.1% (1993)	0% (2004)	0% (1995)	0.2% (2000)	0 (2004)	1.7% (1995)	4.0% (2000)	0 (2004)
2	Mexico - North Chiapas	1.5% (1995)		Scheduled for 2006	0.1% (1995)	0% (2004) Scheduled for 2006	0.6% (1995)		Scheduled for 2006	7.7% (1995)		Scheduled for 2006
3	Mexico - South Chiapas	14.5% (1995)	3.2% (2000)	2.0% (2004)	8.7% (1996)	2.7% (2004)	1.5% (1995)	0.8% (2000)	0.2% (2004)	13.7% (1995)	3.2% (2000)	1% (2004)
4	Guatemala - Huehuetenango	2.9% (1987)		0.0% (2006)	5.8% (1987)							

Table 4: Epidemiological Indicators of the 13 Foci endemic for Onchocerciasis in the Americas (June 13, 2006)

	TIP	TI	TI>2/ 1000	TI mean (95% CI)
	Baseline	Baseline	Last	Last
S. ochraceum	0.42%			

UGANDA

Background: Onchocerciasis affects approximately 1.8 million persons residing in 18 (out of 70) districts in Uganda (Figure 17). Currently, Carter Center-assisted programs are active in 11 of these endemic districts: Kabale, Kanungu, Kasese, and Kisoro in the Southwest focus bordering the Democratic Republic of Congo (DRC); Adjumani, Moyo, and Nebbi in the West Nile focus bordering Sudan and DRC); Apac and Gulu in the Middle North focus; and Mbale (now divided into three districts: Manafua, Mbale and Bubulo) and Sironko in the Mount Elgon focus in the east, bordering Kenya.

Local Lions Clubs have been active participants since 2000in the Carter Center-assisted and LCIF-funded river blindness control activities in Uganda. Lions have engaged and mobilized relevant government officials and members of parliament. They have provided education about onchocerciasis, and have advocated for regular and sustained government support of community-directed treatment with ivermectin (CDTI) activities. Lions also have established new Lions Clubs in some onchocerciasis endemic districts. The Carter Center's Country Representative in Uganda, Ms. Peace Habomugisha, is a Lions Club member. LCIF SightFirst financial support for this program concluded in 2005.

Treatments: The Carter Center Uganda assisted in the treatment of 1,056,921 persons in 2005. Excluding passive and visitor treatments totaling 35,500, Uganda reached 97% of its Ultimate Treatment Goal (UTG) of 1,049,867 persons (Table 5). This was the ninth straight year of more than 85% coverage of the UTG in Carter Center-assisted areas, and the eighth successive year of coverage exceeding 90% of the UTG. All of the 2,360 high-risk villages were treated during the year. In 2005, Carter Center-assisted areas provided 80% of the country's total of 1,322,497 treatments (see Figure 18). The UTG for 2006 in Carter Center-assisted areas is 1,072,134.

Training and Health Education: Uganda trained or retrained 10,266 community-directed distributors (CDDs) and 4,350 Community-Directed Health Supervisors (CDHSs) in 2005. Of these, 43% of the CDDs and 47% of the CDHSs were female. The ratio of CDDs to population served is 1:39, and 14 CDDs per community, which is the best ratio of all Carter Center river blindness programs.

Financial Contribution: In 2005, support to the Program was provided by: APOC, the Lions-Carter Center SightFirst Initiative, and the NGDO Coordination Group for Onchocerciasis Control, with funds from Merck & Co. The districts, health sub-districts, and sub-counties have pledged and contributed some funds for CDTI activities, but the amounts pledged and released may not be sufficient to sustain CDTI training, provision of Information, Education and Communication (IEC) materials, and maintenance of

All districts have now completed their fifth year of APOC funding. Total funds released to all programs by The Carter Center, APOC, and the local governments were approximately $152,978 in 2005. The governments contributed about US $6,552 (9% of all contributions). The Carter Center contributed about 44% of total funding in 2005 (but did not contribute in Kisoro and Mbale, see ***PAPN*** section below).

Sustainability and Integration: The "community-directed intervention approach" was adopted as national health policy in Uganda in 2001. It has been introduced with measurable positive results for malaria control and other programs. Hence, government support for onchocerciasis control activities within the primary healthcare system is strong, although financial support has not been regular or in the expected amounts. Involvement and active participation of members of the affected communities has increased over the years. Program strategies include the following: 1) training as many inhabitants of endemic villages

treatment coverage of 90% and above, and ensuring that individuals turn up the following year for trea

Twice-per-year treatment with Mectizan® in Wadelai, including hypo-endemic villages, will begin in 2006, along with increased monitoring to establish current baseline information and measure impact of intensified treatment activities.

RECOMMENDATIONS 2006 FOR CARTER CENTER UGANDA

Stop post-APOC post-NGDO scenario trials in Kisoro and Mbale in 2006, but insist on government co-funding, which The Carter Center will match when provided. Monitor changes in treatment processes (including treatment numbers, % of UTG attained, tablet supply, logistical chain issues, duration of village treatment exercises, community-directed distributor (CDD) and health worker training, and number of communities reporting promptly), as well as new financial inputs required to rejuvenate programs. Close monitoring for new investments from APOC is also needed.

Obtain and share with Atlanta office the publication of the impact assessment results.

Wadelai focus semiannual treatments (*S. neavei* areas where elimination of onchocerciasis transmission is feasible) should begin in 2006. If additional resources can be identified to assist the government in its effort to eliminate onchocerciasis in other Ugandan foci, The Carter Center should assist there as well, in partnership.

Assess Moyo and Adjumani Districts for onchocercal eye disease.

Consider assisting three drug treatment (praziquantel, Mectizan®newfficeirfrom

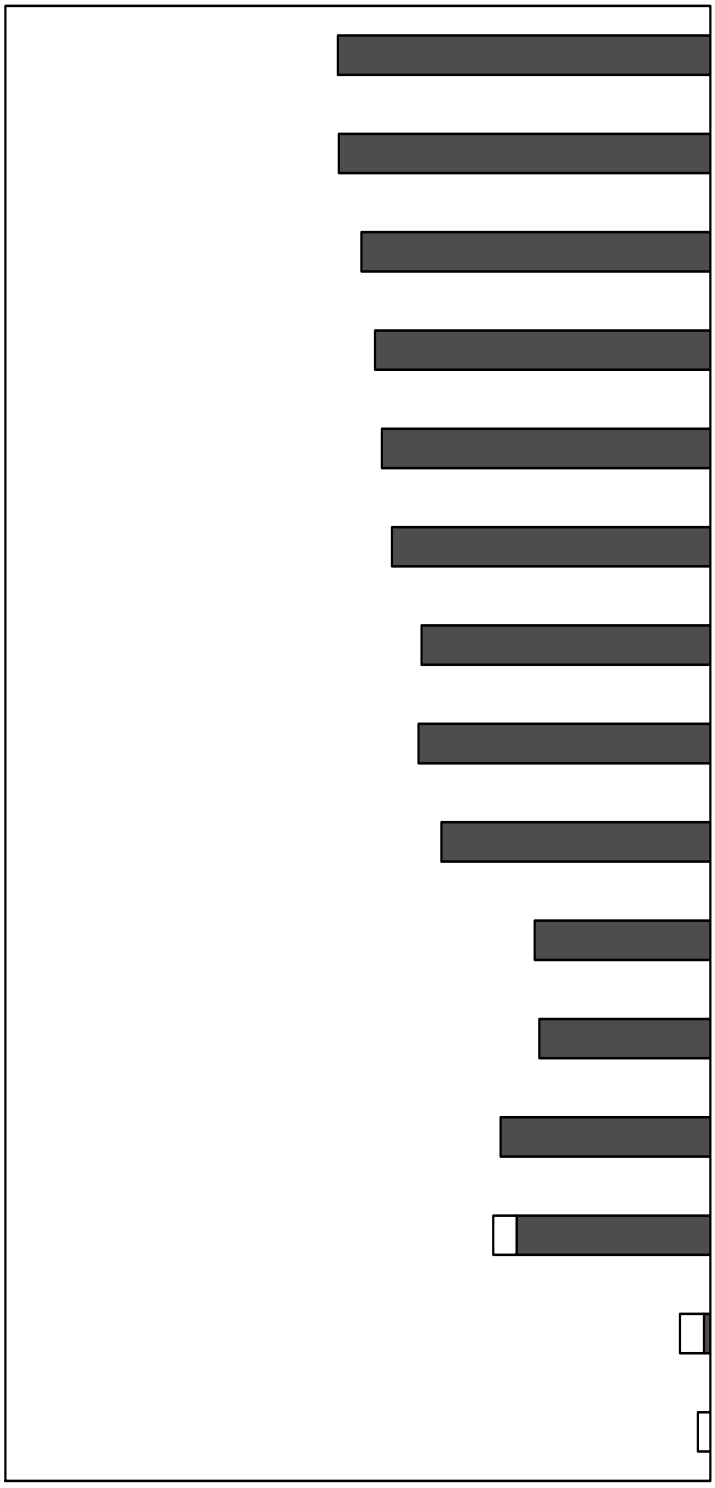
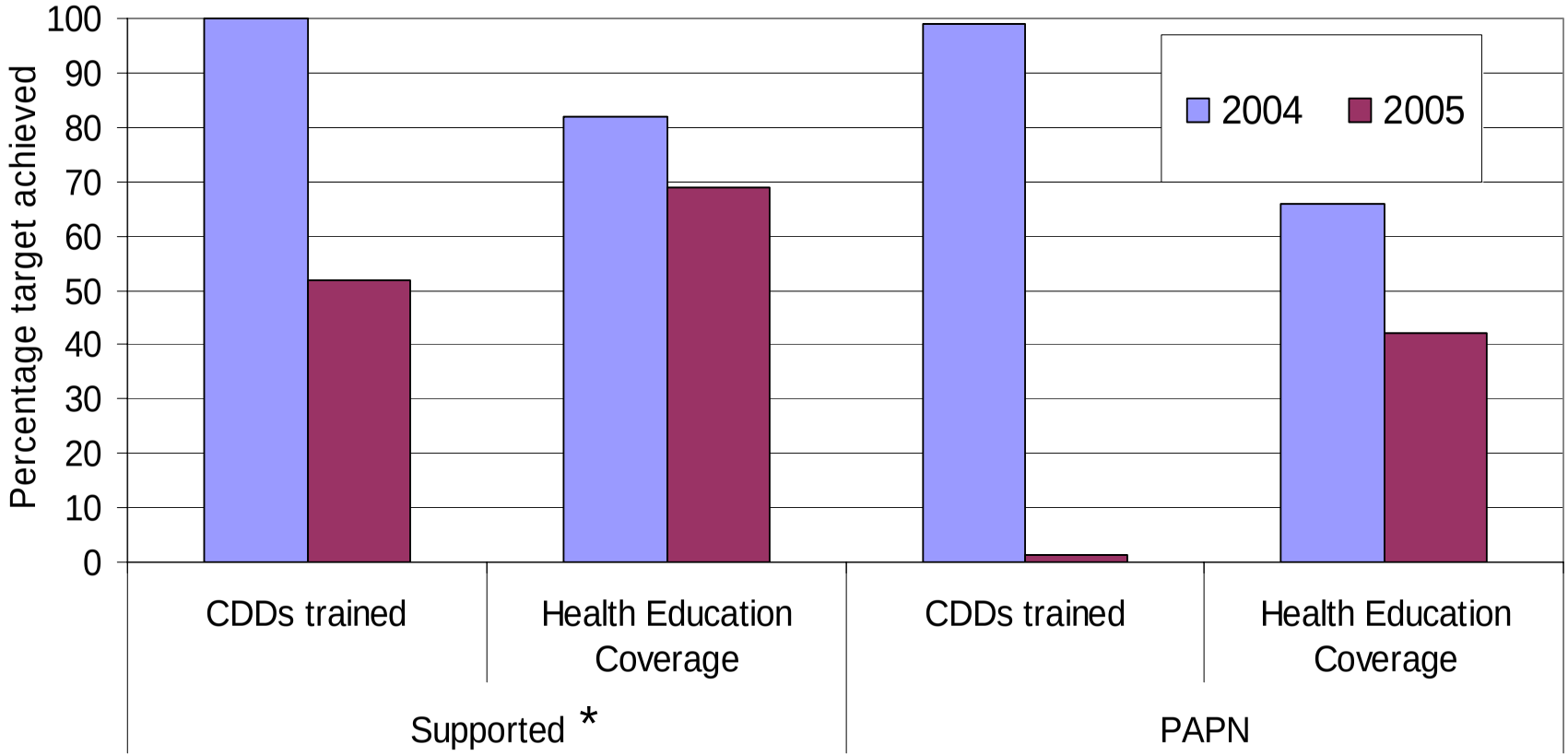


Figure 19: Uganda: Comparing CDTI projects with Carter Center support to those testing Post-APOC, Post-NGDO (PAPN) scenario: training of CDDs and health education during 2004 and 2005



* Four districts in this category received APOC funding through February 2005

Figure 20: Uganda: Mean coverage by district, 1997-2005 (post-APOC, post-NGDO scenario districts circled)

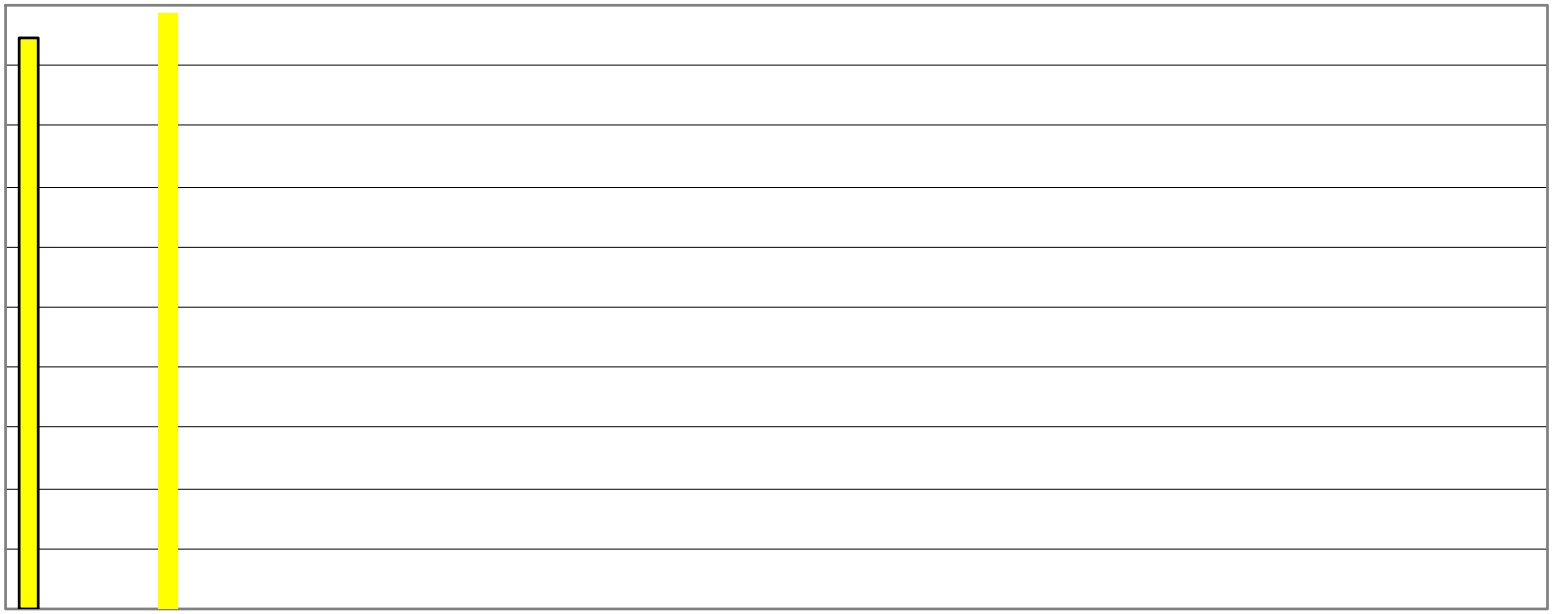


Figure 22: Wadelai focus in Nebbi District, Uganda

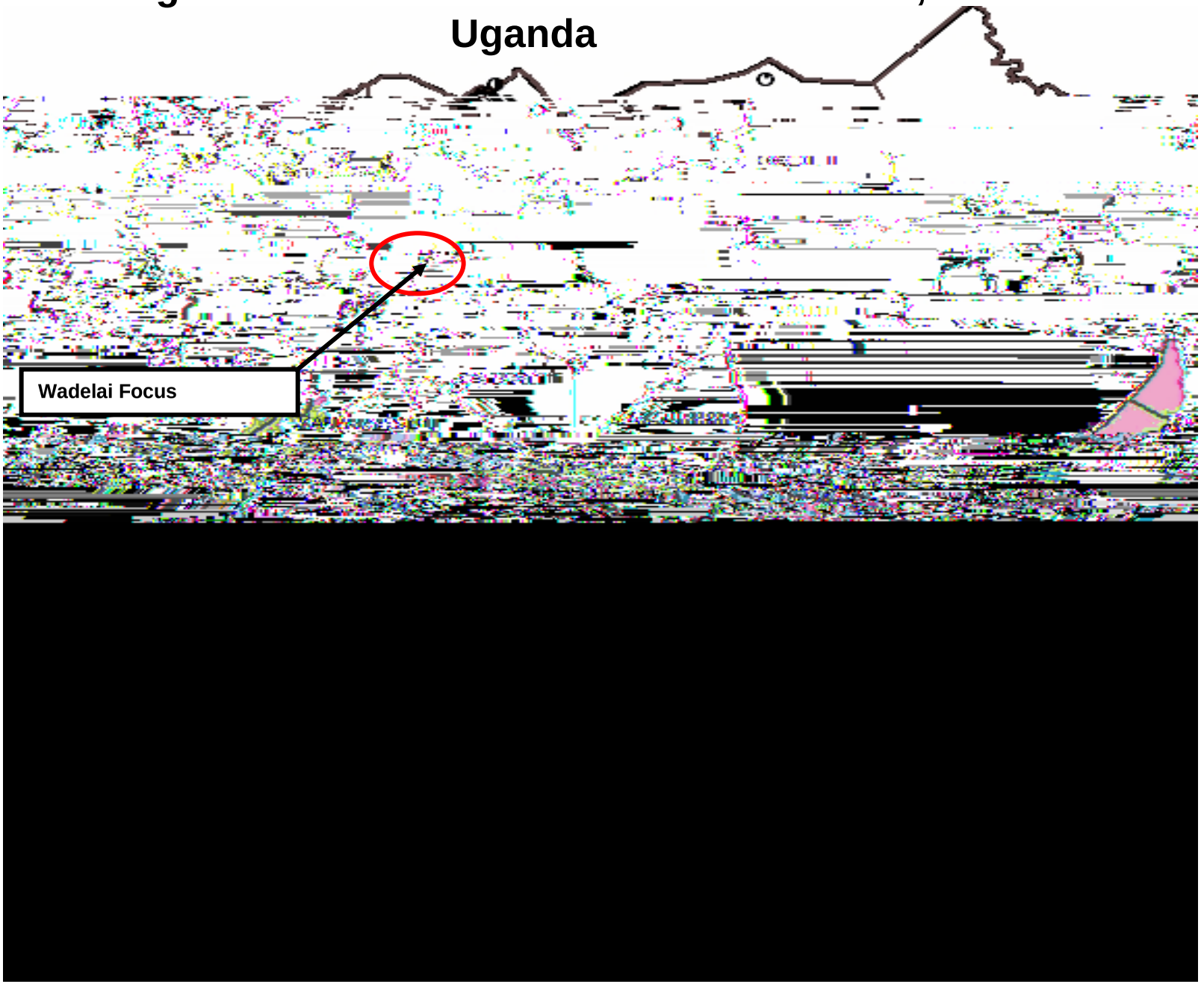


Table 5: Uganda: Carter Center-Assisted Areas: 2005 Mass and Passive Treatments for Onchocerciasis

District	Total Popn for 2005	Ultimate TX Goal (UTG) for 2005	Popn treated cumulative for 2005	Total Popn TX % for 2005	Popn TX % of UTG 2005	Active villages treated 2005	Active villages of UTG for 2005	% of active villages covered
Adjumani****	175,406	150,227	146,267	83%	97%	218	218	100
Apac****	16,064	13,139	12,771	80%	97%	9	9	100
Gulu****	210,000	154,427	148,154	71%	96%	187	187	100
Kabale**	17,912	15,616	13,631	76%	87%	48	48	100

Table 6: Uganda: health education and selection of CDDs by community members have been predictors of achievement

Output/Dependent Variable	Input/Independent Variable	2003 P-value	2004 P-value	2005 P-value
1. Will come back for Tx	1. Health education	P = 0.00043	P ≈0.0014	≈ 0.0133
	2. Decided on location of treatment	P = 0.00227	NS	NS
	3. Selected own distributors	P = 0.00237	P ≈0.016	≈ 0.0034
	5. Involvement in mobilization	NS	P = 0.001	NS
2. Was treated	1. Health Education	P < 0.001	P < 0.001	P < 0.001
	2. Involved in mobilizing community members	P < 0.001	P < 0.001	P < 0.001
	3. Selected own distributor	P < 0.001	P < 0.001	P < 0.001
	4. Distance from home to treatment centre	P < 0.001	NS	NS
	5. Decision Making	NS	P < 0.001	P < 0.001

SUDAN

Background: There are approximately five million persons at risk of onchocerciasis in Sudan, with an estimated ultimate treatment goal (UTG) of 3.4 million people. There are several endemic areas in the country in both the north and south. The Carter Center's River Blindness Program helps support activities in both northern and southern areas of the country. Current financial support for river blindness activities in Sudan comes from a five-year grant from LCIF (Figure 23).

The Carter Center began supporting Mectizan® distribution in the southwest (West Equatoria) in 1995 with the 'Guinea Worm Ceasefire' negotiated by President Carter. Initial financial support for river blindness program activities in Sudan was provided by The River Blindness Foundation, and later by the Lions Clubs International Foundation (LCIF). In recent years, The Carter Center has channeled support for onchocerciasis control through two NGOs in West Equatoria: Aktion Afrike Hilfe/County Health Department (AAH/CDH) for Maridi, Mundri, and Yei payams, and International Medical Corps (IMC) for Ezo, Yambio, and Tambura payams. Activities have been carried out through a coalition of NGDOs working through Operation Lifeline Sudan (OLS) in Kenya

Carter Center activities in the north also were subject to a governmental policy change that temporarily disrupted Mectizan® treatment activities. GOS called for the national program to shift its headquarters from a private medical school (the Academy of Medical Sciences and Technology) to the Federal Ministry of Health (FMOH) in GOS during 2005. This transfer resulted in diminished Mectizan® treatments in Sudan compared to previous years.

The Carter Center learned during the 2006 Review that the GOS was considering altering its approach to onchocerciasis from control to elimination (e.g. twice per year treatments) in those foci where it would be technically feasible, such as Abu Hamad, Sundus, and Koryubus (Figure 23).

infrastructure will lead to dramatic improvements. This next year will be important for GOSS, as it establishes non-NGDO directed CDTI activities in West Equatoria project areas.

RECOMMENDATIONS 2006 FOR CARTER CENTER NORTH SUDAN
(Khartoum office)

Consider twice-per-year treatment in Abu Hamed focus if the GOS is interested and willing to provide funding for the program.

Conduct impact assessments and delimitation of transmission zones in Abu Hamed. Conduct impact assessments in Radong. Obtain baseline data in Sundus and Koryubus.

RECOMMENDATIONS 2006 FOR CARTER CENTER SOUTH SUDAN
(Juba office)

The Carter Center has complied with GOSS requests to cease funding for NGDO delivery in West Equatoria.

The Carter Center is prepared to work as the lead NGO in West Bahr el Gazal if formally requested by GOSS.

Create sentinel sites for baseline blindness studies.

Refine REMO and RAPLOA in West Bahr el Gazal.

All Carter Center-assisted projects should continue to refine their APOC, government and Carter Center funding figures in 2006.

All efforts must be made to ensure that any decrease in treatments reported is not a result of withholding data or reports of treatments that were actually delivered.

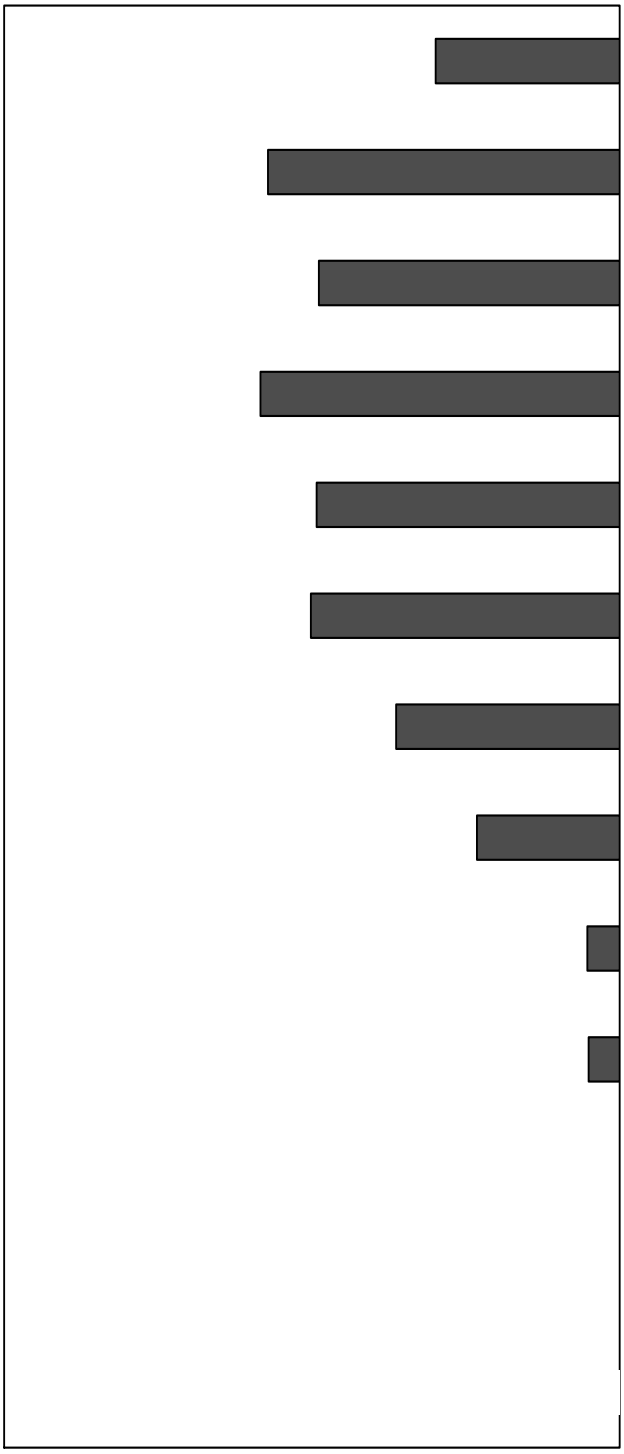


Table 7: Sudan: GOS - Carter Center-Assisted Mectizan treatments 2005

State	Locality	Total Popn for 2005	Popn treated cumulative for 2005	Ultimate TX Goal (UTG)/ ATO for 2005	% UTG treated in 2005	% of total popn treated in 2005

Table 8: Sudan OLS/S - Carter Center-Assisted Mectizan treatments 2005

NGO	PAYAM	Population treated cumulative from Jan-Dec 2005
IMC	TAMBURA	**25,566**
IMC	EZO	**12,928**
IMC	YAMBIO	**30,952**
ZOA	TALI	**5,152**
ZOA	KATIGIRI	-
AAH/CHD	MARIDI	-
AAH/CHD	MUNDRI	-
AAH/CHD	YEI	-
Other reported treatments		12,700
Total		**87,298**

2005 in North Province (compared to 1 in 2004). In West Province, the ratio averaged one CDD per 124 persons (down from 325 persons in 2004) and 4 CDDs per community (from 2 during 2004). Health education was provided to all 3,574 communities in both provinces. Involvement of women as CDDs in the North (3% of all CDDs), which has a significant Muslim population, was lower than in the predominantly

increase the number of CDDs from its average of 2 to 4 per community to 10 per community during 2006.

A sample of 257 CDDs showed that 74% were involved in other community health activities, such as national immunization days, an expanded program of immunization, family planning, HIV/AIDS, malaria fever control, TB and water and sanitation. They also are utilized for non-invasive procedures in immunizations, social mobilization, distribution and impregnation of mosquito nets, registration, record keeping, and reporting.

It is believed that the potential integration of Vitamin A distribution, malaria control, and lymphatic filariasis interventions into the CDTI framework in North Province would help strengthen the programs, particularly in the absence of APOC support.

Post-APOC, Post-NGDO Sustainability Trial: North Province provided important evidence as to the critical importance of government funding in sustaining Mectizan® distribution after APOC and NGDO funding ceases. The Carter Center did not provide funding towards treatment activities during 2004 and 2005 to North, turning over the full responsibility to the federal, provincial, and local governments. Little change in treatment coverage or programmatic activity was observed (Figure 28). The Carter Center will continue to engage the government of Cameroon to contribute funding toward CDTI activities during 2006. The funding in 2005 was not as significant as in 2004, and it is hoped that with continued advocacy, this will change.

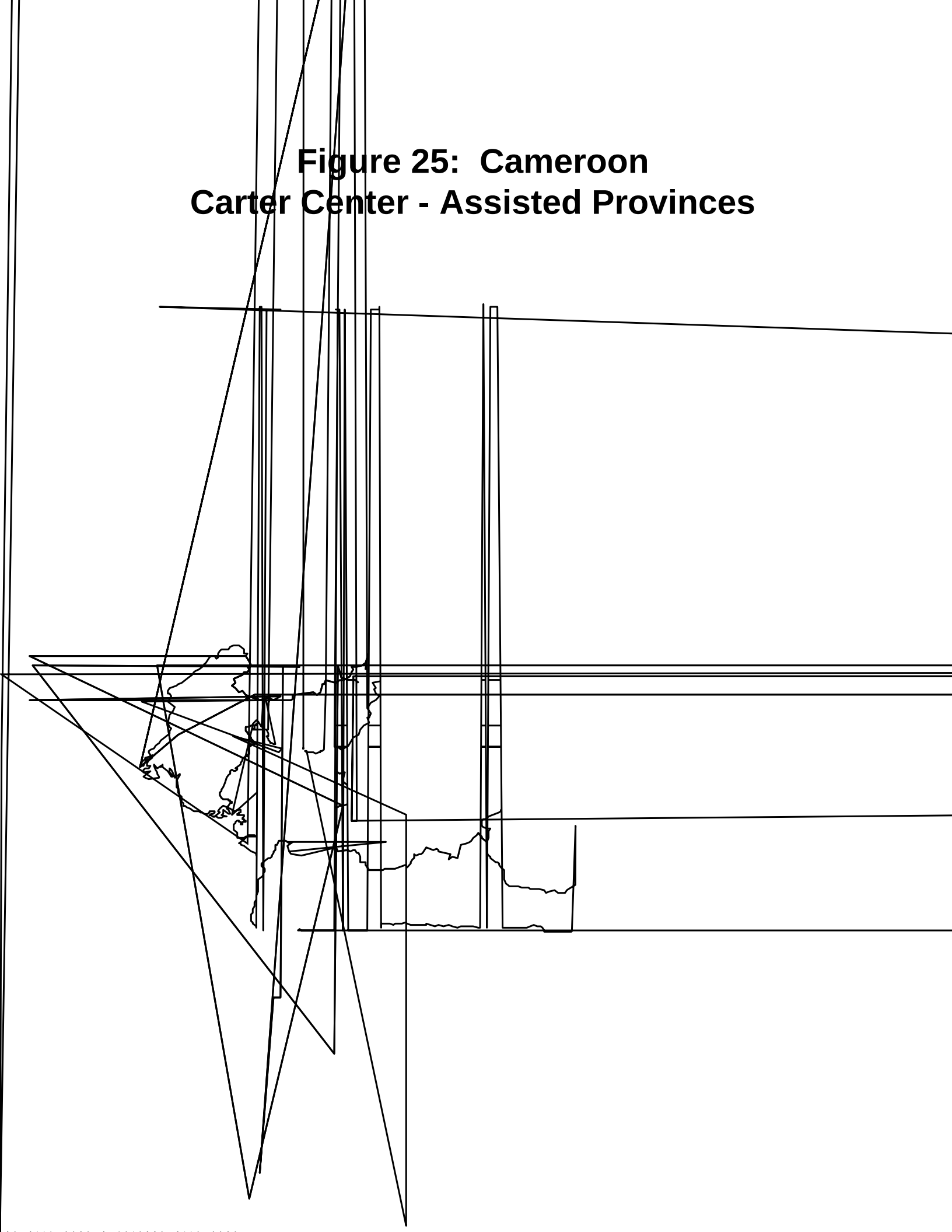
Monitoring, Evaluation and Research: Cameroon engaged in routine monitoring of coverage, involvement of community members in decision-making, health education, involvement of women, monetary incentives, and attrition rate of CDDs. Among 3,773 persons interviewed, 94.5% reported that they received treatment in 2004, but only 36.9% reported receiving health education. Health education did seem to have an effect on the respondents' participation in CDTI activities.

Among 357 CDDs interviewed (of which the majority [75.6%] were male), 89.6% voiced intent to continue distributing in 2006.

Impact Assessments:

West Province: Skin snips and nodule palpation were conducted in sentinel areas to assess impact of the Mectizan® program. Frontispiece A shows the comparison of nodule and microfilaria prevalen

Figure 25: Cameroon
Carter Center - Assisted Provinces



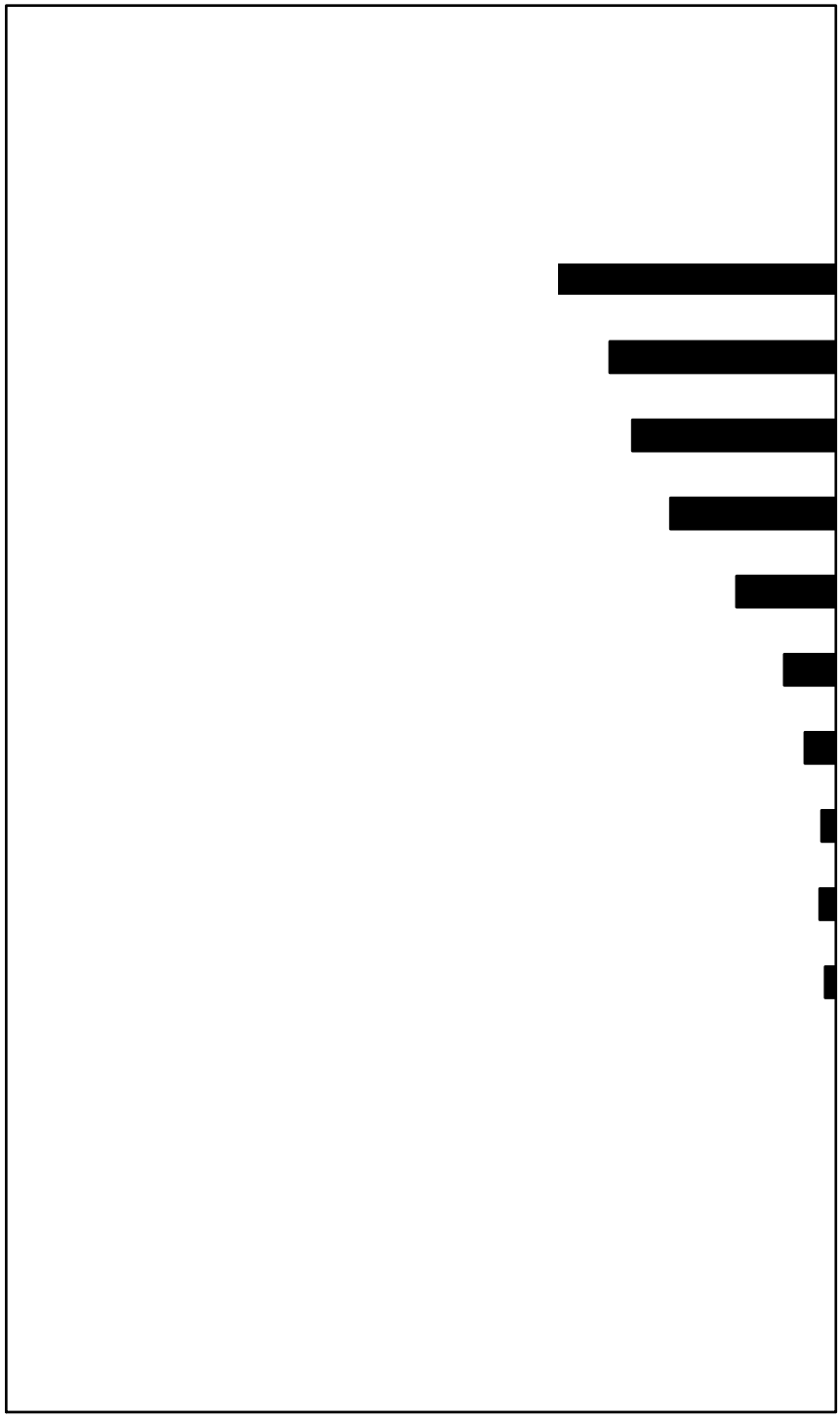


Figure 27: Adverse Reaction Rate Potentially Related to *Loa loa*, Per Million Treatments in West Province, Cameroon 1996-2004

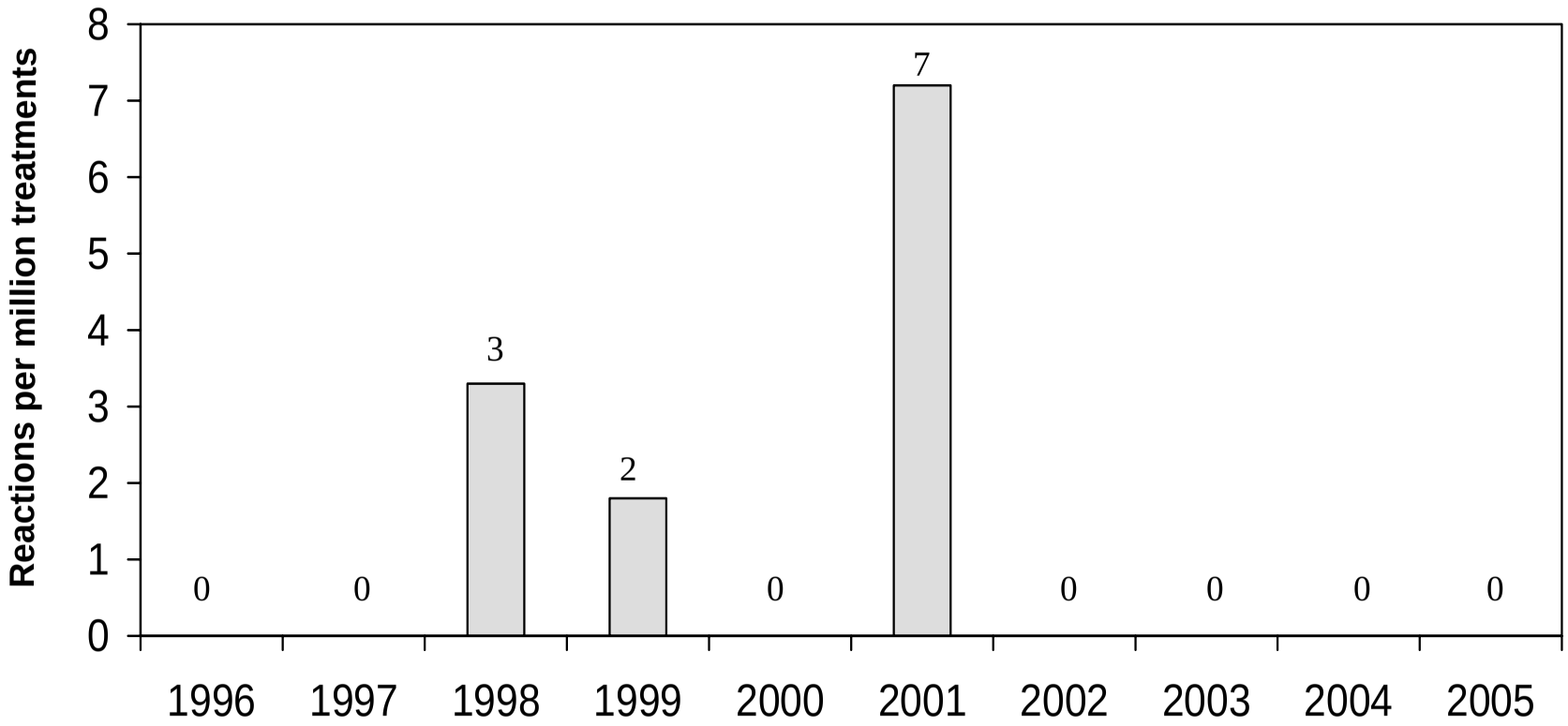
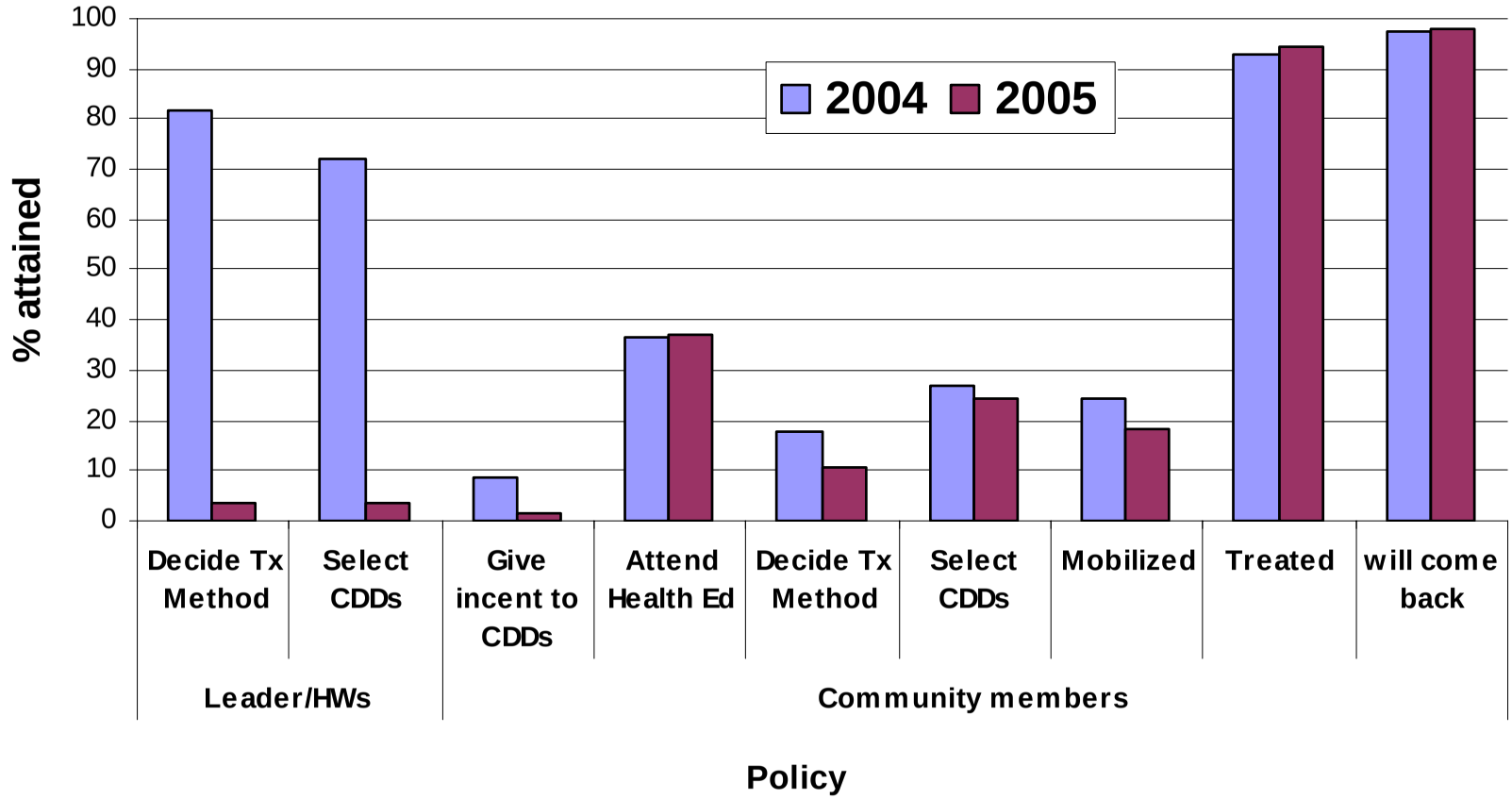


Figure 29: Comparison of performance on community policy factors in the Carter Center in Cameroon (2004-2005)



NIGERIA

Nigeria is the most highly endemic country in the world for river blindness, having as much as 40% of the global disease burden. It is estimated that 27 million Nigerians need curative or preventative treatment with Mectizan® for onchocerciasis (the Ultimate Treatment Goal (UTG) is 27 million). The National Onchocerciasis Control Program (NOCP) began in 1989 by treating approximately 49,566 persons with Mectizan®, and has progressed to providing over 18 million treatments in 2005 (provisional number from Nigerian Federal Ministry of Health). Annual Mectizan treatments, after reaching 20 million in 2003, appear to have decreased to 18.4 million in 2005 (Figure 30).

Background: The Carter Center program in Nigeria has its headquarters in Jos (Plateau State) and supporting offices in Benin City, Enugu, Lagos, and Owerri. Primary activities consist of: 1) directly assisting treatment activities in nine (Figure 31) of the 32 onchocerciasis endemic states in Nigeria (Abia, Anambra, Delta, Ebonyi, Edo, Enugu, Imo, Nasarawa, and Plateau States); 2) helping to implement nationwide onchocerciasis control in partnership with the Nigerian government and the National Onchocerciasis Task Force (NOTF) through a coalition of nongovernmental development organizations (NGDOs) including Christoffel Blindenmission, Helen Keller International Eye Foundation, MITOSATH**,** SightSavers, and UNICEF; and 3) working to implement and evaluate the African Program for Onchocerciasis Control (APOC) strategy of sustainable Community-Directed Treatment with Ivermectin (CDTI) programs. The Lions Clubs In

states because of the presence of *Loa loa* in that part of the country. Because all of those states have now had six to seven years of mass treatment, the risk of SAEs is low. The impact of this long-standing program can be seen in decreased nodule prevalence between 1992/1993 and 2005 (Figure 32).

Mectizan®: The Carter Center Nigeria Program received 12.1 million Mectizan® tablets for 2005. It had about 1.2 million tablets remaining at the end of 2005. The average number of tablets per person treated was three.

Training and Health Education: The nine states conducted training or retraining of 18,689 health workers involved in Mectizan® distribution in 2005, almost 10,000 fewer than in 2004, mainly as a result of the PAPN trial in Imo and Abia States (see below). This included 11,568 community-directed distributors (CDDs), 5,246 Community Supervisors, and 1,875 frontline-health level workers. The average number of CDDs per village was 1.7. The ratio of persons treated per CDD was very high at 368:1. Forty-four percent of CDDs were female, which was 10% more than 2004. CDD attrition remains high, ranging between 20% and 40% in the different states.

Overall, Nigeria reached only 31% of its training target, which is a concern. Most but not all of this was due to the negligible training (4% of the objective) achieved in Imo and Abia States.

Financial Contribution: Overall, the funding picture for Carter Center assisted programs in Nigeria during the period 2001-2005 was one of decreasing core APOC funding and increasing Carter Center funding, with static government funding. APOC funding increased in 2005 over 2004 in payment of outstanding funds from concluded projects, and in replacement of capital items. However, overall APOC concluded its core programmatic funding for seven of the nine states in 2003, and the remaining two (Edo and Delta) in 2004. In 2005, the government (all levels

hypo-endemic for onchocerciasis). This year marked the third year in which all 30 LGAs in the two states were reached. Monitoring in sentinel areas showed a dramatic decrease in mosquito infection rates and LF antigenemia rates, but the trend suggests a leveling off of the decline between 2004 and 2005 (Figures 36 and 37). The leveling of mosquito infection rates may be an artifact resulting from the large numbers of mosquitoes that now need to be dissected to detect further decline in rates.

Hydrocelectomy surgeries continued on a limited scale. Hydrocele surgery is performed

in Table 11. A total of only 15,545 nets were retreated in 2005, at a cost of US$0.50/net. In 2005 the program tried a new strategy of distributing nets when LGAs agree to purchase the insecticide treatment packets, but that approach dramatically slowed the distribution process of the remaining nets. In our experience, if ITN distribution is to be successful, the program must obtain long-lasting insecticide-treated nets to avoid the cost and logistical difficulties of ITN retreatment.

Monitoring Surveys: In 2005, onchocerciasis monitoring surveys were conducted in Imo, Edo, Plateau, and Nasarawa. Nasarawa had the lowest rates of community involvement in deciding the method of treatment and selecting CDDs (21% and 33% of persons reporting involvement, respectively). Imo State had the lowest likelihood of community members providing support to CDDs (10%), and by far the lowest levels of health education (48.6%). Edo had the highest level of health education (58%) and Plateau reported the most community involvement across the board (87% of sampled community members supported CDDs, and 66% helped decide the method of drug distribution). The coverage rates that these respective states achieved are shown in Table 11.

RECOMMENDATIONS 2006 for THE CARTER CENTER NIGERIA

Stop post-APOC post-NGDO scenario trials in Imo and Abia States in 2006, but insist on increased government co-funding. Headquarters will send a financial consultant in the first half of the year to establish a system for monitoring the new financial inputs required to rejuvenate programs. In anticipation of this visit, Imo and Abia programs must immediately log all Carter Center spending and staff activities. Monitor changes in treatment processes (including treatment numbers, % of UTG attained, tablet supply, logistical chain issues, duration of village treatment exercises, community-directed distributor (CDD) and health worker training, and number of communities promptly reporting). Close monitoring for new investments from APOC is also needed.

Advocate for Nigeria to support treatments.

Solve drug inventory issues at LGA levels.

Follow national figures closely to determine if there is a downturn in treatments now that APOC funding has been withdrawn from most projects in the country. Obtain final 2005 treatment figures from FMOH to determine if treatment levels in 2004 were maintained in 2005.

Monitor impact of the program on onchocerciasis. Seek to design a study to evaluate impact of combined albendazole, and Mectizan on onchocerciasis transmission.

Encourage the Lions Club District 404 to be more involved in advocacy at the state levels. Pursue high-powered advocacy to states and LGAs for release of counterpart funding.

Continue to refine APOC, government and Carter Center funding figures for Carter Center assisted projects in 2006.

Verify that any decrease in treatments reported is not a result of withholding data or reports of treatments that were actually delivered.

Make progress toward a field trial of delivering the three-drug combination (Mectizan®, albendazole, and praziquantel) simultaneously in Nigeria and/or Uganda.

RECOMMENDATIONS 2006 for NIGERIA INTEGRATED PROGRAMS

Plateau and Nasarawa States:

Lymphatic filariasis

Keep ITNs in sentinel villages impregnated. Monitor mosquito numbers.

Maintain the best possible coverage for LF (including urban areas) in

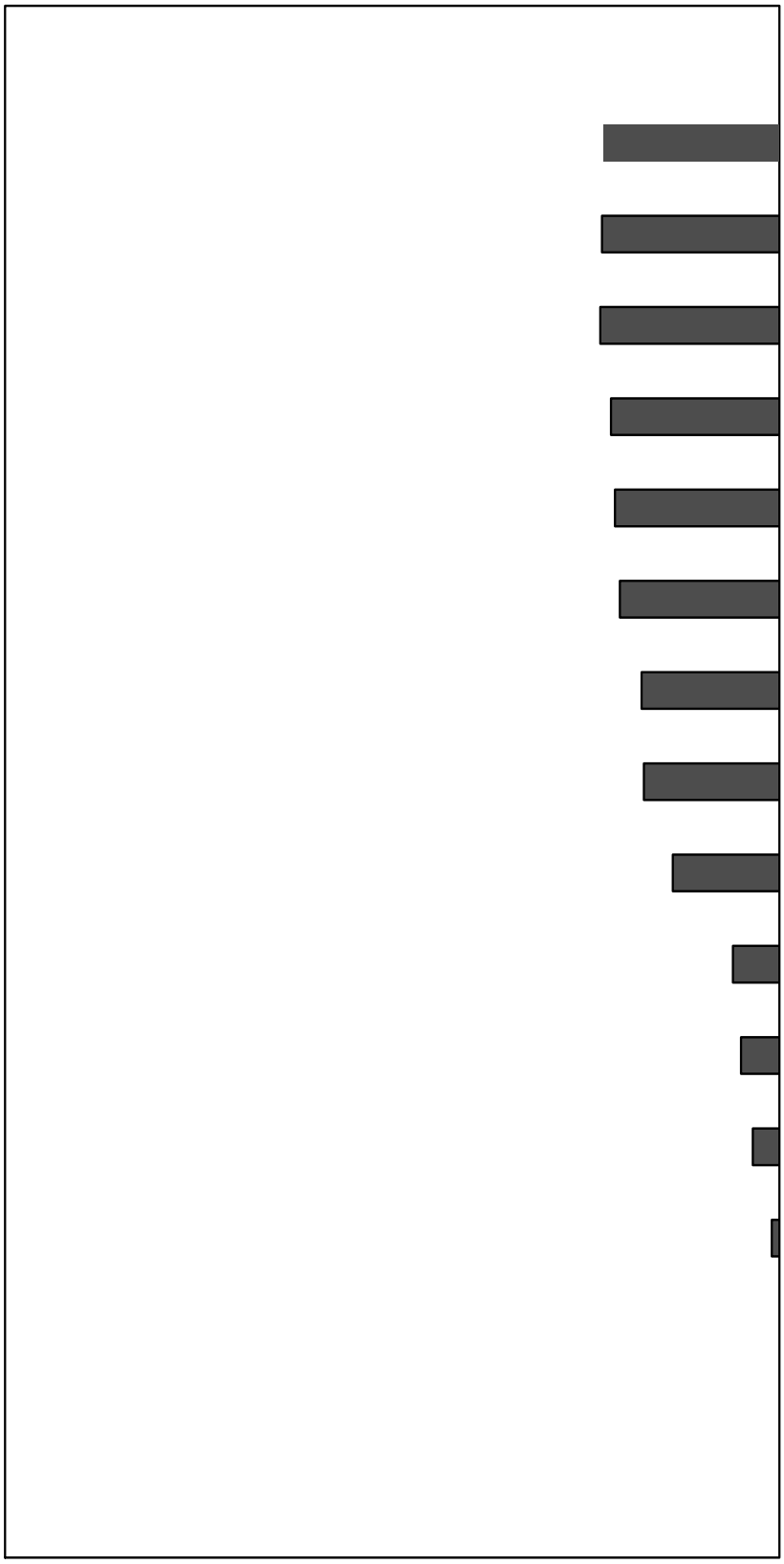


Figure 31: Nigeria: Lions/Carter Center-assisted States

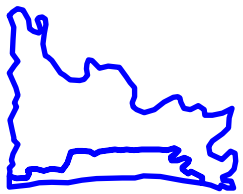


Figure 32: Onchocerciasis Nodule Prevalence in 11 Villages (n=330 in 1992-1993, n=483 in 2005)

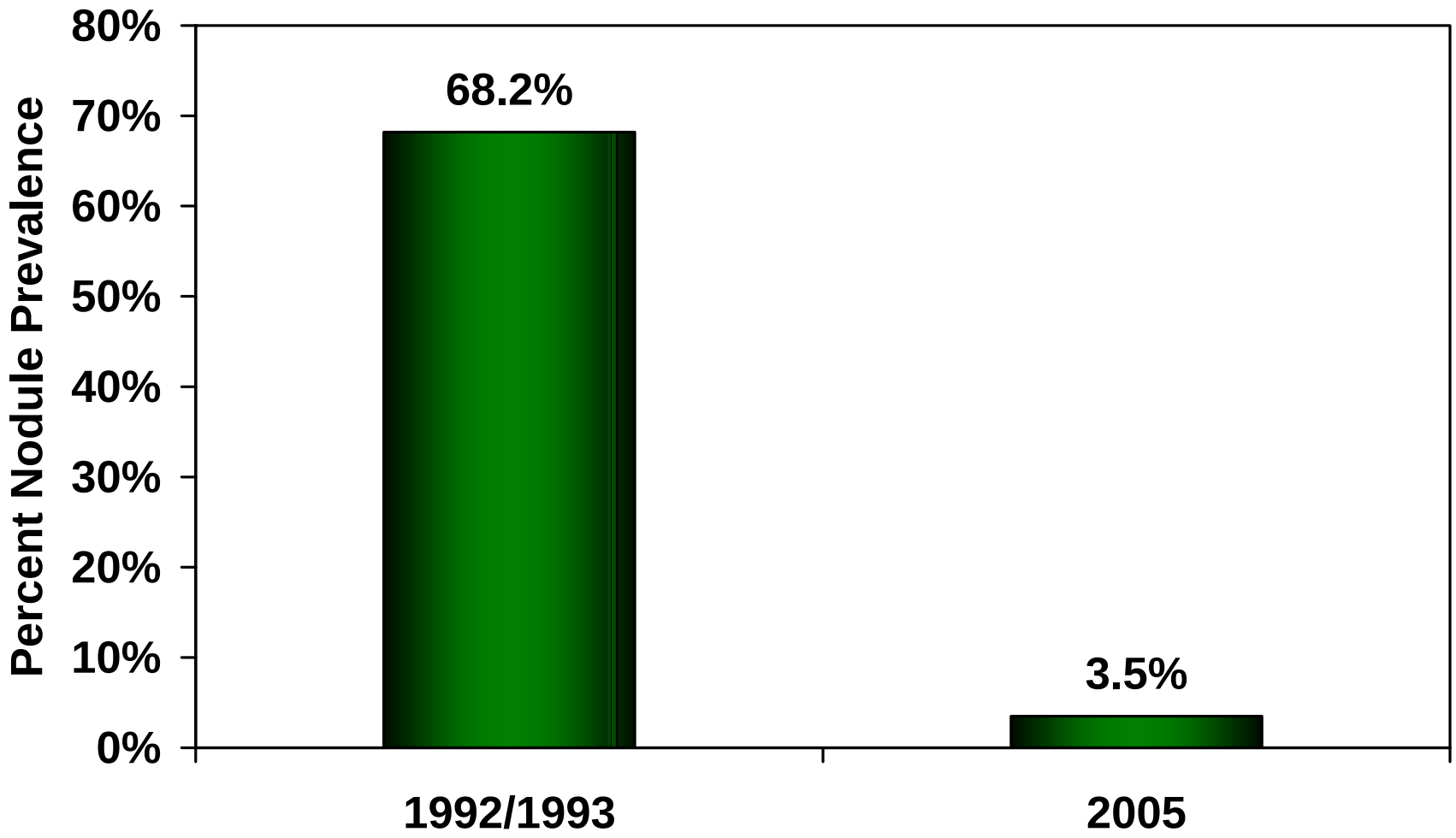
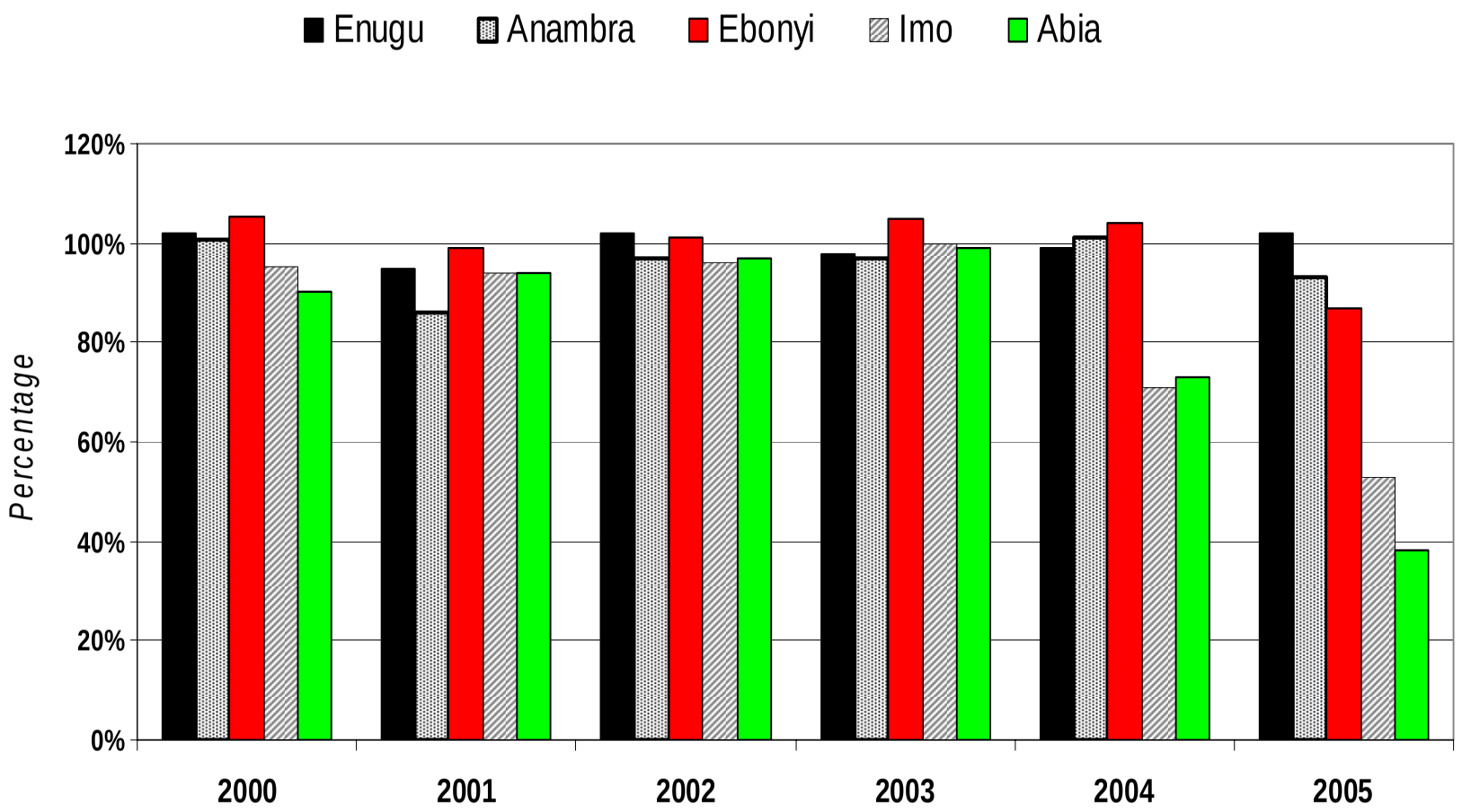


Figure 33: Nigeria: Treatment coverage contrast between 2 post-APOC scenario states and 3 other Southeastern states*



* Imo and Abia States ceased to receive funding from APOC in 2003, and Carter Center does not fund activities there.

Figure 34: Project areas in Plateau and Nasarawa, Nigeria

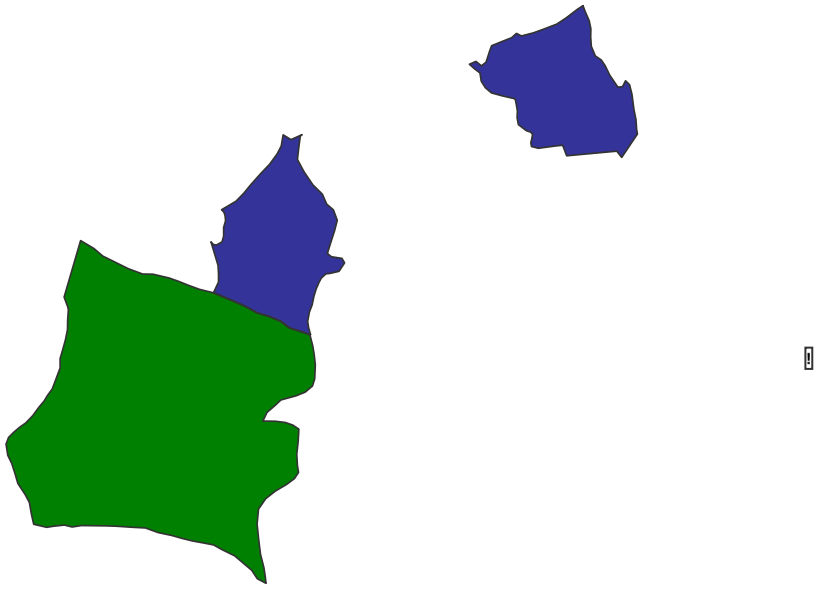


Figure 35: Lymphatic Filariasis Treatments: Plateau and Nasarawa States (Nigeria); by Year

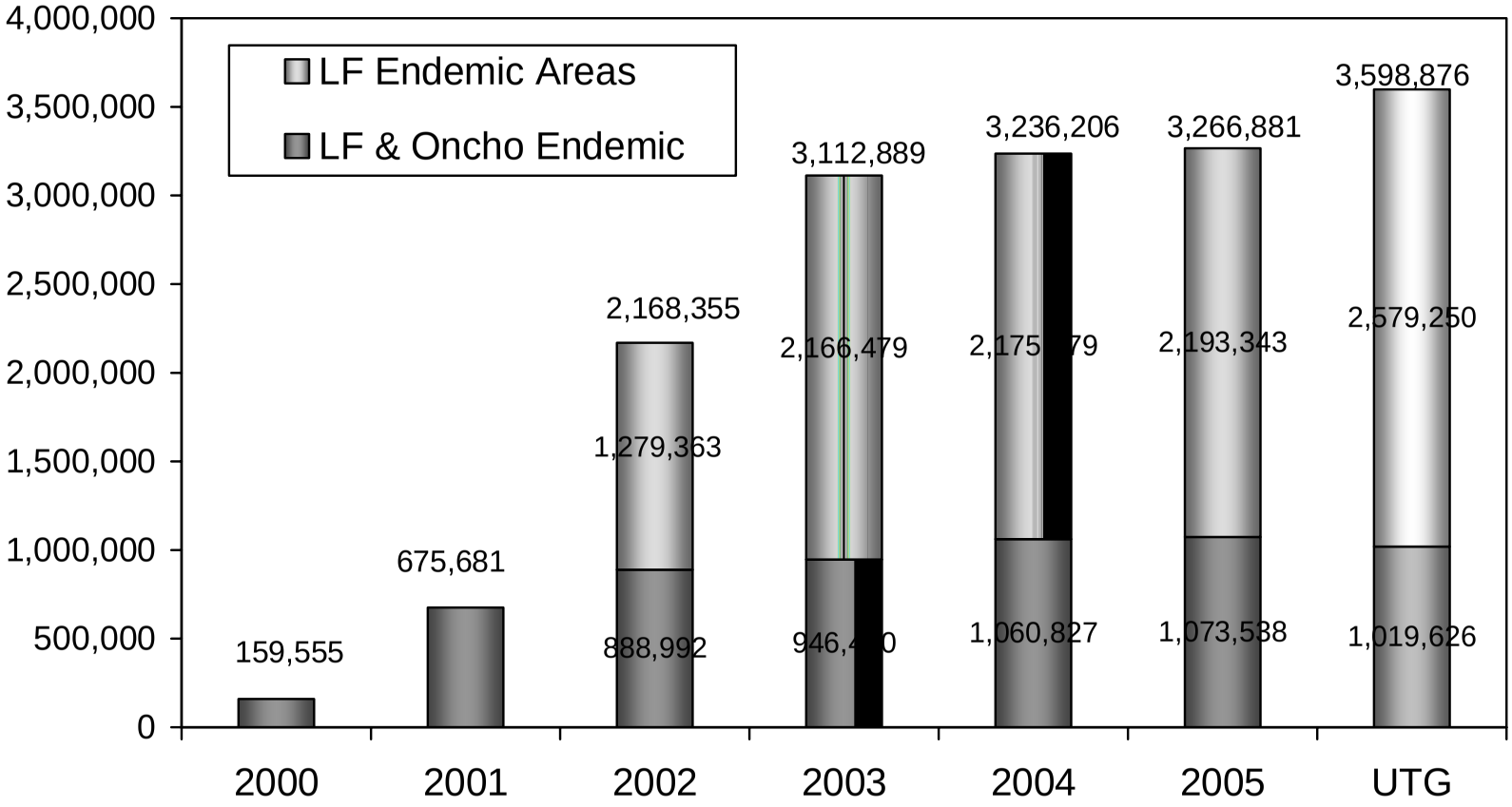


Figure 36: Average Lymphatic Filariasis ICT Results in Seven Sentinel Villages, Nigeria (n = 2,000)

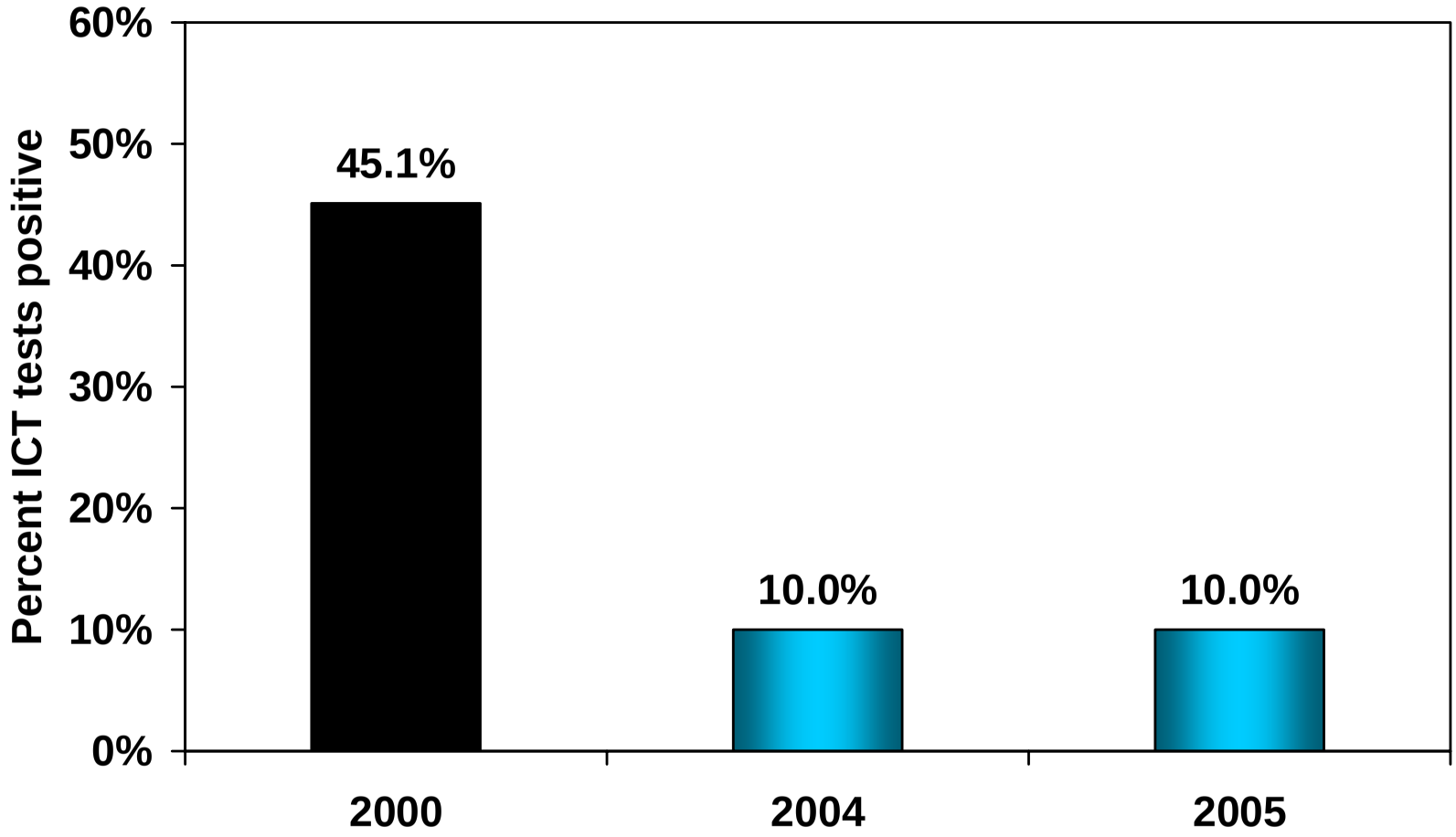


Figure 37: Average Lymphatic Filariasis Mosquito Infection Rate (*W. bancrofti*) in 9 Sentinel Villages, Nigeria (n > 1,000)

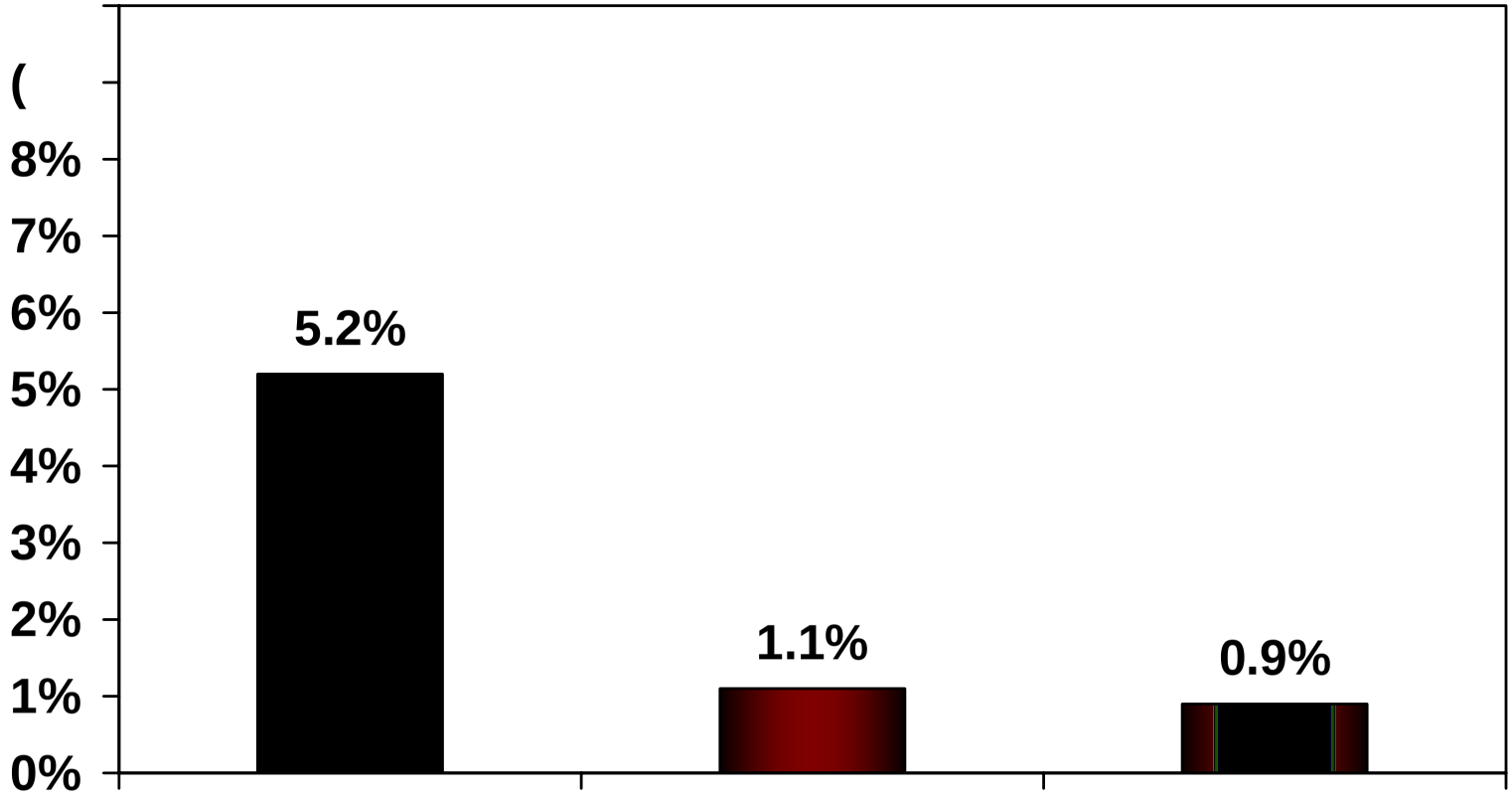


Figure 38: Schistosomiasis Treatments: Plateau, Nasarawa and Delta States, Nigeria, by Year

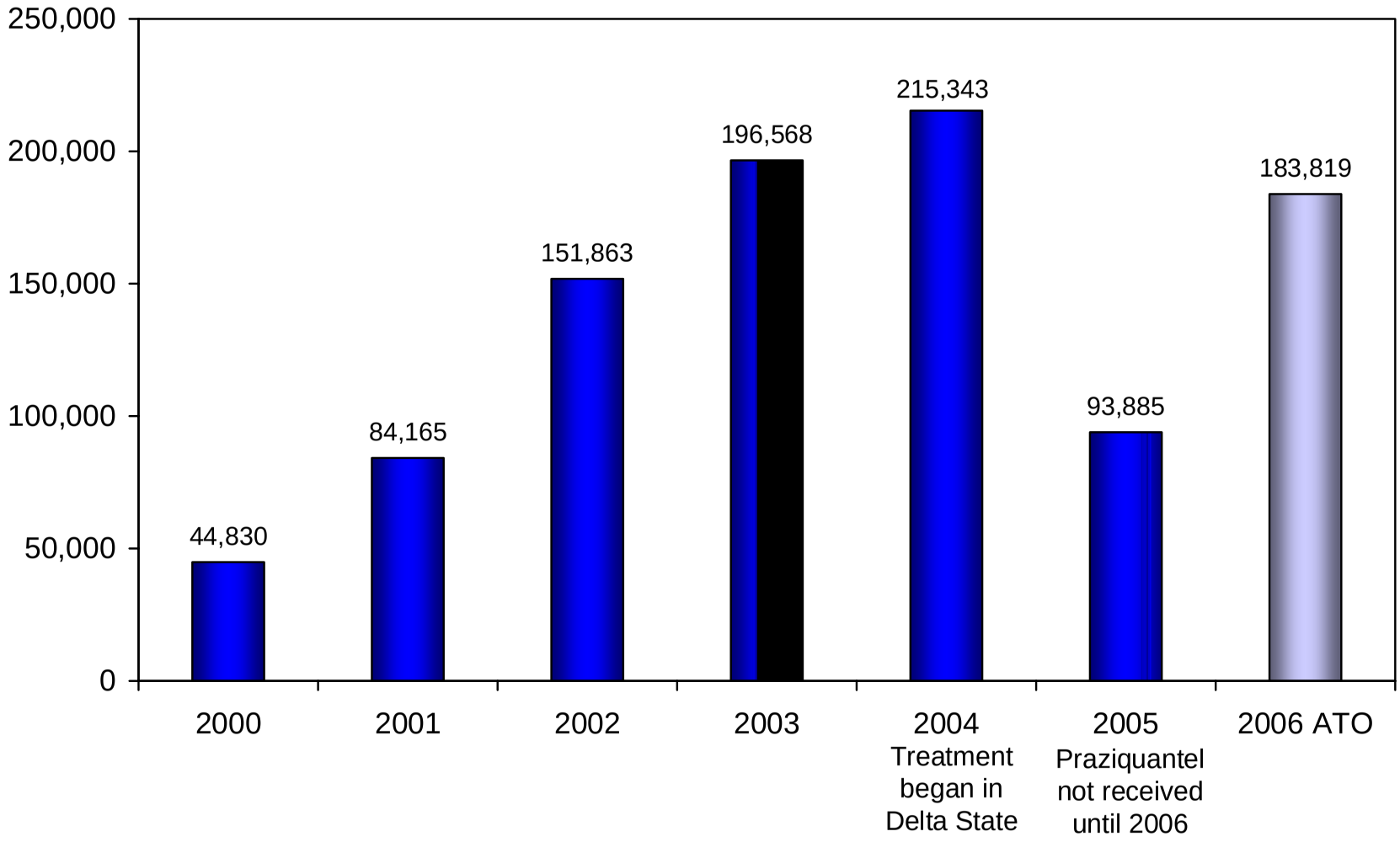


Figure 39: Average Schistosomiasis Dipstick Positivity, Pankshin and Akwanga LGAs, Nigeria (n = 300)

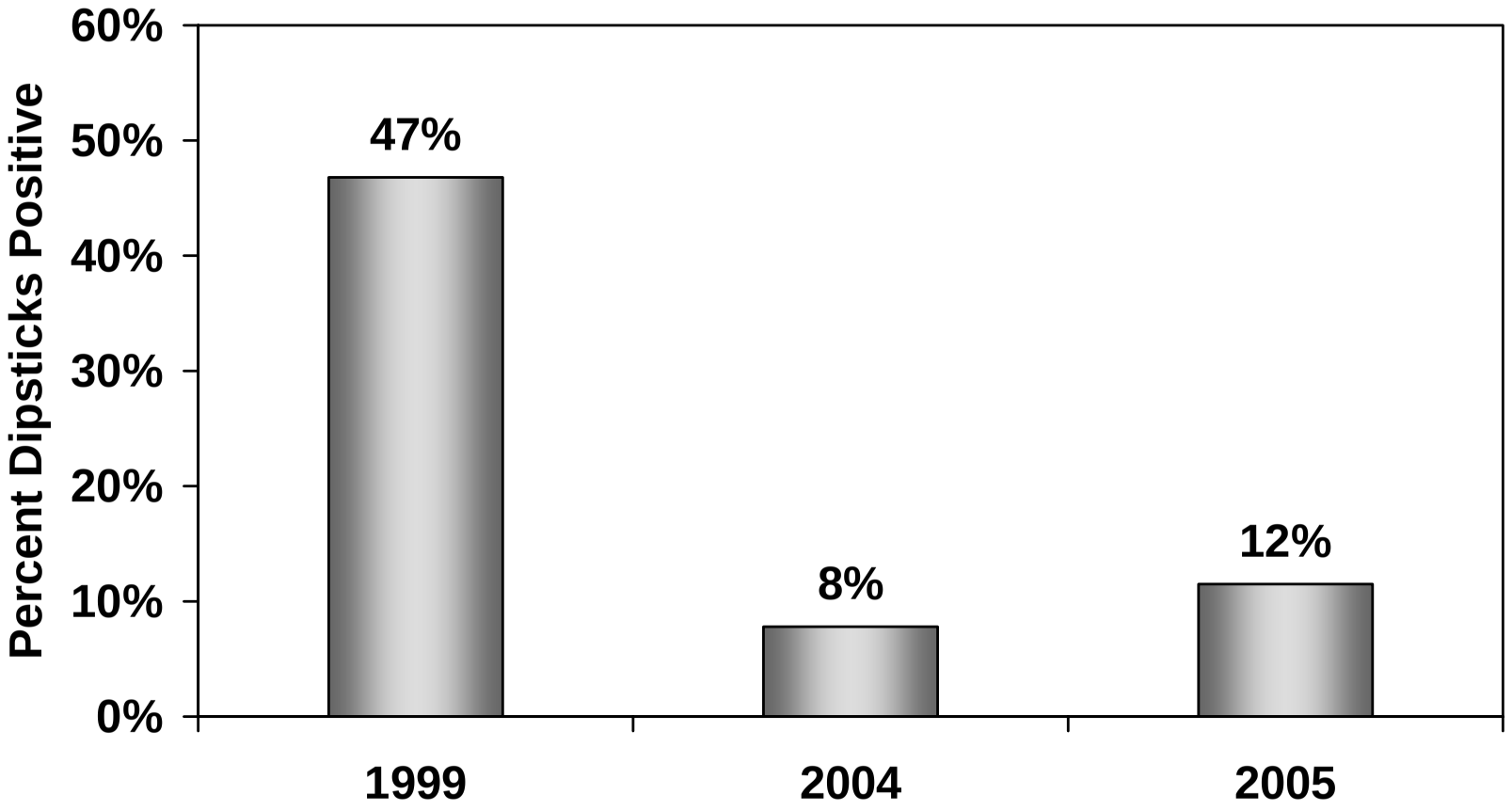


Table 11: Nigeria: 2005 Lymphatic Filariasis and Schistosomiasis treatments in Plateau, Nasarawa and Delta States and Collaboration Between LF and Malaria Programs in Kanke and Akwanga LGAs of Plateau and Nasarawa States

ETHIOPIA

Background: Ethiopia is the largest, most populous country in the Horn of Africa, with a population of more than 77.4 million people and an area of 426,371 square miles. Onchocerciasis was first reported in southwestern Ethiopia in 1939 by Italian investigators. The northwestern part of the country was reported to be onchocerciasis endemic in studies conducted in the 1970s. Onchocerciasis endemicity was evaluated further in Rapid Epidemio

Treatments: During 2005, 2,531,967 people were treated, reaching 94% of the annual treatment objective in The Ca

(100%) reported that they planned to continue their work in 2006. Treatment coverage in the 143 surveyed communities accurately approximated the data obtained from each zone's reports over the course of the year (86% therapeutic coverage in 143 surveyed villages versus 83% reported therapeutic coverage in the 5,574 total villages).

RECOMMENDATIONS 2006 FOR CARTER CENTER ETHIOPIA

Move to help projects in Gambella and Metekel. Adjust UTG accordingly.

In Bench-Maji, work with the Ministry of Health to pilot ways to solve the issue of pool funding or separate accounts.

Consider establishment of sentinel villages.

Obtain results of APOC ocular evaluations performed in Ethiopia.

Start clinic-based passive treatments in hypo-endemic areas.

Develop a relationship with Jimma University for research and data analysis purposes.

Assist in lymphatic filariasis mapping.

Continue to refine APOC, government and Carter Center funding figures in Carter Center assisted projects in 2006.

Verify that any decrease in treatments reported is not a result of withholding data or

Figure 40: Carter Center-Assisted CDTI Projects in Ethiopia

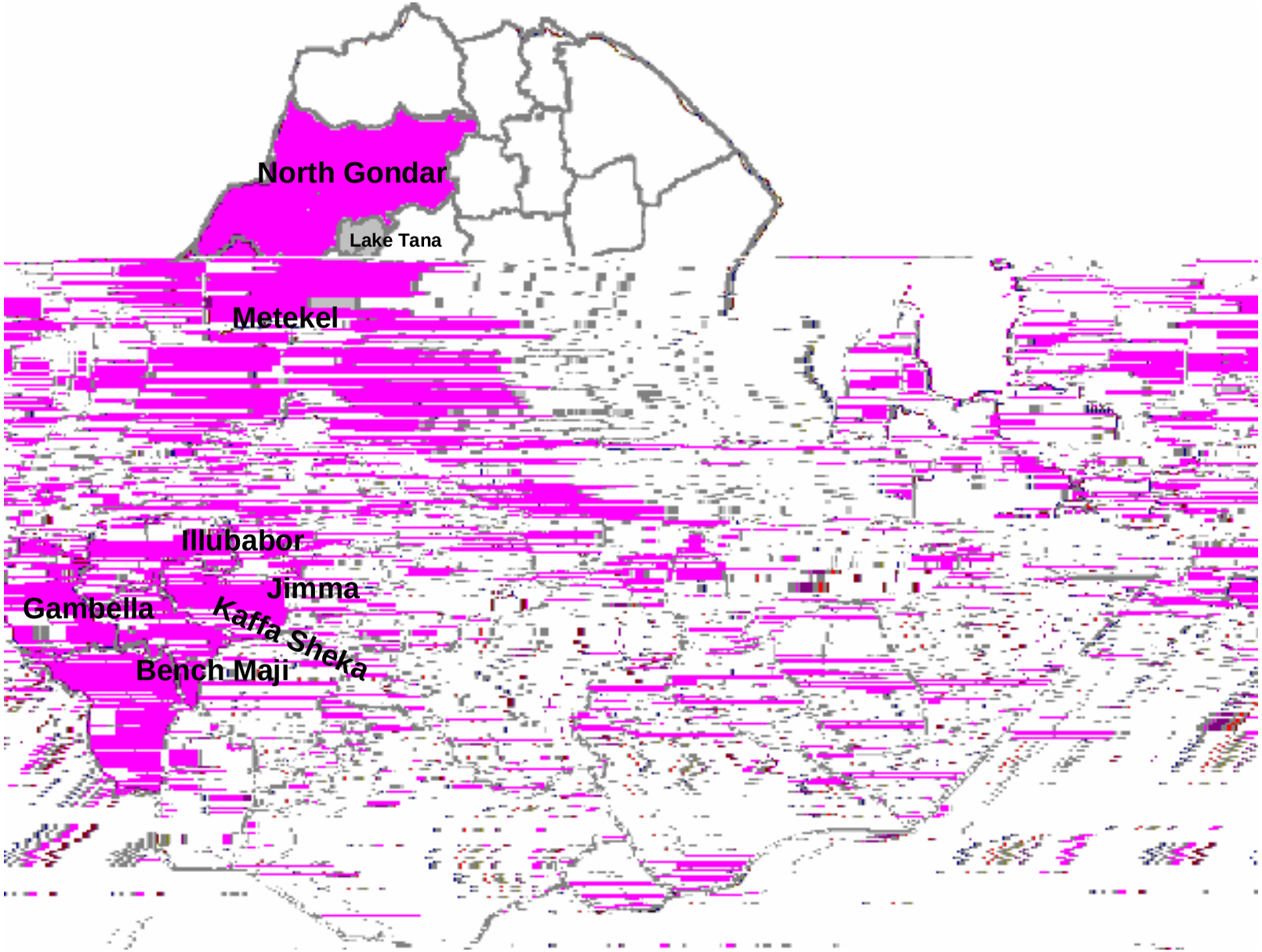


Figure 41: Ethiopia: 2001-2005 Mectizan Treatments and UTG*

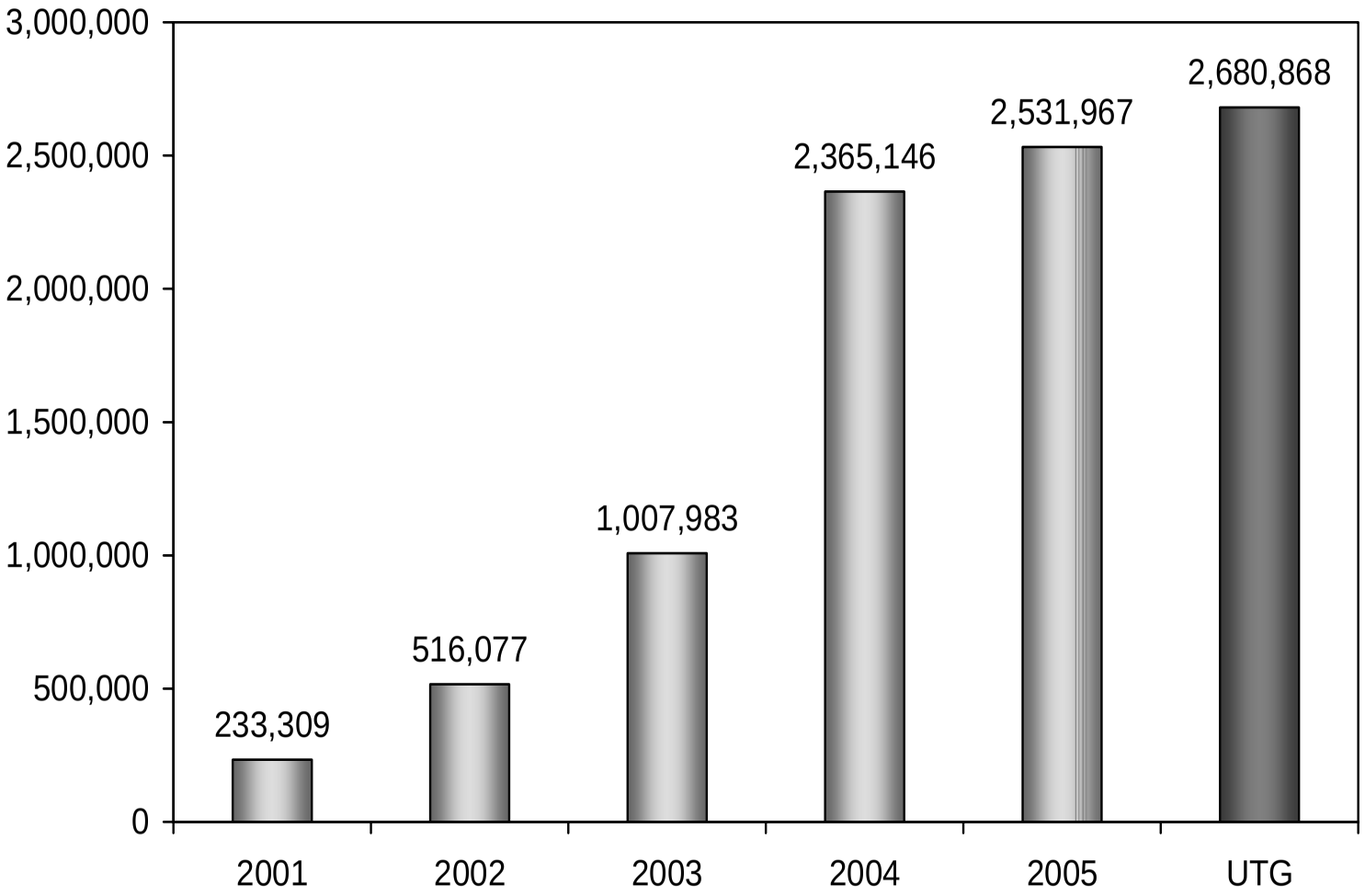


Table 12: Carter Center-Assisted Areas in Ethiopia: Activities and Plans for 2005

CDTI Zone	No. of Woredas	Popn treated cumulative 2005	Ultimate TX Goal (UTG)	% UTG treated	Total Popn 2005	% total popn treated	Active villages UTG	Active villages treated as % UTG
Kaffa	10	635,995	697,502	91%	830,360	77%	2,984	100%
Sheka	3	151,771	159,869	95%	190,319	80%	293	100%
B. Maji	8	457,828	461,732	99%	549,681	83%	1,053	100%
N. Gondar	3	183,945	196,605	94%	234,054	79%	914	100%
Illubabor	6	462,241	518,335	89%	617,065	75%	3,503	100%
Jimma	3	640,187	646,825	99%	770,030	83%	3,607	100%
TOTAL	33	2,531,967	2,680,868	94%	3,191,509	79%	12,354	100%

Acronyms

APOC ..... African Program for Onchocerciasis Control
arvs ..... at-risk villages (villages requiring community-wide active mass therapy)
ATO ..... Annual Treatment Objective
CDC ..... Centers for Disease Control and Prevention
CDD ..... Community-Directed Distributors
CDHS ..... Community-Directed Health Supervisors
CDHW unity-Dip3l.....Fr7gsHtnes (villages requiring community-wide active mass therapy)

PHC.....Primary Health Care
RBF .....River Blindness Foundation
RBP..... River Blindness Program of The Carter Center
REA..... Rapid Epidemiological Assessment
REMO ..... Rapi

ANNEXES

ANNEX 1: THE CARTER CENTER AND RIVER BLINDNESS

The Carter Center and River Blindness: In 1987, Merck & Co., Inc. approached Dr. William Foege, then executive director of The Carter Center, for assistance in organizing the global distribution of Mectizan®. Shortly thereafter, in 1988, The

Partners in the African Programs: In Africa, the main Carter Center partners are the MOHs in host countries (Cameroon, Ethiopia, Nigeria, Sudan, and Uganda). The Carter Center also works with other NGDOs through the NGDO Coalition for Mectizan distribution that includes, among others, Christoffel Blindenmission, Helen Keller Worldwide, Interchurch Medical Assistance, Lions Clubs International Foundation, SightSavers International, and the U.S. Committee for UNICEF. The African Program for Onchocerciasis Control (APOC), which is executed by WHO and funded through a trust fund housed at The World Bank, is another important partner of The Carter Center. APOC was launched in 1995, and aims to establish, by the year 2010, "community-directed" river blindness treatment programs in an estimated 19 African countries. APOC provided funds and technical/managerial support for five-year Mectizan® distribution projects carried out by MOH/Carter Center partnerships. The Carter Center had 19 projects (comprised of 31 states, districts and zones), but seven have reached the end of their core APOC funding. Dr. Moses Katabarwa, Carter Center River Blindness Epidemiologist and Lions club member, serves on the Technical Consultative Committee of APOC.

Partners in the Americas Programs: The Carter Center provides the administrative framework for OEPA. Headquartered in Guatemala, OEPA is the technical and coordinating body of a multinational, multi-agency coalition working for the elimination of all onchocerciasis morbidity and transmission from the Americas by the year 2007. Through OEPA, The Carter Center partners with the national programs and MOHs of all six endemic countries of the Americas (Brazil, Colombia, Ecuador, Guatemala, Mexico, and Venezuela). Regional technical and programmatic goals are developed by a Program Coordinating Committee (PCC), which is convened by OEPA and has representation from key members of the initiative. The Carter Center works with the Lions Clubs International Foundation (LCIF), Pan American Health Organization (PAHO), CDC, and several U.S. and Latin American universities. (Please see the third paragraph of the OEPA section for more details on the Lions partnership.) In 2003, this partnership expanded to include the Bill & Melinda Gates Foundation.

In 2005, The Carter Center and its partners reached the 75 millionth assisted treatment with Mectizan®, and the second year in which the program assisted in treating more than 10 million people.

ANNEX 2: LIST OF PARTICIPANTS

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Dr. Donald Hopkins
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Ms. Lindsay Rakers
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Ms. Lisa Rotondo
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Dr. Daniel Argaw – Ethiopia
Dr. Samson Baba – Sudan
Mr. Steve Becknell – Sudan
Mr. Fasil Chane – Kenya
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Dr. Emmanuel Emukah – Nigeria
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Dr. Berhane Gebray – Ethiopia
Mr. Teshome Gebre – Ethiopia
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Dr. Dereje Habte – Ethiopia
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Mr. Bekele Kidane – Ethiopia
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Mr. Hamus Mekuria – Ethiopia
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Mrs. Sirgut Mulatu – Ethiopia
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Dr. Ambrose Onapa – Uganda
Dr. Y. A. Saka –Nigeria
Dr. Mauricio Sauerbrey – Guatemala
Dr. Alemayehu Seifu – Ethiopia
Mr. Raymond Stewart – Sudan
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Mr. Abate Tilahun – Ethiopia

Lions Clubs International Foundation
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Mr. Getachew Desta – Ethiopia
Mr. Mayur Kotari – Ethiopia
Ms. Sonia Pellatreau – U.S.A.
Mr. Ramendra Shah – Ethiopia
Mr. George Stavrou – Ethiopia
Mr. Getachew Temeche – Ethiopia
Dr. Kebede Worku – Ethiopia

Other participants

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Dr. Mark Eberhard – U.S.A., CDC
Mr. Chad M. MacArthur – U.S.A., Helen Keller International
Dr. Tony Ukety – Switzerland, WHO

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Mr. Rao Kolluri
District Governor

ANNEX 4: AGENDA

Tenth Annual River Blindness Program Review
Monday February 20 – Wednesday February 22, 2006
Hilton Addis Ababa

Day 1: Monday February 20, 2006

Day 2: Tuesday February 21, 2006

Part 2: Sustainability and Integration

Day 3: Wednesday February 22, 2006

Part 3: Monitoring, Evaluation and Research

8:30 – 8:40	Introduction to Day 3	Dr. Moses Katabarwa
8:40 – 9:15 9:15 – 9:30	Ethiopia presentation* Discussion	Mr. Teshome Gebre
9:30 – 10:05 10:05 – 10:20	Nigeria presentation: Plateau and Nasarawa* Discussion	Dr. Abel Eigege
10:20 – 10: 30	***Coffee Break***	
10:30 – 11:05 11:05 – 11:20	Nigeria presentation: Southeast* Discussion	Dr. Emmanuel Emukah
11:20 – 11:55 11:55 – 12:10	Uganda presentation* Discussion	Ms. Peace Habomugisha
12:10 – 1:10	***Lunch***	
1:10 – 1:45 1:45 – 2:00	Cameroon presentation* Discussion	Dr. Albert Eyamba
2:00 – 2:15 2:15 – 2:30	Duration of treatment Discussion	Dr. Frank Richards
2:30 – 2:45	***Coffee Break***	
2:45 – 3:20 3:20 – 3:35	OEPA presentation* Discussion	Dr. Mauricio Sauerbrey

ANNEX 5: THE CARTER CENTER RBP REPORTING PROCESSES

At-Risk Villages (arvs): An epidemiological mapping exercise is a prerequisite to identifying at-risk villages (arvs) for mass Mectizan® treatment programs. The assessment techniques used in the mapping exercise in Africa varies from those used in the Americas. An overview of the two approaches follows.

In much of Africa, a staged village sampling scheme called Rapid Epidemiological Mapping of Onchocerciasis (REMO) is recommended by WHO to define endemic "zones" that should capture most or all vi

level and forwarded (whenever possible through MOH surveillance and reporting channels) to both headquarters of the national onchocerciasis programs and the national Carter Center offices in Jos (Nigeria), Kampala (Uganda), Yaounde (Cameroon), Khartoum (Sudan), and Juba (South Sudan). In the Americas, the MOHs in the six countries report treatments quarterly to the OEPA office in Guatemala City, which then provides a combined regional report to The Carter Center and (in meetings) to the PCC.

The data from monthly reports are supplemented with additional information at an annual Carter Center River Blindness Program Review held during the first quarter of each year. At these Reviews, all Carter Center program directors and other partners convene to finalize treatment figures for the previous year and establish new treatment objectives for the coming year. Data on Mectizan® treatments provided by other programs/partners operating in other parts of the countries where The Carter Center assists also are discussed, as well as epidemiological data and any research that is ongoing.

RBP Treatment Indices: Treatments are reported as numbers of persons and number of villages (communities) treated for the month, by state or province. Cumulative treatment figures are compared to the Annual Treatment Objectives (ATOs) or Ultimate Treatment Goals (UTGs). The decision whether to use ATOs or UTGs is based on projections of program capacity. Mature programs that sufficiently reach their entire program area are said to be at "full geographic coverage," and use the UTG index as their coverage denominator (see below). With the exception of Sudan, all Carter Center RBP activities operate at full geographic coverage (e.g., UTG).

The eligible populations of villages targeted for active mass distribution (at-risk villages - arvs) receive community-wide Mectizan® treatment. The eligible at-risk population (earp) includes all persons living in arvs who are eligible to receive Mectizan® (i.e., who are over five years of age and in good health). Although mass treatment activities exclude pregnant women, these women should be treated one week after parturition (generally later during the treatment year) by community distributors; therefore they should be included in the ATO/UTG calculation. The ATO/UTG for the earp includes the number of persons who can receive Mectizan® and are known or thought to be living in arvs. In practice, the ATO and UTG are established in projections based on age-eligible estimates, and the accuracy of these projections is highly variable. Program directors are urged to define their ATOs/UTGs using the latest epidemiological mapping information and village census data from the most recent treatment rounds. The UTG is also expected to be the same figure used in the annual request for tablets submitted to the Mectizan® Donation Program.

ANNEX 6: THE CARTER CENTER AND THE AFRICAN PROGRAMME FOR ONCHOCERCIASIS CONTROL (APOC)

The Carter Center is a partner in 19 APOC projects (Table 15). These projects consist

ANNEX 7: THE NIGERIA LYMPHATIC FILARIASIS (LF) ELIMINATION AND

showed that infection was most prevalent in the north-central and southeast areas of the country. The main goal of the

ANNEX 8: RECENT (2005-2006) PUBLICATIONS PERTAINING TO THE PROGRAM

Blackburn B, A Eigege, E Miri, E Mathieu, and F Richards. Successful integration of insecticide-treated bednet distribution and mass drug administration in Central Nigeria. *Am. J Trop Med Hyg* 2006 (in press).

Boatin, B. A. and Richards, F. O. Jr. Control of onchocerciasis. *Adv Parasito*l. 2006; 61:349-94.

Hopkins, D. R.; Richards, F. O., and Katabarwa, M. Whither onchocerciasis control in Africa? *Am J Trop Med Hyg*. 2005 Jan; 72(1):1-2.

Katabarwa, M. N.; Habomugisha, P.; Richards, F. O. Jr, and Hopkins, D. Community-directed interventions strategy enhances efficient and effective integration of health care delivery and development activities in rural disadvantaged communities of Uganda. *Trop Med Int Health*. 2005 Apr; 10(4):312-21.

Remme H, Feenstra F, Lever P, Medici A, Morel C, Noma M, Ramaiah K, Richards F, Seketeli A, Schmunis G, van Brakel W and Vassall A. Tropical diseases targeted for elimination: Chagas disease, lymphatic filariasis, onchocerciasis and leprosy. In Disease Control Priorities in Developing Countries, second edition (Eds, Jamison, D. T., Breman, J. G., Measham, A. R. et al) Oxford University Press, New York, 2006 pp. 433-449.

Richards F, A Eigege, E Miri, MY Jinadu, DR Hopkins. Integration of Mass Drug Administration Programs in Nigeria: The Challenge of Schistosomiasis. *Bull World Health Organ*. 2006 Aug 84 (8); 273-276.

Richards, F. O. Jr; Eigege, A.; Pam, D.; Kal, A.; Lenhart, A.; Oneyka, J. O.; Jinadu, M. Y., and Miri, E. S. Mass ivermectin treatment for onchocerciasis: lack of evidence for collateral impact on transmission of Wuchereria bancrofti in areas of co-endemicity. *Filaria J*fti in areas o( )TjT*( )Tj-0.00011 Tykafti in TMn.ee9Oe tp002 Tc 0 Tw -and 3 (Bull World)49Ju

treatments in Nigeria. *Ann Trop Med Parasitol*. 2005 Mar; 99(2):155-64.

Terranella, A.; Eigiege, A.; Gontor, I.; Dagwa, P.; Damishi, S.; Miri, E.; Blackburn, B.; McFarland, D.; Zingeser, J.; Jinadu, M. Y., and Richards, F. O. Urban lymphatic filariasis in central Nigeria. *Ann Trop Med Parasitol.* 2006 Mar; 100(2):163-72.

World Health organization. Onchocerciasis (river blindness). Report from the fifteenth InterAmerican Conference on Onchocerciasis, Caracas, Venezuela. *Wkly Epidemiol Rec*. 2006 Jul 28; 81(30):293-6.

World Health Organization. Onchocerciasis (river blindness). Report from the Fourteenth InterAmerican Conference on Onchocerciasis, Atlanta, Georgia, United States. *Wkly Epidemiol Rec*. 2005 Jul 29; 80(30):257-60.

ANNEX 9: 'Leading story on Lions Clubs that appeared in the Ethiopia Herald the day before the The River Blindness Program hosted its tenth annual Program Review on February 20-22, 2006 in Addis Ababa

11th All Africa Lions Conference kicks off[1]

Addis Ababa - The 11th All Africa Lions Conference was officially launched here in Addis yesterday at the United Nations Conference Centre (UNCC).

In his inaugural speech, President Girma Wolde-Giorgis said that since Africa witnessed the formation of first Clubs in Algeria and Morocco, the clubs have performed tremendous work in alleviating the suffering of the less fortunate members of the society especially in the preservation and treatment of eye disease.

In Ethiopia, many people have benefited from this programme, President Girma, said and saluted the commitment of the lions Club to eradicate blindness by the year 2020.

The President also expressed his happiness that the Lions international will be embarking on another vital prok 0 Tdce C(02 Tc 0.13BTw 16.44ect,essed)ighsidgainHIV/AIDS.ay