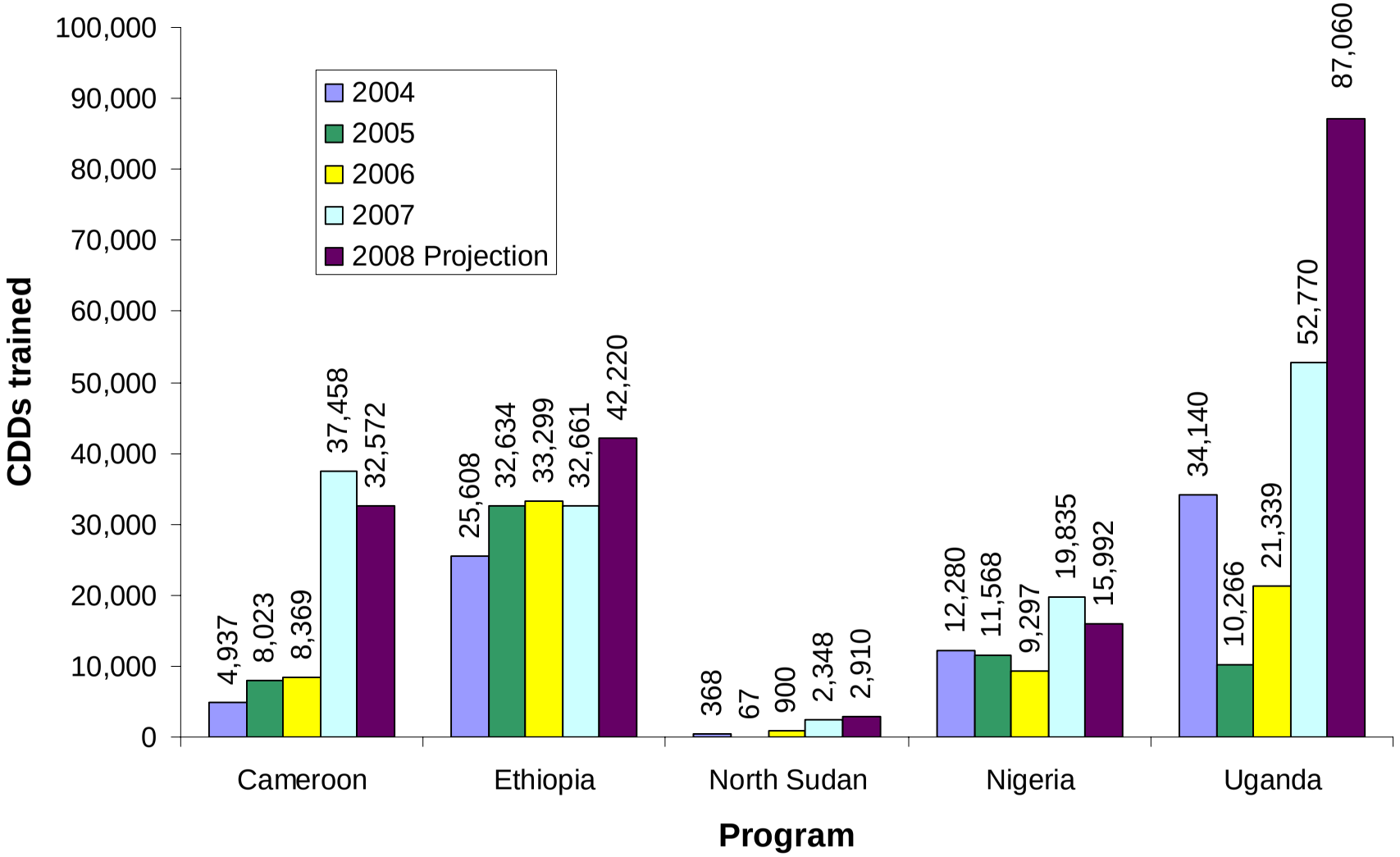
Figure G

Training of Community Directed Distributors (CDDs) for Last Four Years and Projection for 2008



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EXECUTIVE SUMMARY

The River Blindness Program (RBP) of The Carter Center assists the ministries of health (MOHs) of 11 countries[1] to distribute Mectizan® (ivermectin, donated by Merck & Co., Inc.) through programs whose goals are either to control or eliminate onchocerciasis. In 2007, the RBP and its partners provided over 12 million Mectizan® treatments (the greatest number since the program launched in 1996), and also reached a fantastic milestone: RBP's 100 millionth (cumulative) Mectizan® treatment! The milestone was celebrated with a commemorative medal, a press release, a website announcement (www.cartercenter.org), and displays at the river blindness statue located at The Carter Center headquarters in Atlanta.

President Carter has described a Mectizan® tablet as "more precious than a diamond of the same size" to those who suffer from river blindness. The commemorative '10^8' (the scientific notation for 100,000,000) medal was awarded to partners and Carter Center staff at the 12th Annual River Blindness Program Review held in Atlanta in February 2008. Included among awardees were the ministries of health (MOHs) of all 11 countries; Merck & Co., Inc; President Carter; John Moores; and President H.E. Girma Wolde Giorgis of Ethiopia. See Frontispiece Figure A for the design of the 100,000,000 treatment medal.

In addition to this achievement, we are pleased to announce that Dr. Donald Hopkins, Vice President of The Carter Center's Health Programs, was nominated by his colleagues and chosen by Merck & Co., Inc., to receive the 2007 Mectizan® Award. Merck & Co., Inc., and the Mectizan® Donation Program (MDP) give the Mectizan® Award to an outstanding contributor in the fight against onchocerciasis and/or lymphatic filariasis. Ms. Brenda Colatrella, Executive Director, HIV Policy & External Affairs, presented the award to Dr. Hopkins on November 14, 2007, at the IACO '07 meeting in Quito, Ecuador. See Frontispiece Figure B for a photograph of Dr. Hopkins and the Atlanta RBP team with the Mectizan® Award.

Human onchocerciasis, caused by the parasite *Onchocerca volvulus,* is an infection by a worm that causes chronic skin and eye lesions. The worms live under the skin in nodules. 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" (RB). The World Health Organization (WHO) estimates that approximately 37.2 million people are infected and 770,000 are blinded or severely visually impaired in 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 depending on the frequency of treatment per year and the geographic extent of the distribution programs. (See Annex 1 and 6 for further details.)

[1] Brazil, Cameroon, Colombia, Ecuador, Ethiopia, Guatemala, México, Nigeria, Sudan, Uganda and Venezuela

The Carter Center's RBP is dedicated to safe and sustainable distribution of Mectizan® with health education to control or eliminate onchocerciasis. The distinction between control and elimination is important. In the former, Mectizan® distribution will likely need to continue indefinitely because onchocerciasis transmission persists; sustainability of programs is vital and integration with other similar disease control activities is an important element in this scenario. In the latter case (elimination), Mectizan® treatment is used more intensively so that it can eventually be halted when evidence indicates that the parasite population has disappeared. Trying to eliminate onchocerciasis where feasible is an important goal of the RBP, and current RBP elimination efforts include all six countries in the Americas and designated foci in Uganda and Sudan.

Local Lions Clubs and the Lions Clubs International Foundation (LCIF) are special partners of The Carter Center in the battle against RB. When The Carter Center assumed the functions of the River Blindness Foundation (RBF) in 1996, it also entered into RBF's collaboration with local Lions Clubs in Cameroon and Nigeria. Since 1997, LCIF has generously provided grants through their SightFirst Initiative to The Carter Center for the control of RB and trachoma. Through the Lions SightFirst I Initiative, LCIF and The Carter Center expanded their partnership to encompass controlling RB in five countries in Africa (Cameroon, Ethiopia, Nigeria, Sudan, and, until 2005, Uganda) and eliminating RB altogether in the six endemic countries of the Americas (Brazil, Colombia, Ecuador, Guatemala, Mexico, and Venezuela). Under the new SightFirst II Initiative, LCIF continues to partner with The Carter Center for blindness programs in Ethiopia.

In 2003, The Carter Center's RBP received its first support from the Bill & Melinda Gates Foundation for the Onchocerciasis Elimination Program for the Americas (OEPA) through a matching grant mechanism that drew additional funding from LCIF, Merck & Co., Inc., and more than 70 other donors. In 2006, the Gates Foundation provided support to The Carter Center's integrated programs (that include RB) in Nigeria. Other RBP partners include the U.S. Centers for Disease Control and Prevention (CDC), WHO, the African Program for Onchocerciasis Control (APOC)[2], and The World Bank, as well as other foundations, corporations, governments, and nongovernmental development organizations (NGDOs).

The RBP hosted its twelfth annual Program Review on February 6 - 8, 2008, at The Carter Center in Atlanta. The meeting focused on providing recommendations for each program after determining progress, impediments and problems in 2007 treatment activities and implementation. 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.

[2] Carter Center RB projects no longer enjoy substantial APOC support since they are beyond the five year APOC project horizon.

Program Review participants included the following: Carter Center country representatives Dr. Albert Eyamba (Cameroon), Mr. Teshome Gebre (Ethiopia), Ms. Peace Habomugisha (Uganda), and Dr. Emmanuel Miri (Nigeria). Dr. Mauricio Sauerbrey, director of the OEPA, presented progress made in the six endemic countries in the Americas. Other technical staff members included Dr. Abel Eigege and Dr. Emmanuel Emukah (Nigeria); and Dr. Estifanos Biru and Mr. Getachew Temeche (Ethiopia). MOH representatives included Mr. Thomas Lakwo (Uganda), Dr. Mkpouwoupieko Salifou (Cameroon), Dr. A. Ngozi Njepuome (Nigeria), Dr. Tadesse Zerihun (Ethiopia) and Drs. Kamal Hashim Osman and Tong Chor Malek Duran (Sudan). Special guests included Honorable Dr. World Laureate Tebebe Y. Berhan (Lions – Ethiopia); Mr. Philip Albano (Lions Clubs International Foundation); Dr. Julie Jacobson and Ms. Erin Shutes (Bill & Melinda Gates Foundation); Dr. Adrian Hopkins, Dr. Yao Sodahlon, and Dr. Kisito Ogoussan (Mectizan® Donation Program); Dr. Uche Amazigo (Director of APOC); Ms. Jessica Rockwood (Development Finance International); Mr. Kenneth Gustavsen (Merck & Co., Inc.); Ms. Barbara Saunders (The Arthur M. Blank Family Foundation); Mr. Thomas Soerensen (Vestergaard Frandsen); and Ms. S. Eliza Petrow (Izumi Foundation). Dr. Frank Richards (Director of The Carter Center's Malaria, RB, Lymphatic Filariasis and Schistosomiasis Programs) chaired the meeting. (See Frontispiece Figure C for the photo from this meeting and Annexes 3, 4 and 5 for a complete participant list, contact list, and agenda.)

A major focus of The Carter Center is routine monthly reporting by assisted programs. The reader is referred to Annex 6 for a discussion of The Carter Center reporting process and treatment indices used by the program and in this report. Important terms include the number of treatments provided (TX); the Ultimate Treatment Goal (UTG); UTG(2), as used by elimination programs where semiannual treatments are delivered; Annual Treatment Objectives (ATOs); and full coverage, which is defined as 85% achievement of the UTG established in active treatment villages, or, for elimination programs, 85% of the UTG(2). Passive treatments are Mectizan® treatments for onchocerciasis provided through health care units located in hypoendemic communities (where estimated onchocerciasis nodule prevalence is under 20%) in the control program strategy. Hypoendemic villages receive mass treatment (not passive) in elimination programs.

Summary of the Meeting

In 2007, MOHs in Carter Center-assisted areas provided 12,425,818 mass Mectizan® treatments for onchocerciasis in active treatment villages (Figures 1 and 2), and over a half million (559,478) passive treatments in hypoendemic areas. This represented a 10% increase from the total of 11,301,304 treatments in 2006. This large increase is mainly due to expanding twice-per-year treatment efforts in new elimination efforts in Uganda and Sudan. Treatments constituted 96% of the UTG in the assisted areas (Figure 3), and brought the cumulative number of treatments assisted by the program since its inception in 1996 to 101,999,340. About 42% of treatments were provided in Nigeria (Figure 4). About 85% of treatments (all but Uganda) were supported by LCIF.

Americas: The Onchocerciasis Elimination Program for the Americas (OEPA) assists all six endemic countries to eliminate eye disease and interrupt transmission of river blindness. In the thirteen endemic foci for river blindness in the Americas, 843,095 treatments were assisted in 2007, 95% of their goal. This is a slight decrease from 2006, which reflects that the Santa Rosa focus of Guatemala is no longer treating, because that focus has halted transmission. Further reduction in treatment numbers is expected in 2008 as Lopez de Micay (Colombia), Escuintla (Guatemala), Northern Chiapas (Mexico) and the Rio Santiago subfocus (Ecuador) also have declared that transmission has ceased and will halt treatments. See OEPA section of this document for more details.

Cameroon: A total of 1,650,198 persons in North and West Provinces received Lions-Carter Center-assisted mass treatment in 2007, for 92% of the UTG. Vitamin A distribution integrated into the system of community-directed treatment with ivermectin continued, and 270,027 treatments with supplements in 2007 were delivered.

Ethiopia: The Lions-Carter Center partnership, working in eight of the ten endemic zones in Ethiopia, helped treat 2,883,468 persons (93% of the 2007 UTG, and a 13% increase over 2006). The Center purchases and helped to distribute 746,924 LLIN in RBP-assisted areas in 2007 as part of the new Carter Center assistance to Ethiopia's Malaria Control Program.

Nigeria: Over half of the 100 million Mectizan® treatments the Carter Center has assisted since 1996 were in Nigeria. In 2007, 4.9 million mass treatments were assisted in this country, 98% of the UTG. In Plateau and Nasarawa States, the RBP is integrated with the Lymphatic Filariasis (LF) program (with funding from the Bill & Melinda Gates Foundation and GlaxoSmithKline), which assisted in 3,414,800 combined treatments with Mectizan® and albendazole (93% of its UTG). In addition, 202,941 praziquantel treatments for schistosomiasis, 96,270 government-donated insecticide treated nets, and 534,770 Vitamin A supplements to young children were provided. Two of the seven Carter Center-assisted states in the southeast are beginning an integrated malaria/LF program and presented plans for distribution of 200,000 long-lasting insecticidal nets.

The urinary schistosomiasis program in Plateau, Nasarawa, and Delta States, funded in part by the Izumi Foundation, reached its one millionth cumulative treatment in 2007, since beginning in 1999. The WHO will provide over 1.5 million tablets per year for the next several years to the Plateau Nasarawa program beginning in 2008, and we anticipate quadrupling the number of treatments assisted by this program in 2008. The praziquantel is part of a very large donation to WHO by Merck KGaA (E-Merck), Germany.

Sudan: Sudan's Khartoum office reported 199,599 treatments in 2007, a 75% increase over 2006 and UTG coverage of 92%. Like Uganda, Sudan has shifted to a semiannual treatment approach to eliminate river blindness once and for all from the Abu Hamad focus on the River Nile.

Uganda: The RBP in Uganda assisted in 1,945,986 Mectizan® treatments in 2007, 97% of their UTG, and an incredible 87% increase over 2006 treatments due to the shift in government policy to an elimination approach in several isolated foci using twice-per-year treatments and vector control with Abate® larvicide. Vitamin A distribution integrated with RBP Mectizan® distribution resulted in 35,835 supplements in our assisted areas in 2007.

GENERAL 2008 RECOMMENDATIONS FOR THE CARTER CENTER'S RIVER BLINDNESS PROGRAM

If the government wants to support integration in areas where The Carter Center assists, we will not refuse to participate since these are government-owned programs. However, The Carter Center cannot invest in integration efforts with other diseases unless we first obtain formal Carter Center Board of Trustees approval and adequate funding to participate.

All Carter Center-assisted programs active in Vitamin A supplementation (VAS) have been challenged by the need to deliver VAS every six months, VAS supply chains, and other NGOs or agencies delivering Vitamin A. Above all we seek safety, by providing optimal spacing of VAS, when two annual rounds of VAS are planned. The Carter Center will provide VAS if distribution can be simultaneous with Mectizan® distribution, but it cannot provide financial support for separate rounds of VAS or distribution in areas where we are not already assisting Mectizan® distribution. The Carter Center's priority is Mectizan® distribution, and it cannot hold up Mectizan® distribution if VAS supplies are not readily available or if another VAS round has been given within the six month period.

Carter Center-assisted projects should continue to:

Refine government and Carter Center funding figures in 2008, including any additional funds coming in from APOC. We will monitor trends for increased funding, especially as they relate to how The Carter Center might be asked to fill the 'post APOC funding gap.'

Refine epidemiological indices more precisely where we have launched elimination efforts in Africa (Sudan and Uganda). More work is needed to operationally define and then delimit the precise borders of the isolated foci targeted for elimination.

Encourage the WHO (APOC, PAHO) to assist us in evaluating cross border issues in our assisted elimination programs. Some of these issues need to be addressed in ministerial meetings on cross border health issues.

Continue to develop antigen detection tests for use in OEPA, Uganda, and possibly Nigeria, in collaboration with Scripps Research Institute.

Apply The Carter Center monitoring protocol annually to assess coverage, health education, and community involvement in Carter Center-assisted African areas.

Work towards a target of a minimum 1 CDD to 100 population ratio in our assisted African programs. Seek to increase training, supervision, involvement of kinship groups, and improve gender balance among CDDs, as appropriate. CDD training and CDD retraining needs to be expressed in relation to annual training goals.

Publish results of programmatic improvement resulting from conversion to the kinship strategy. Conduct new research to measure costs and supervisory demands of conversion to the kinship strategy where this transition is occurring.

Complete analysis and report of the Imo-Abia Post APOC, Post-NGDO study in Nigeria. Consider writing a report of the Uganda and Cameroon Post APOC, Post-NGDO studies.

Carter Center program staff must complete or renew the Emory Institutional Review Board (IRB) certification if they are to be involved with research programs.

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

Treatment Objective for 2008 for onchocerciasis: 13,442,586 treatments.

Training Objective for 2008: CDDs (225,839) and community supervisors (38,345).

Figure 1

2007 Mectizan® Mass Treatment Figures for Carter Center River Blindness Program (RBP)-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	% UTG	% ALL TX
NIGERIA	***UTG=**	**4,980,653**		**UTG(arv)=**	**7,917**										
Treatments	0	68,155	108,192	175,307	498,688	685,081	911,434	926,127	732,762	404,900	318,885	73,941	**4,903,472**	98%	39%
Villages treated	0	50	157	247	662	1,098	1,522	1,536	1,252	643	479	228	**7,874**	99%	27%
UGANDA	***UTG=**	**833,736**		**UTG(arv)=**	**1,397**										
Treatments		0	0	66,914	227,023	140,534	100,883	105,403	65,135	48,805	38,293	5,000	**797,990**	96%	6%
Villages treated		0	0	221	465	373	320	151	140	68	38	13	**1,789**	128%	6%
UGANDA ELIM.	****UTG(2)=**	**1,197,632**		**UTG(arv)=**	**1,697**										
Treatments		0	0	419,996	150,969	0	0	0	0	158,273	418,758	0	**1,147,996**	96%	9%
Villages treated		0	0	1,363	482	0	0	0	0	393	1,316	0	**1,664**	98%	6%
CAMEROON	***UTG=**	**1,790,427**		**UTG(arv)=**	**3,631**										
Treatments	0	0	0	0	0	0	296,632	998,501	177,741	177,324	0	0	**1,650,198**	92%	13%
Villages treated	0	0	0	0	0	0	762	2,275	239	355	0	0	**3,631**	100%	12%
OEPA	****UTG(2)=**	**891,484**		**UTG(arv)=**	**1,808**										
Treatments	0	0		0	0	423,944	0	0	0	0	0	419,151	**843,095**	95%	7%
Villages treated	0	0		0	0	1,734	0	0	0	0	0	1,721	**1,728**	96%	6%
ETHIOPIA	***UTG=**	**3,110,238**		**UTG(arv)=**	**13,046**										
Treatments		0	0	0	0	153,583	1,703,475	655,087	370,480	843	0	0	**2,883,468**	93%	23%
Villages treated		0	0	0	0	571	8,066	3,046	2,655	6	0	0	**14,344**	110%	49%
SUDAN	***UTG=**	**72,432**		**UTG(arv)=**	**375**										
Treatments	0	0	0	0	0	0	23,647	0	0	21,234	19,273	0	**64,154**	89%	1%
Villages treated	0	0	0	0	0	0	31	31	31	123	143	0	**359**	96%	1%
SUDAN ELIM.	****UTG(2)=**	**145,230**		**UTG(arv)=**	**89**										
Treatments	0	0	0	0	0	0	0	0	0	63,917	0	71,528	**135,445**	93%	1%
Villages treated	0	0	0	0	0	0	0	0	0	89	0	89	**89**	100%	0%
TOTALS	***UTG=**	**13,021,832**		**UTG(arv)=**	**29,960**										
Treatments	**0**	**68,155**	**108,192**	**595,303**	**649,657**	**1,262,608**	**2,911,541**	**2,643,632**	**1,280,983**	**812,868**	**809,171**	**564,620**	**12,425,818**	**95%**	
Villages treated	**0**	**50**	**157**	**1,610**	**1,144**	**1,098**	**2,284**	**3,811**	**1,491**	**1,480**	**1,795**	**2,038**	**29,330**	**98%**	

Cumulative RBP-assisted treatments (1996 - 2007) = 101,999,340

2007 Mass Treatments	12,425,818
2007 Passive Treatments	559,478
2007 TOTAL TREATMENTS	**12,985,296**

***UTG**: Ultimate Treatment Goal

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

Figure 2

Carter Center-Assisted Programs: Annual Mectizan® Treatments, 1996 - 2007

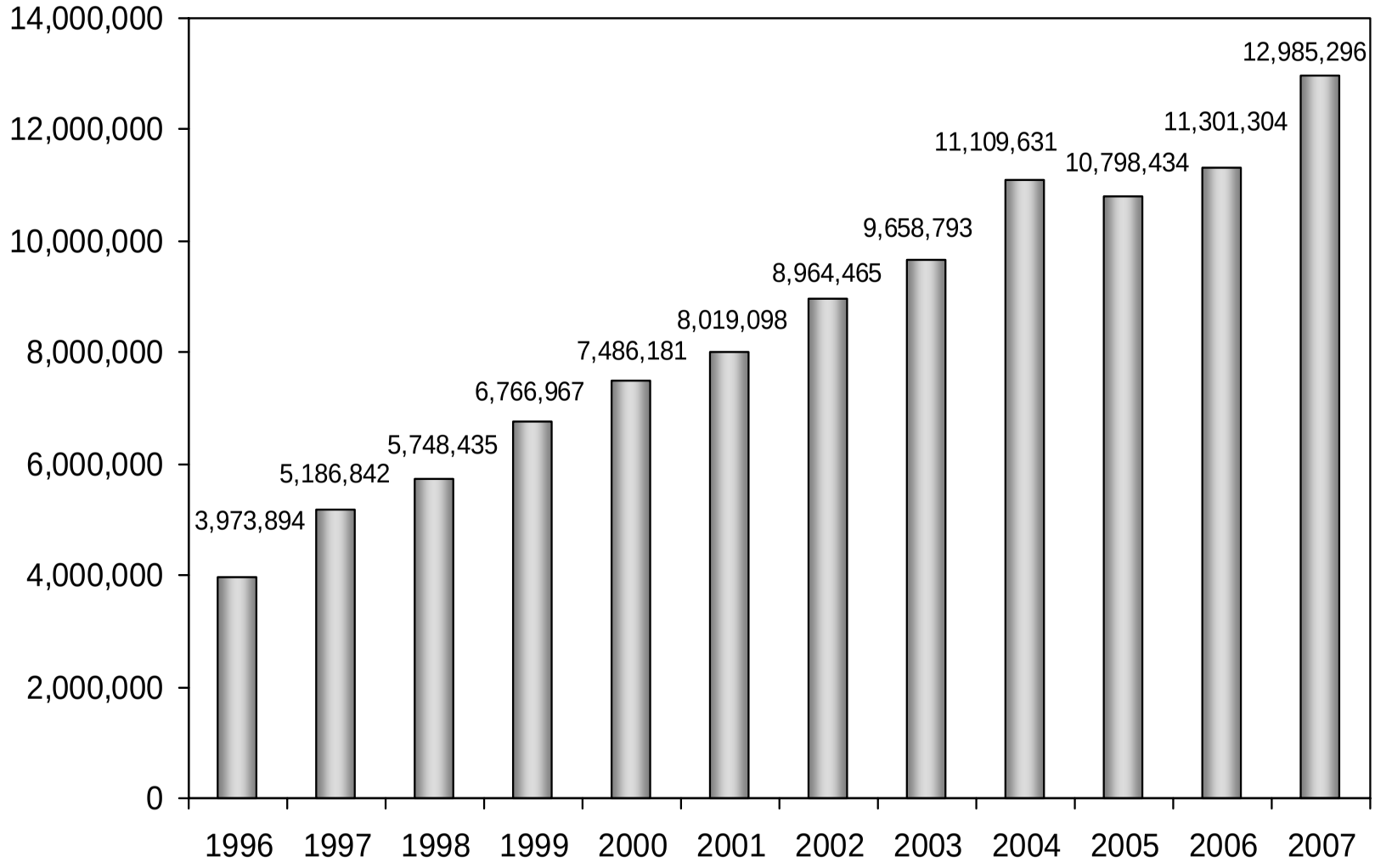


Figure 3

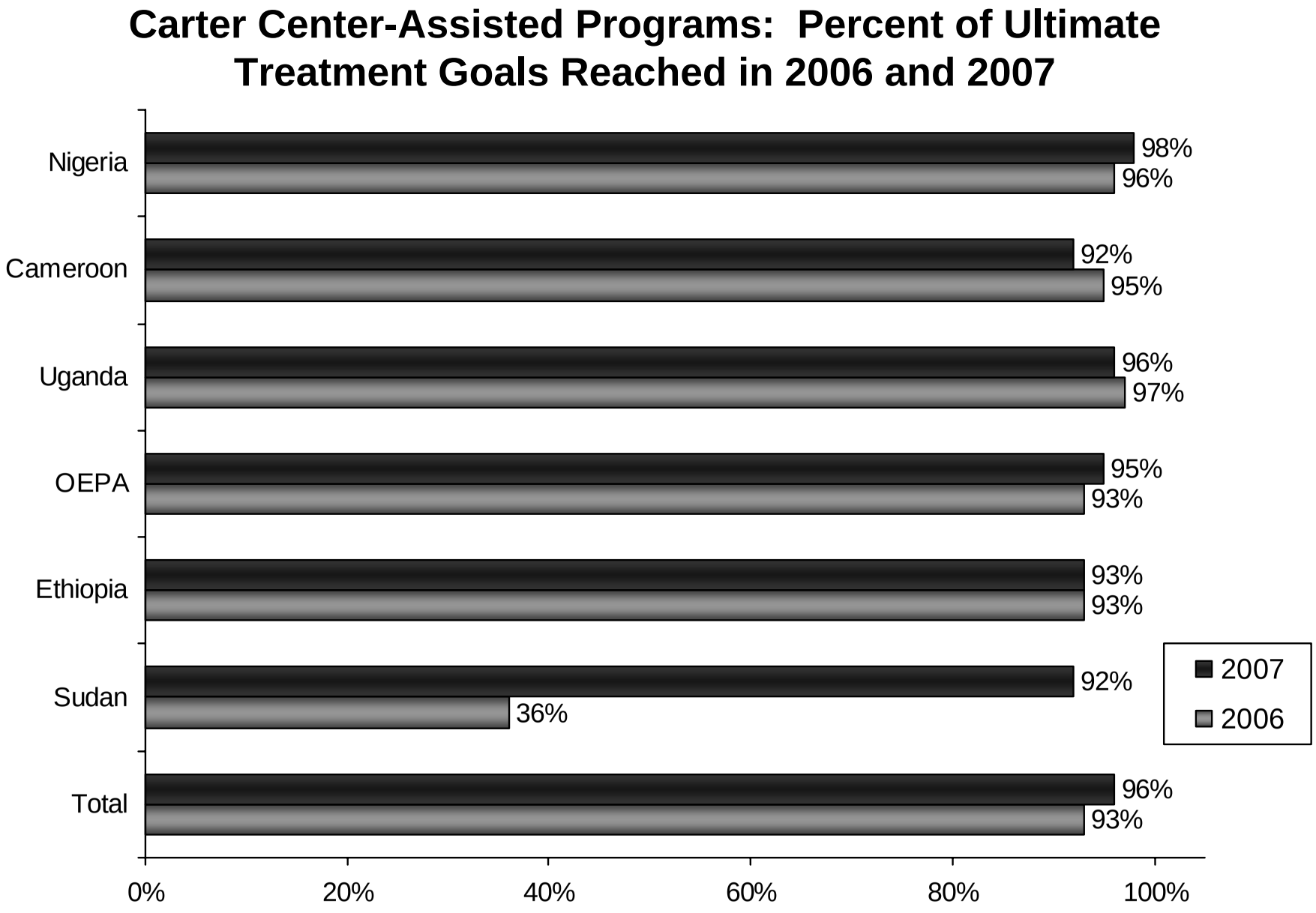
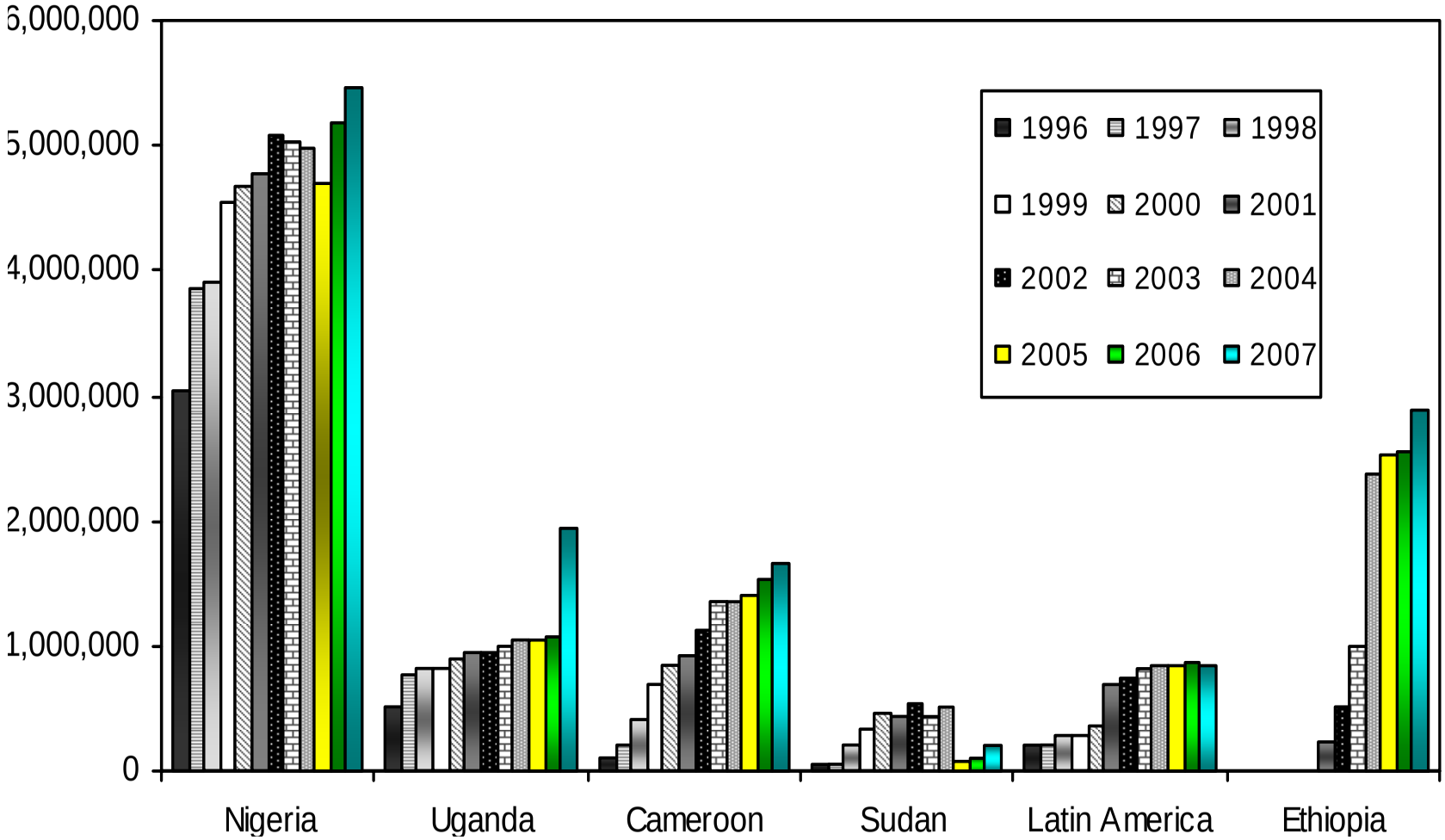

Carter Center-Assisted Programs: Percent of Ultimate Treatment Goals Reached in 2006 and 2007
Nigeria
98%
96%
Cameroon
92%
95%
Uganda
96%
97%
OEPA
95%
93%
Ethiopia
93%
93%
Sudan
92%
36%
Total
96%
93%
2007
2006
0%
20%
40%
60%
80%
100%

Figure 4

Carter Center-Assisted Programs: 1996 - 2007 Mectizan® Treatments by Program



ONCHOCERCIASIS ELIMINATION PROGRAM FOR THE AMERICAS (OEPA)

The Onchocerciasis Elimination Program for the Americas (OEPA) is a regional initiative working to eliminate both morbidity and transmission of onchocerciasis from the Americas through semi-annual (i.e., every six months) distribution of Mectizan® in the endemic areas of the region (Figure 5). The initiative began in 1993, in response to the 1991 Resolution XIV of the 35th Pan American Health Organization (PAHO) Assembly, which called for the elimination of onchocerciasis morbidity from the Americas by the year 2007. The OEPA coalition includes ministries of health (MOHs) of the six countries with onchocerciasis in the Americas (Brazil, Colombia, Ecuador, Guatemala, Mexico, and Venezuela), The Carter Center, Lions Clubs and the Lions Clubs International Foundation (LCIF), the Bill & Melinda Gates Foundation, PAHO/World Health Organization (WHO), the Mectizan® Donation Program (MDP) and the U.S. Centers for Disease Control and Prevention (CDC). A Program Coordinating Committee (PCC) serves as a steering committee for the OEPA staff, who are based in Guatemala City. The Carter Center coordinates technical and financial assistance to the six countries through the OEPA office.

Treatments

The OEPA strategy is to help the six national onchocerciasis elimination programs provide mass treatment with ivermectin twice per year, while reaching at least 85% treatment coverage. Mass treatment is sustained until onchocerciasis transmission is interrupted. The total number of people in the region (445,742) eligible for ivermectin treatment (the UTG) in 2007 was determined using information from censuses conducted during the second treatment round of 2006 in each endemic community. Since the goal is to provide ivermectin treatment twice a year, treatment coverage was calculated as the total number of treatments delivered during the year divided by twice the UTG (the UTG(2)), or 891,484 treatments. These ivermectin treatments are distributed among the endemic countries according to need in the following order: Guatemala (38%), Mexico (32%), Venezuela (22%), Ecuador (5%), Brazil (2%), and Colombia (1%). See Figures 6 and 7 for more details on treatments.

In 2007, the 12 foci that remain under treatment surpassed the 85% coverage in both treatment rounds, distributing a total of 843,095 (95%) treatments out of the UTG(2) of 891,484. The Santa Rosa focus in Guatemala (the 13th focus in the Americas) stopped treatment activities beginning in 2007 after the MOH of Guatemala concurred with the conclusion of the PCC that onchocerciasis transmission had been interrupted there. That conclusion was based on a 2004-2005 study of entomological, ophthalmologic and serological field studies completed by the MOH, CDC and OEPA. The MOH decided, therefore, to halt ivermectin treatments in that focus in 2007, and maintain a post-treatment surveillance program there for at least three years.

Important milestones accomplished in 2007:

The vision of the OEPA initiative is that one day onchocerciasis will be completely eliminated from the Americas and that ivermectin mass distribution programs can cease

to operate. The first step in realizing this vision came when treatment was halted in the Santa Rosa focus. In a review of data at PCC meetings held in June and November of 2007, further recommendations were made to the ministries of health of Colombia, Guatemala, Mexico and Ecuador to halt Mectizan® treatments in 2008 in Lopez de Micay, Escuintla, North Chiapas and (the subfocus) Rio Santiago in Esmeraldas focus, respectively. The ministries of health subsequently accepted these recommendations. Suspension of treatment in Lopez de Micay means Colombia will be the first country within the region to have achieved country-wide interruption of transmission. Post-treatment surveillance for resurgence of onchocerciasis transmission is needed for at least three years, in accordance with WHO onchocerciasis certification guidelines, before onchocerciasis can be declared eliminated.

Country specific information:

Brazil's endemic population resides in a vast area (the Amazonas–Roraima focus) which is continuous with Venezuela's South focus. The entire binational endemic zone, which is called the 'Yanomami Area,' has a combined UTG(2) of 26,858. Brazil provided 14,862 treatments in 2007, 93% of its UTG(2) of 16,040. Brazil has surpassed the 85% treatment coverage goal for the seventh consecutive year. In contrast, on the Venezuelan side, the poorly accessible South focus in the Yanomami area has only been able to reach its coverage goal for two consecutive years, giving 10,184 treatments, which is 94% of its UTG(2) of 10,818 in 2007. The South focus provided 4,869 (90%) treatments during the first round and 5,315 (98%) during the second. Overall, the Yanomami Area reached 93% of its UTG(2), with 25,046 treatments of 26,858.

Colombia has a single endemic focus (López de Micay, Cauca). Its program provided 2,232 treatments in 2007, which is 93% of its UTG(2) of 2,410. Colombia exceeded the treatment coverage goal for the ninth consecutive year. Based on a conclusion by the PCC that transmission has been interrupted in Colombia, the Ministry of Social Protection resolved to halt ivermectin treatment in 2008, and begin the three year post-treatment epidemiological surveillance period for disease recrudescence required prior to declaration of parasite elimination.

Ecuador has a single endemic focus in Esmeraldas Province (the Esmeraldas–Pichincha focus). The program achieved a treatment coverage of >85% for the seventh consecutive year, providing 42,112 treatments, which is 97% of the UTG(2) of 43,598. The Ecuadorian Onchocerciasis Program, also following a recommendation by OEPA's PCC, resolved to suspend treatment in the Río Santiago sub-focus starting January 2008 (Figure 8).

Guatemala has four endemic foci: the Central endemic zone, Huehuetenango (bordering the Southern Chiapas focus in Mexico), Escuintla/Guatemala and Santa Rosa. Santa Rosa has been under post-treatment epidemiological surveillance since January 2007. In the other foci of the country the program surpassed the coverage goal for the sixth consecutive year by providing 320,112 ivermectin treatments in 2007,

which is 94% of a UTG(2) of 339,976. In 2007, the PCC concluded that onchocerciasis transmission was interrupted in the Escuintla/Guatemala focus and the Guatemalan Ministry of Health decided to halt treatment there in 2008 and begin the three-year post-treatment epidemiological surveillance.

Mexico has three endemic foci (Oaxaca, Northern Chiapas and Southern Chiapas) where >85% coverage was achieved for the seventh consecutive year with 273,897 treatments, which is 95% of the UTG(2) of 289,266. Mexico has also been providing ivermectin quarterly in 50 of its most highly endemic communities in the Southern Chiapas focus since 2003, in a trial aimed at hastening onchocerciasis elimination. In 2007, the PCC concluded that onchocerciasis transmission was interrupted in the Northern Chiapas focus. The Mexican Ministry of Health agreed to stop ivermectin treatment in 2008, beginning the three-year post-treatment epidemiological surveillance.

Venezuela has three endemic foci: North Central, Northeast and South (the latter being part of the Yanomami Area discussed above under Brazil). The North Central and Northeast foci reached their treatment coverage goals for the fifth consecutive year. Overall, Venezuela provided 189,880 treatments, which is 95% of the UTG(2) of 200,194. Since the South focus of Venezuela is contiguous with the Brazilian focus, interruption of transmission in both countries was threatened by the failure to reach good coverage in southern Venezuela. To sustain the success in this very remote area, it has been important to implement and fully fund the Venezuelan Government's "Yanomami Health Plan" which provides for the air transport and critical on-ground infrastructure needed to deliver ivermectin treatments as part of an integrated essential health care package. Ongoing discussions and cooperation between Brazil and Venezuela are also key to the success of the attack on onchocerciasis transmission in the Yanomami Area.

IACO 2007

The seventeenth annual Inter-American Conference on Onchocerciasis (IACO'07) was convened November 15-17 by the Ministry of Health of Ecuador, OEPA, and PAHO, with support from the Bill & Melinda Gates Foundation and Lions Clubs in Quito, Ecuador. The meeting was attended by 76 persons, including 30 Ecuadorian field workers active in the national onchocerciasis elimination program. Also represented at the meeting were the directors of the six national onchocerciasis elimination programs (Brazil, Colombia, Ecuador, Guatemala, Mexico and Venezuela), members of Lions Clubs from all six countries (See Figure 9, and PAHO Washington Headquarters. Dr. Ricardo Cañizares, Sub secretary, Ministry of Health, Ecuador, opened the meeting.

The theme of IACO 2007 was 'The Beginning of a New Era.' The New Era was reflected in decreasing numbers of countries, foci and people under ivermectin treatment in the region. After the success in Colombia, there are now five endemic countries under treatment (Brazil, Ecuador, Guatemala, Mexico and Venezuela). The total number of foci under treatment in the region dropped from 13 in 2006 to 12 in 2007 to 9 in 2008. Similarly, the UTG(2) in the region has decreased from 913,606 in 2006 to

891,484 in 2007; in 2008 the UTG(2) is 693,356. The New Era also involves new responsibilities for rigorous post-treatment monitoring evaluations. Ministries of health will require technical, financial and political assistance from CDC, OEPA, and PAHO to help them assure that there will be no resurgence of onchocerciasis in these areas after treatment has been halted. A three year post-treatment surveillance period has been recommended in the WHO onchocerciasis certification guidelines prior to the declaration that the parasite has been 'eliminated' from a focus.

Status of Ocular Morbidity in the Region

The OEPA initiative was launched in response to a PAHO resolution which called for the elimination of all new ocular morbidity caused by onchocerciasis by the year 2007. In 2007, based on recent ophthalmologic assessments in sentinel and extra-sentinel areas, it was reported that 9 of the 13 foci have achieved the goal of elimination of new ocular morbidity (defined as <1% prevalence of microfilariae in the cornea and/or anterior chamber of the eye). The four foci that have not yet met the ocular morbidity elimination goal are Northeast Venezuela, North Central Venezuela, and the two cross-border foci of the Yanomami Area. See Figure 10 for more detail.

Status of Transmission in the Region

At the present time, active transmission is believed to be ongoing in six foci (Brazil, Ecuador, the Central endemic zone of Guatemala, and all three foci in Venezuela,). In the other three foci, (Oaxaca and the South Chiapas in Mexico and Huehuetenango in Guatemala) transmission has been suppressed (Figure 11). These foci are currently the subject of epidemiological and entomological evaluations, the data from which will be considered by the PCC for possible recommendation for treatment withdrawal by next year. Based on the progress being made, and the projections for transmission interruption in each remaining focus, IACO 2007 declared 2012 as the last expected year for ivermectin treatments in the Americas, with 2015 being the last expected year for post-treatment surveillance. See Frontispiece Figure D for a depiction of the projected diminishing treatments to be required in the Americas through 2012.

The Need for a New Resolution from PAHO

A new PAHO resolution for onchocerciasis is needed as soon as possible since the 1991 PAHO resolution is now outdated. OEPA staff are working with PAHO to submit a progress report on the initiative to PAHO/WHO's Directing Council during its annual meeting in September 2008. It is hoped that the Directing Council will announce a new formal resolution calling for complete interruption of new onchocerciasis related eye disease and transmission by the Year 2012. Such a resolution is key to maintaining the political support that sustains the OEPA initiative. The new goal for halting eye disease and transmission by 2012 also will be part of the PAHO 2008-2012 Regional Eye Health Plan.

2008 RECOMMENDATIONS for OEPA

Provide a report of progress to PAHO's Directing Council, and work for inclusion of OEPA goals in the 2008-2012 Regional Plan for Eye Health. Obtain a new resolution to complete interruption of transmission and morbidity elimination by the end of 2012.

Encourage strengthening of the health infrastructure in Yanomami focus (shared between Venezuela and Brazil).

Address cross border issues, with PAHO assistance in joint ministerial meetings. The Yanomami focus is the most important in this regard.

Work to update the 13-foci table, particularly adding Annual Transmission Potential (ATP) and mathematical transmission modeling results.

Collect needed data to allow the PCC to make recommendations on whether to stop treatments in Oaxaca (Mexico) and Huehuetenango (Guatemala).

Set up and implement recrudescence monitoring plans for foci where treatments have been stopped: Santa Rosa and Escuintla (in Guatemala), N. Chiapas (Mexico), Rio Santiago (Ecuador), and Colombia.

Publish results of certification exercises from Escuintla (Guatemala), N. Chiapas (Mexico), Rio Santiago (Ecuador), and Colombia.

Assist in the analysis of the four times-per-year treatment study conducted in Chiapas (now in the laboratory, data entry, and analysis phase).

Work with CDC and others to develop the use of doxycycline as an anti-*Wolbachia* treatment in Guatemala or elsewhere.

Continue to develop antigen detection tests in collaboration with Scripps Research Institute.

Work with the Ministry of Health and CDC (using recently updated census data) to suppress transmission as soon as possible in the central endemic zone of Guatemala.

Maintain CDC, University del Valle/Guatemala, and University of Southern Florida (Tom Unnasch) lab involvement, particularly in serology, nodule histology, molecular entomology, modeling and drug studies.

Promote cross fertilization between OEPA and the Uganda onchocerciasis elimination program.

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

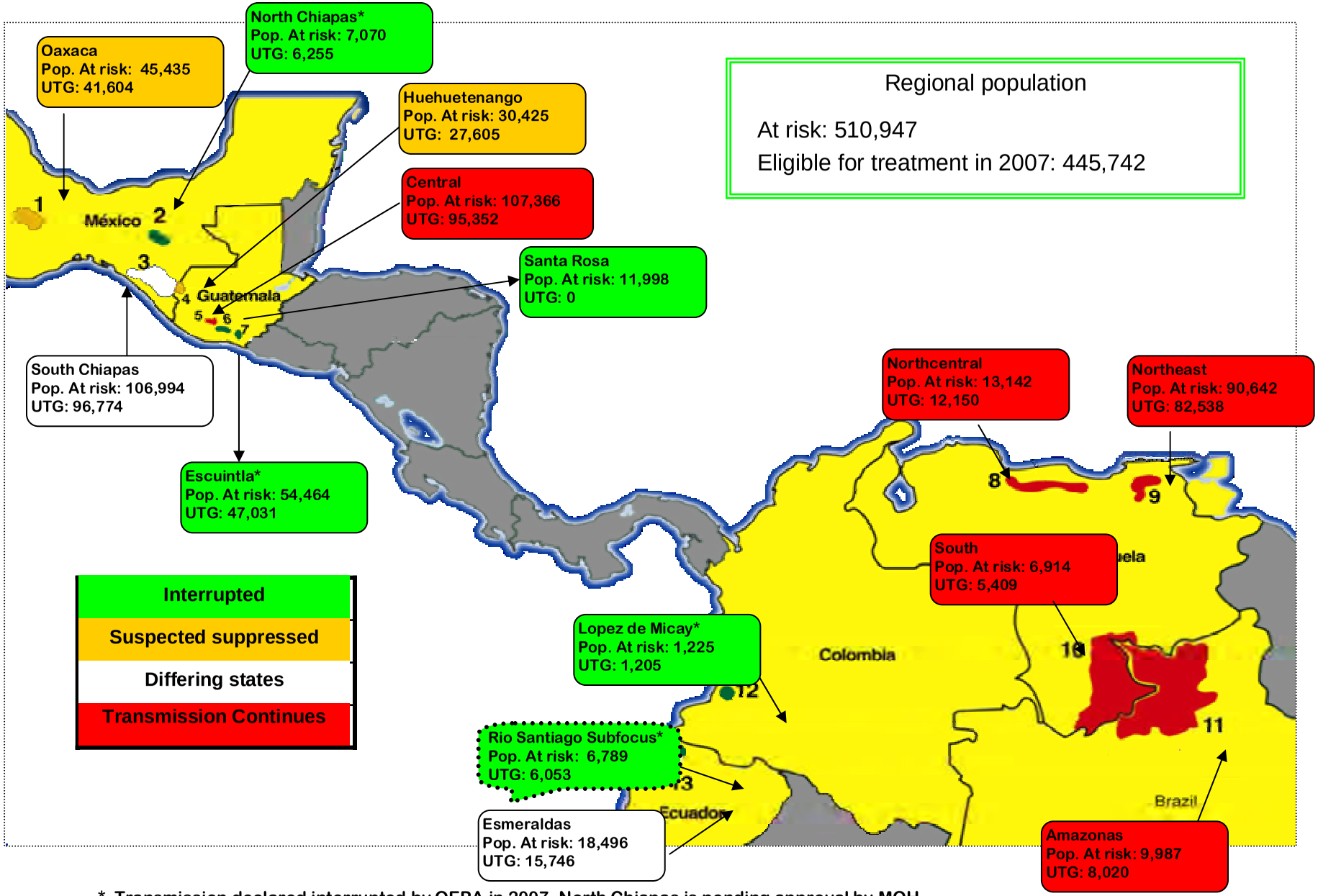
Promote routine community surveys for validating the level of community involvement, health education, training and coverage.

Carter Center program staff must complete or renew the Emory IRB certification if they are to be involved with research programs.

Treatment Objective for 2008 (UTG(2)): 693,356 treatments.

Figure 5

OEPA: 13 Onchocerciasis Foci



* Transmission declared interrupted by OEPA in 2007. North Chiapas is pending approval by MOH.
UTG: Ultimate Treatment Goal, or eligible persons for twice-per-year treatment in endemic areas.

Figure 6

OEPA: Treatments with Mectizan® in the Americas 1989-2007

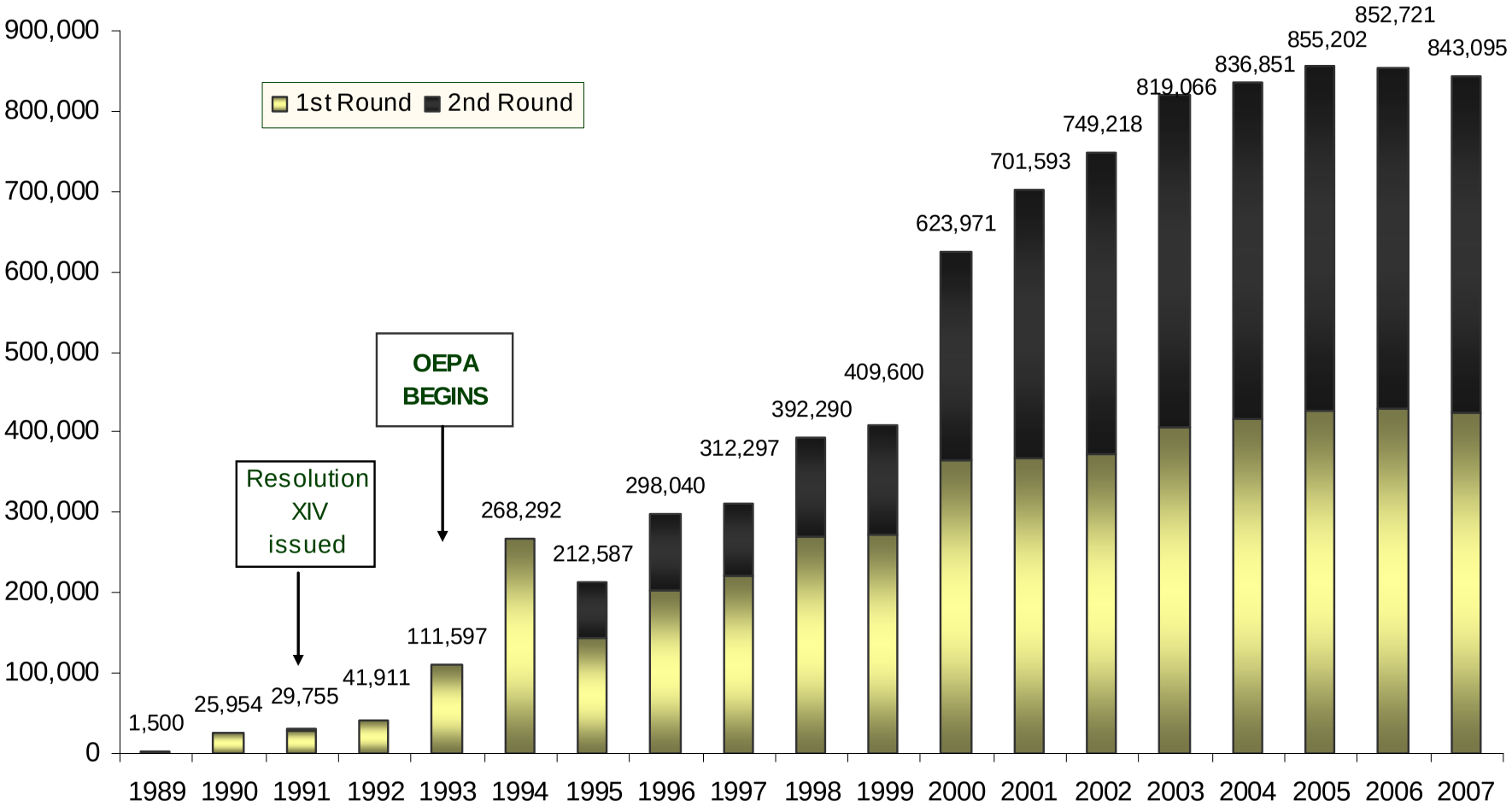


Figure 7

OEPA: Carter Center-Assisted Treatments in the Americas by focus, 2007

Focus	Communities	Pop. at risk	Eligible Pop. (UTG)	Pop. treated 1st Rd	Treatment coverage %	Pop. treated 2nd Rd	Treatment coverage %	UTG(2)	Treated UTG(2)	Coverage UTG(2)
Amazonas-BRA	17	9,987	8,020	7,313	91%	7,549	94%	16,040	14,862	93%
Lopez de Micay-COL	1	1,225	1,205	1,081	90%	1,151	96%	2,410	2,232	93%
Esmeraldas-ECU	119	25,285	21,799	20,884	96%	21,228	97%	43,598	42,112	97%
Escuintla-GUA	117	54,464	47,031	45,043	96%	45,617	97%	94,062	90,660	96%
Central -GUA	321	107,366	95,352	88,669	93%	88,206	93%	190,704	176,875	93%
Huehuetenango-GUA	43	30,425	27,605	26,405	96%	26,172	95%	55,210	52,577	95%
Santa Rosa-GUA**	37	11,998								
North Chiapas-MEX	13	7,070	6,255	6,865	100%	5,399	86%	12,510	12,264	98%
South Chiapas-MEX	559	106,994	96,774	92,131	95%	91,120	99%	193,548	183,251	95%
Oaxaca-MEX	98	45,435	41,604	39,207	94%	39,175	100%	83,208	78,382	94%
Northcentral-VEN	45	13,142	12,150	12,040	99%	11,204	93%	24,300	23,244	96%
Northeast-VEN	465	90,642	82,538	79,437	96%	77,015	97%	165,076	156,452	95%
South-VEN*	10	6,914	5,409	4,869	90%	5,315	109%	10,818	10,184	94%
TOTAL	**1,845**	**510,947**	**445,742**	**423,944**	**95%**	**419,151**	**94%**	**891,484**	**843,095**	**95%**

* Communities of the Santa Rosa focus will be part of the inventory of communities until the 3-year period of Epidemiological Surveillance is over and elimination of the disease, verified.

** Treatments halted in 2007 due to interruption of transmission

Figure 8

OEPA: IACO 2007 in Quito, Ecuador

Viceminister of Health of Ecuador, declaring suspension of treatment in the Subfocus of Rio Santiago in 2008.

Figure 9

OEPA: Lions Involvement

Dr. Ramiro Peña Constante; Sra. Margarita Peña, Ecuador; Dr. Ronald Guderian, former director of Ecuador Program; Ms. Kristen Eckert, USA; Dr. Florencio Cabrera Coello, Mexico; Dr. Libardo Bastidas Passos, Colombia; Dr. Ricardo Gurgel, Brazil

Figure 10

OEPA: New Ocular Morbidity from onchocerciasis in the 13 foci of the Americas (baseline and most recent evaluation in both sentinel and extra sentinel areas)

Country	Focus	Baseline Evaluation		Most Recent Evaluation			
		Year	Prevalence MfAC	Year	Prevalence MfAC	Prevalence MfC	Prevalence MfAC & MfC
Brazil	Amazonas	1995	31.20%	2007	2.20%	4.30%	6.50%
Colombia	Lopez de Micay	1996	2.20%	2006	0.00%	0.00%	0.00%
Ecuador	Esmeraldas	1991	24.70%	2006	0.00%	0.00%	0.00%
	Central Focus	1981	20.70%	2007	0.00%	0.40%	0.40%
	Escuintla-Guatemala	1979	6.20%	2006	0.00%	0.00%	0.00%
	Huehuetenango	1981	7.20%	2006	0.00%	0.00%	0.00%
Guatemala	Santa Rosa	--	N/A	2005	0.00%	0.00%	0.00%
	South Chiapas	1995	1.50%	2007	0.07%	0.00%	0.07%
	North Chiapas	1995	60.00%	2006	0.00%	0.00%	0.00%
México	Oaxaca	1995	0%	2004	0.00%	0.00%	0.00%
	North Central	1999	31.00%	2005	0.00%	1.70%	1.70%
	North East	1999	21.70%	2006	3.30%	0.70%	4.00%
Venezuela	South	1998	10.50%	2001**	5.8%**	18.6%**	24.4%**

MfAC-microfilariae in the anterior chamber of the eye; MfC-microfilaria in the cornea

*Based on finding microfilariae in either the anterior chamber or the cornea of the eye

**Pending re-evaluation in 2008

N/A - not available

Figure 11

OEPA: Status of Onchocerciasis transmission (river blindness) in the Americas

Focus	Blindness Stopped?	Transmission Stopped?
Santa Rosa, GU	Yes	Yes (2006)
Lopez de Micay, CO	Yes	Yes (2007)
Escuintla, GU	Yes	Yes (2007)
Huehuetenango, GU	Yes	Suspected Suppressed
Oaxaca, MX	Yes	Suspected Suppressed
North Chiapas, MX	Yes	Yes (2007)
South Chiapas, MX	Yes	Different states of transmission
Central focus, GU	Yes	No
Esmeralda, EC	Yes	Different states of transmission (interrupted in Rio Santiago 2007)
North Central, VZ	Yes	No
North Eastern, VZ	Yes	No
Amazonas, BR	Yes	No
South, VZ	Yes	No

UGANDA

Background: Onchocerciasis affects 29 of the 80 districts in Uganda. The Carter Center assists community-directed treatment with ivermectin (CDTI) in 17 (59%) of those endemic districts: Kabale, Kanungu, Kasese, Kisoro Bushenyi, Kamwenge and Ibanda, in Southwest Uganda; Adjumani, Moyo, and Nebbi, in the West Nile region bordering Sudan and DRC; Amuru, Gulu, and Oyam Districts in the Middle North areas; and Bududa, Manafua, Mbale, and Sironko, in the Mount Elgon focus in the east, bordering Kenya (Figure 12). In 2007, the Carter Center's UTG in Uganda accounted for 66% of the national UTG, compared to 59% in 2006.

Although LCIF funding to Uganda ended in 2005, the Local Lions Clubs have remained active participants in the Carter Center-assisted river blindness control activities. Local Lions engaged and mobilized members of parliament and other government officials. They provided onchocerciasis education and advocated for regular and sustained government support of CDTI activities. The Carter Center's Country Representative in Uganda, Ms. Peace Habomugisha, is a Lions Club member.

Onchocerciasis control commenced in Uganda in 1992 with large scale, annual, mass treatment with Mectizan®. The River Blindness Foundation (RBF) and Sight Savers International (SSI) provided the initial financial support to the government. In 1997, The Carter Center and the African Programme for Onchocerciasis Control (APOC) helped support those established projects. APOC also supported apparently successful transmission elimination efforts in two foci (Itwara and Mpamba-Nkusi) using focal larvicide application and annual Mectizan® distribution. Armed with this success (and the memory of a 1970s elimination victory in the Victoria focus, which liberated three million people from the threat of onchocerciasis), the government of Uganda and its partners launched a bold new elimination policy in 2006 targeting six new endemic areas in Uganda, with an ultimate goal of eliminating onchocerciasis from all foci of Uganda (Figure 13). The strategy involves increasing from annual to twice-per-year Mectizan® treatments (every six months) and providing targeted ground larviciding for vector control or vector elimination where technically feasible. New epidemiological and entomological surveys in support of this elimination effort are being conducted. The Carter Center, with support from Merck and Co., Inc., through the NGDO group, helped launch semiannual treatments in the Wadelai focus in Nebbi District in 2006 (see details below). The Center also partnered with the Ministry of Health by providing financial and technical assistance to the government of Uganda, made possible by a generous donation from Mr. John Moores, Chairman of The Carter Center Board of Trustees. The Merck and Co., Inc., Mectizan® Donation Program committed to provide sufficient Mectizan® for twice-per-year treatments. SSI also agreed to assist in intensified efforts planned for 2007 in districts in which it has traditionally worked that now are aiming for elimination.

The "Oncho Flag": The elimination strategy is illustrated in color in what is called the "oncho flag" (see Figure 13): green shows foci where transmission has already been interrupted (although the criteria for such interruption needs to be better defined), and yellow shows the foci where new elimination activities are ongoing. The six new elimination areas (shown in yellow) where semi-annual treatment with Mectizan® and ground larvicide application were conducted are: Wadelai (Nebbi District); Wambabya-Rwamarongo (Hoima District); Mt. Elgon (Bududa, Manafua, Mbale and Sironko districts), Budongo (Bulisa and Masindi districts); Kashoya-Kitomi (Bushenyi, Kamwenge and Ibanda districts); and Bwindi (Kabale, Kanungu and Kisoro districts). In Wambabya-Rwamarogo and Budongo foci, Sight Savers International provides direct support while technical support is provided by The Carter Center (Figure 14).

The flag also shows blue areas, which are priority for further assessments to determine if elimination is feasible, and red areas, which are unlikely candidates for elimination at this time (primarily because a part of the transmission foci cross international borders into South Sudan or the Democratic Republic of the Congo (DRC) and would thus require international collaboration). During 2007, the focus for onchocerciasis elimination was to work in the 'yellow areas' and demonstrate progress internally and to the international health community. The ultimate goal is to eventually move all onchocerciasis endemic communities from the yellow, blue, and red zones into the green zone, thus marking interruption of transmission, and subsequently, onchocerciasis elimination.

Treatments: The UTG for 2007 in Carter Center-assisted areas in blue and red foci (e.g., a control strategy with annual ivermectin treatment) was 833,736 (Figure 15). In the yellow areas targeted for elimination the UTG was 598,816; since the strategy in these areas is semiannual treatment, the UTG(2) index was used (twice the UTG) to calculate the coverage goal (1,197,632) (Figure 16). The Carter Center Uganda assisted in 1,945,986 treatments in 2007, a marked increase from 1,042,397 in 2006, which is attributed to the expansion of twice-per-year treatments. All of the 3,062 high-risk villages were treated during the year (100% geographic coverage). Excluding passive and visitor treatments (totaling 8,192), Uganda reached 95.8% of its treatment goals. In elimination areas, UTG coverage was 95.3% and 96.4% for the first and second rounds of treatment, respectively. This was the 11th straight year of more than 85% coverage of the UTG in Carter Center-assisted areas, and the tenth successive year of coverage exceeding 90% of the UTG.

In 2007, Carter Center-assisted areas provided 66% of the country's total of 1,954,178 treatments (see Figure 17). A total of 2,114,041 treatments is the Carter Center's treatment goal for 2008.

Training and Health Education: Uganda trained or retrained 57,770 Community-Directed Distributors (CDDs) and 8,062 Community-Directed Health Supervisors (CDHSs) in 2007 (Frontispiece Figure G, and Figures 18 and 19). Of these, 42.9% of the CDDs and 43.6% of the Community Supervisors were female. The current ratio of CDDs to population served is about 1 to 30, with 11 CDDs per community, which is the

best ratio of all Carter Center river blindness programs. The Uganda program was awarded a three-year grant from the Lavelle Fund to further improve numbers of CDDs trained under the kinship system. The aim is to train as many CDDs as practical in each onchocerciasis-endemic community to further improve prospects of sustained health education and higher treatment coverage. The five primary objectives of the grant from Lavelle Fund are to: 1) maximize involvement of the traditional kinship system in CDTI activities in all 2,385 communities of the 12 Carter Center-assisted districts; 2) ensure that there are at least six trained community-directed health workers (CDHW) in every kinship zone and three trainers of trainees (TOT) per community; 3) maximize involvement of women as CDHWs in every kinship group and have at least one female TOT in every community; 4) attain and sustain a coverage of at least 90 percent of the total eligible persons or ultimate treatment goal (UTG) living in all onchocerciasis-endemic communities of the 12 Carter Center-assisted districts; and 5) encourage the national health delivery care system to integrate other health care and development activities within the community-directed interventions approach using the traditional kinship system. The results this year so far show that these objectives have been attained. Even where twice a year distribution for onchocerciasis elimination was launched, the coverage in the second round was above 90% of UTG and was accomplished within a month for all the concerned districts.

Financial Contribution: In 2007, some districts, health sub-districts, and sub-counties contributed funds for CDTI activities, but the amounts were insufficient to sustain CDTI training, Information, Education and Communication (IEC) material production and distribution, and vehicle maintenance. Most financial support to The Carter Center assisted areas was provided by The Carter Center. The NGDO Coordination Group for Onchocerciasis Control (with funds from Merck and Co., Inc.,) supported work in the Wadelai elimination focus. All districts completed their fifth year of APOC funding between 2002 and 2005. See Figure 20 for APOC, Carter Center, and state, local, and national financial contributions from 2001 to 2007. The APOC increase was due to capital equipment purchases. The Carter Center increase reflects the new elimination program. The increase in government contribution results from payment of taxes on capital imports by The Carter Center.

Sustainability and Integration: The community-directed intervention approach was adopted as national health policy in Uganda in 2001. Hence, political support for onchocerciasis control activities within the primary healthcare system is strong, although government financial support has not been regular or up to expected amounts. Cash contributions to CDTI activities from districts, sub-districts, and sub-counties continue to decline, from approximately U.S. $9,000 in 2004 to $6,552 in 2005, $6,394 in 2006, to zero in 2007. However, the central government, through the Ministry of Health, contributed about $20,929 ($3,375 as well as $17,554 in tax exemptions) in 2007. In contrast, involvement and active participation of members of the affected communities have increased over the years. Program strategies include: 1) training as many inhabitants of endemic villages as possible to serve as distributors; 2) encouraging the involvement of women; 3) grouping community health workers and those they serve within their own kinship clans to reduce the demand for “incentives”; and 4) letting community members choose their own health workers and the location of treatment

centers. The CDDs and community supervisors demonstrate high levels of involvement in other types of interventions, most commonly water provision and sanitation, malaria control, and immunization. One hundred percent of communities in Carter Center-assisted areas of Uganda use the kinship system.

Monitoring, Evaluation and Research: Annual monitoring of CDTI activities was carried out in five randomly selected districts: Kanungu, Kamwenge, Mbale, where twice-a-year treatment is going on, and Kasese and Moyo districts where annual distribution is going on. Overall, there was general improvement in 2007 compared to 2006 in the percentage of persons who received health education, the community decision on treatment location, and treatment coverage levels (Figure 21 and Figure 22). For the last three years, health education, selection of CDDs by community members, shorter distances from individuals' homesteads to treatment locations, decision on the location of the treatment center and the reduction or elimination of monetary incentives have been predictors of achievement of the treatment coverage goal of 90% and above. These accomplishments also increase the likelihood that individuals will return the following year for treatment.

Entomology Data from Three Onchocerciasis Foci Targeted for Elimination*: *Wadelai, Bwindi, and Mount Elgon:

As part of the elimination effort, the Center is assisting in enhanced entomology monitoring and evaluation. Data from three foci reveal the following:

Wadelai focus: Since 2005, no black flies have been seen or caught. This implies that transmission in this focus is interrupted.

Kashoya-Kitomi focus: In April 2007, the baseline data on fly infection and crab infestation were collected (river crabs are a requirement for the black fly breeding process in some parts of Uganda). A total of four catching and 63 dosing sites were established in April 2007 and river treatment began the following month. *Simulium neavei spp* was reduced from an average of 66.3% positive in May, 2005 to 1.6% in December, 2007. It is projected that the last river treatment will take place in November, 2008

Mt. Elgon Focus: *Simulium neavei spp* catches in the Mt. Elgon focus started in April, 2007, and larviciding trials began in November during the same year. Preliminary results show 80% to 97% larval mortality in eight of the nine dosing points. The ninth dosing point had larval mortality of about 40%, but this was because human activity interfered with Abate® (Temophos) being carried through the water. Immediately after this discovery 27 dosing points were established and the projection is that one year of river treatment (January-December 2008) will be sufficient to eliminate *Simulium neavei spp*. Interruption of onchocerciasis transmission also will be achieved in this period.

Establishment of the laboratory in Uganda: In addition to field entomological surveys, The Carter Center helped establish a laboratory at the Ministry of Health's

Vector Control Division (VCD) in Kampala, including the provision of equipment, reagents, and training consultants. The Carter Center also sponsored a microbiologist, Mr. David Ogutu, from VCD to train under Dr. Tom Unnasch at the University of Alabama, Birmingham, for one month. Mr. Ogutu is now in charge of the Uganda laboratory. Dr. Tom Unnasch also traveled to Uganda to assist in establishing the laboratory, along with Ms. Nancy Cruz-Ortiz, who leads an OEPA supporting laboratory in Guatemala.

2008 RECOMMENDATIONS FOR CARTER CENTER UGANDA

GENERAL

The Uganda program should continue to refine government and Carter Center funding figures in 2008, including any additional funds coming in from APOC. Monitor trends for increased funding, especially as related to how The Carter Center might be asked to fill the 'post APOC funding gap.'

Conduct Carter Center monitoring protocol annually to assess coverage, health education, and community involvement.

Work towards a target of minimum 1 CDD to 100 population. Seek to increase training, supervision, involvement of kinship groups, and improve gender balance among CDDs, as appropriate. CDD training and CDD retraining needs to be expressed in relation to annual training goals.

If the government wants to support integration in areas where The Carter Center assists, we will not refuse to participate as these are government owned programs. However, The Carter Center cannot invest in integration efforts with other diseases unless we are already assisting Mectizan® distribution in that area, have obtained formal Carter Center Board of Trustees approval, and have adequate funding to participate.

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

Uganda program staff must complete or renew the Emory IRB certification if they are to be involved with research programs.

SPECIFIC

Integrate semiannual treatment with Vitamin A supplement distribution into CDTI in areas where semiannual ivermectin treatment is being provided as part of the elimination effort. In areas where ivermectin is provided once per year, at least one round of Vitamin A supplementation (VAS) could be linked to CDTI, but The Carter Center cannot provide financial support for a second round of VAS, or for distribution in areas where we are not already assisting Mectizan® distribution.

Albendazole treatments for LF have been integrated with onchocerciasis treatments in Moyo and Adjumani districts. The Carter Center, however, cannot provide financial support for the LF efforts, nor any type of support for albendazole distribution in areas where we are not already assisting Mectizan® distribution.

Seek to train as many CDDs as is practical, using the kinship structure in all Carter Center-supported districts (in keeping with the purpose of the Lavelle Fund grant).

Establish the Ugandan Elimination Committee (UEC) to include internationally known onchocerciasis experts to assist the Ugandan elimination effort.

Make the PCR (Polymerase Chain Reaction) and OV16 lab in Uganda operational in 2008, with the help of OEPA experts.

Assist in the purchase of Abate® for onchocerciasis elimination efforts.

Carry out semi-annual treatment with ivermectin in onchocerciasis endemic districts targeted for elimination. Begin tracking the number of cumulative rounds >85%, as OEPA is doing.

Create and maintain detailed tables of epidemiological indicators for areas where transmission has been stopped and those targeted for elimination, as is done with the OEPA foci. Clearly define the criteria for an 'isolated focus' in the first UEC meeting.

Monitor government financial contribution to the elimination efforts.

Treatment Objective for 2008: 2,114,041 persons.

Annual = 883,945 persons.

Semiannual (UTG(2)) = 1,230,096 treatments.

Training Objective for 2008: 45,880 new CDDs (Total=87,060 old and new), 2,832 new Community Supervisors (Total =5,664 old and new).

Figure 12

Uganda: Carter Center Assisted Districts

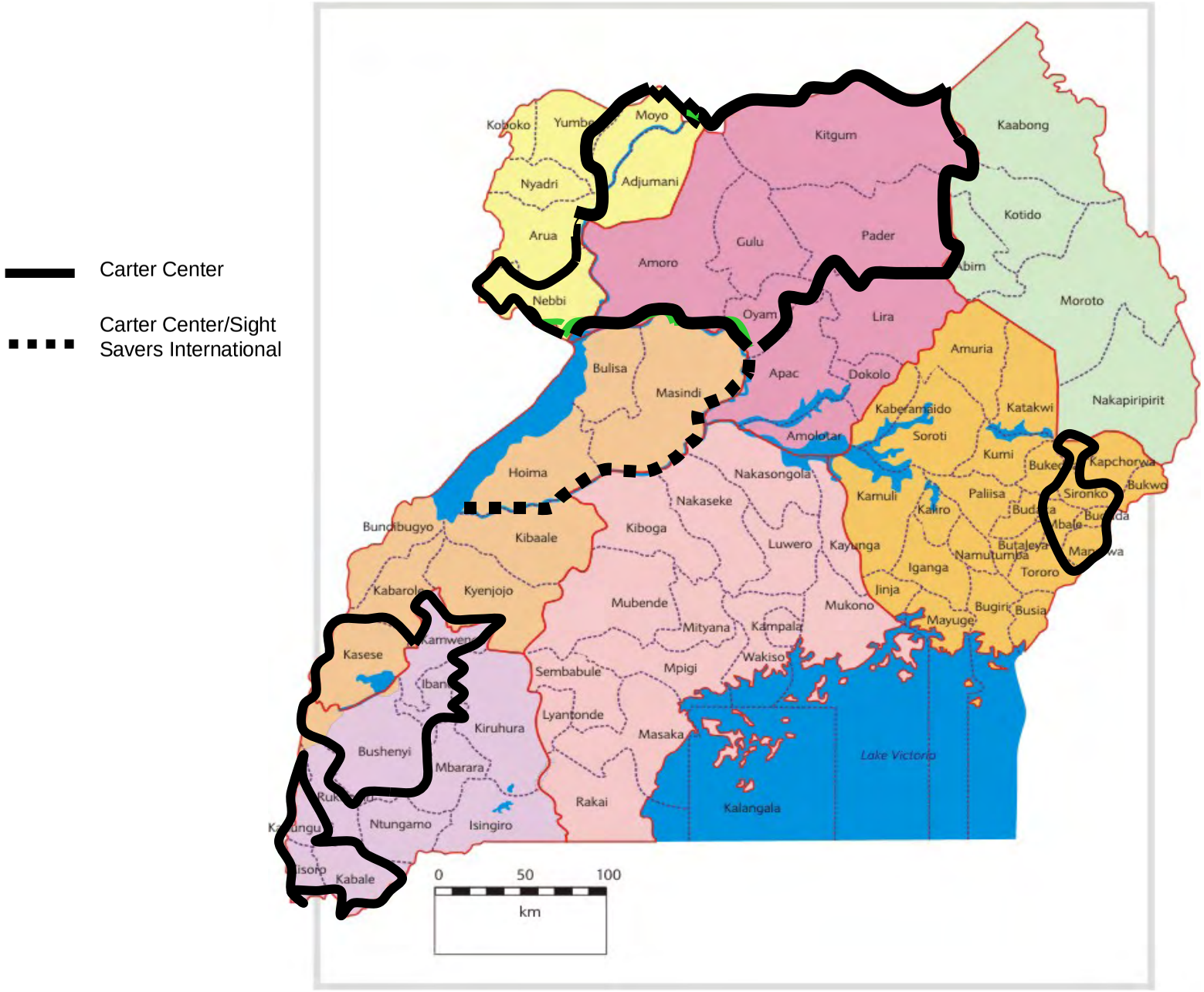


Figure 13

Uganda: plan for onchocerciasis elimination

No.	Focus	Vector	District	2006	of MDAs up to 2006		UTG1	UTG2	Transmission	elimination	treatment, 2007	Vector treatment
1	Victoria	*S. damnosum*	Jinja	GOV	N/A	198,160			Eliminated	1973	No need	*Elimination*
			Mukono	GOV	N/A	387,707			Eliminated	1973	No need	*Elimination*
			Kamuli	GOV	N/A	268,046			Eliminated	1973	No need	*Elimination*
			Mayuge	GOV	N/A	156,714			Eliminated	1973	No need	*Elimination*
			Kayunga	GOV	N/A	142,565			Eliminated	1973	No need	*Elimination*
2	Itwara	*S. neavei*	Kabarole	GTZ/APOC	16	23,881	23,881		Eliminated	2003	Annual	*Elimination*
			Kyenjojo	GTZ/APOC	16	58,382	50,788		Eliminated	2003	Annual	*Elimination*
3	Mpamba-Nkusi	*S. neavei*	Kibale	APOC	13	128,456	124,655		Eliminated	2006	Annual	*Elimination*
4	Wadelai	*S.neavei*	Nebbi	TCC	13	12,220	10,368	20,736	ongoing		Semi-Annual	*Vector Elimination*
5	Wambabya-Rwamarongo	*S. neavei*	Hoima	SSI	14	40,577	37,780	75,560	ongoing		Semi-Annual	*Vector Elimination*
6	Mt. Elgon	*S.neavei*	Manafwa	TCC	13	21,823	20,146	40,292	ongoing		Semi-Annual	*Vector control*
			Mbale	TCC	13	46,899	39,171	78,342	ongoing		Semi-Annual	*Vector control*
			Sironko	TCC	13	62,816	53,743	107,486	ongoing		Semi-Annual	*Vector control*
			Bududa	TCC	13	101,043	92,259	184,518	ongoing		Semi-Annual	*Vector control*
7	Budongo	*S.neavei*	Masindi	SSI	14	59,822	58,435	116,870	ongoing		Semi-Annual	*Vector control*
			Buliisa	SSI	14	21,497	20,973	41,946	ongoing		Semi-Annual	*Vector control*
			Hoima	SSI	14	60,697	55,426	110,852	ongoing		Semi-Annual	*Vector control*
8	Kashoya-Kitomi	*S.neavei*	Bushenyi	GOV	14	88,892	70,936	141,872	ongoing		Semi-Annual	*Vecor control*
			Ibanda	GOV	14	23,150	19315	38,630	ongoing		Semi-Annual	*Vector Control*
			Kamwenge	GTZ	16	29,480	28,479	56,958	ongoing		Semi-Annual	*Vector control*
9	Kigezi-Bwindi	*S.neavei/ S. damnosum*	Kabale	TCC	13	17,912	16,006	32,012	ongoing		Semi-Annual	*Vector Control*
			Kanungu	TCC	13	48,799	41,862	83,724	ongoing		Semi-Annual	*Vector control*
			Kisoro	TCC	13	22,394	19,235	38,470	ongoing		Semi-Annual	*Vector control*
10	Imaramagambo	*S.neavei?*	Bushenyi	GOV	14	84,119	65,408		ongoing		Annual	
11	Maracha-Terego	*S.neavei/S.damnosum*	Maracha-Terego	GOV	14	170,377	136,302		ongoing		Annual	
12	Okoro/Nyagak	*S.neavei*	Nebbi	TCC	13	218,891	175,145		ongoing		Annual	
13	Bondo /Arua	*S.neavei/S.damnosum*	Arua	GOV	14	314,948	307,266		ongoing		Annual	
14	Obongi / Moyo	*S.neavei*	Moyo	TCC	13	17,349	13,778		ongoing		Annual	
15	Lubilila	*S.damnosum*	Kasese	TCC	13	105,253	94,303		ongoing			
16	Nyamugasani	*S.damnosum*	Kasese	TCC	13	9,221	8,436		ongoing			
17	Madi	*S.damnosum*	Moyo	TCC	13	172,882	134,188		ongoing		Annual	
			Adjumani	TCC	13	179,791	153,983		ongoing		Annual	
18	West Nile	*S.neavei/ S. damnosum*	Yumbe	GOV	14	286,615	229,292		ongoing		Annual	
			Koboko	GOV	14	167,076	133,661		ongoing		Annual	
			Arua	TCC	14	138,063	134,696		ongoing		Annual	
			Nebbi (Padyere)	TCC	13	89,574	71,660		ongoing		Annual	
19	Mid-North	*S.damnosum*	Oyam	TCC	13	16,466	13,467		ongoing		Annual	
			Gulu	TCC	13	99,898	82,678		ongoing		Annual	
			Amuru	TCC	13	102,236	84,163		ongoing		Annual	
			Pader	TCC	?	??????	??????		ongoing		Annual	
			Kitgum	TCC	?	??????	??????		ongoing		Annual	
Total						3,041,499	2,621,884	1,168,268				

Green = **Transmission eliminated**

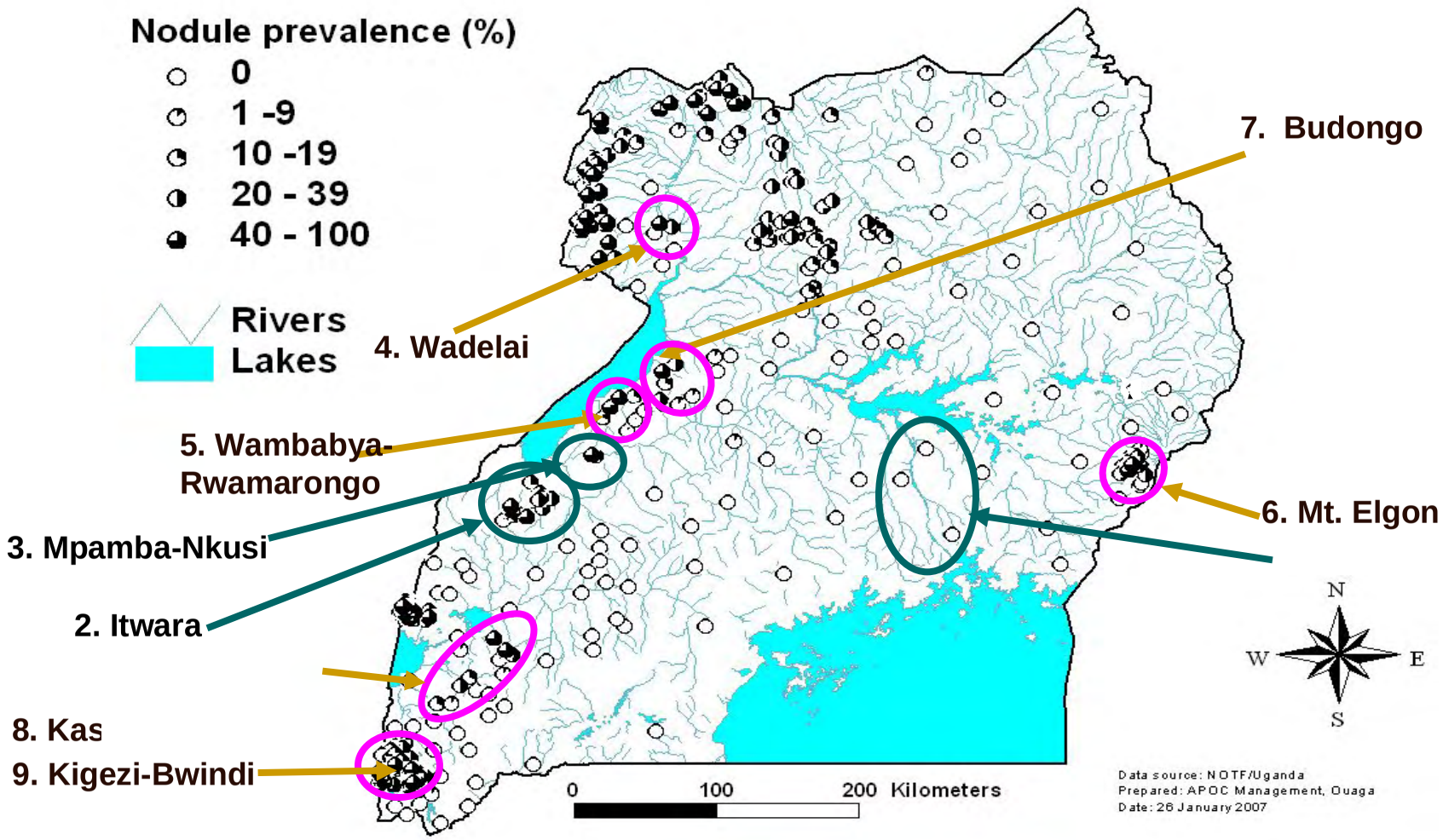
Yellow = **Implement elimination policy**

Blue = **Priority for epi studies for delineation of each focus before semi-annual tx decision**

Red = **Not much is known (Need for epi studies)**

Figure 14

Uganda: foci where onchocerciasis elimination policy is being implemented*



* Foci 1 – 3 have already eliminated onchocerciasis