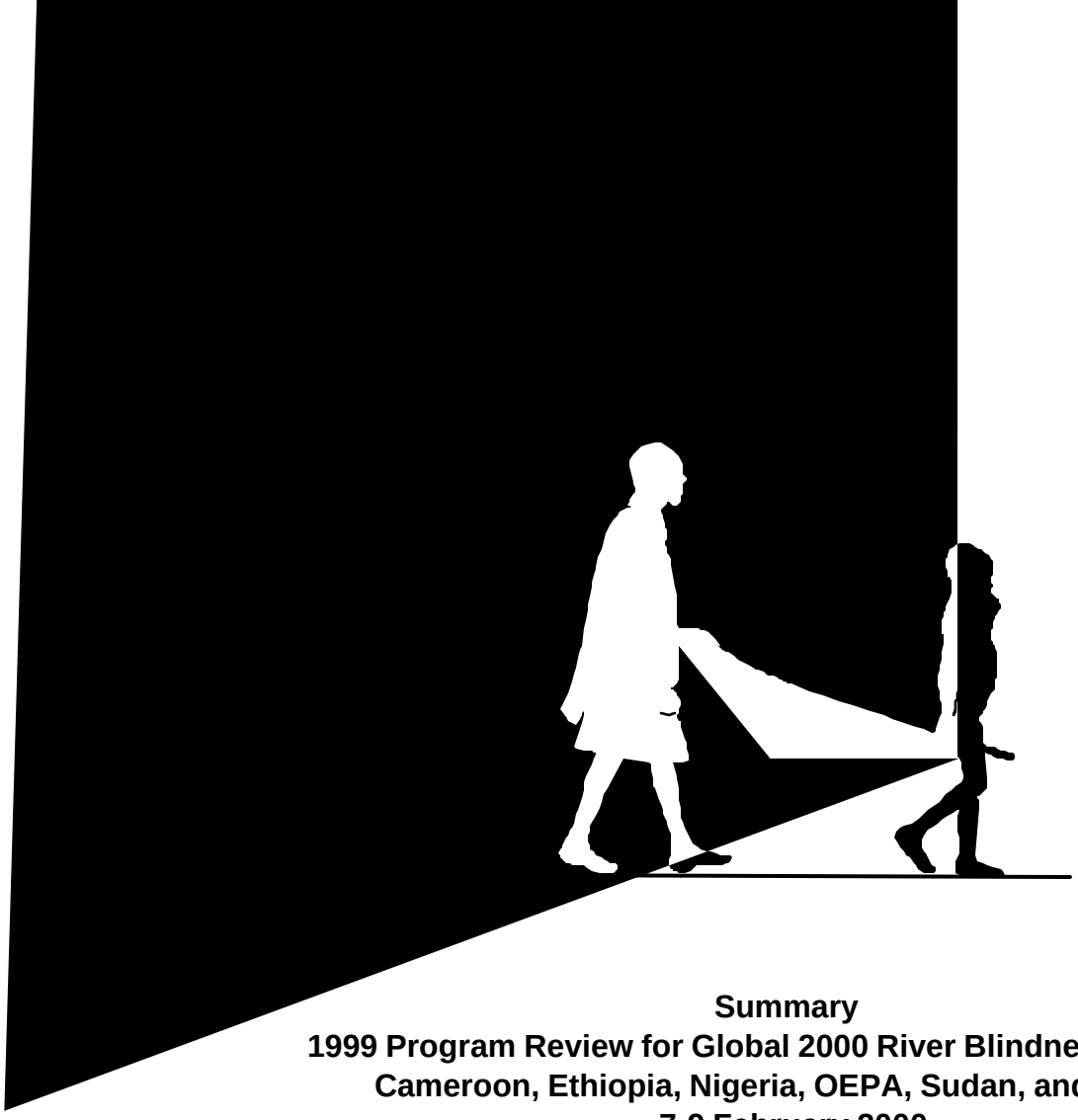

Summary
1999 Program Review for Global 2000 River Blindness Programs
Cameroon, Ethiopia, Nigeria, OEPA, Sudan, and Uganda
7-9 February 2000
The Carter Center
Atlanta, GA

September 25, 2000

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With our sincere gratitude

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REA ..... Rapid Epidemiological Assessment
REMO ..... Rapid Epidemiological Mapping of Onchocerciasis
SAE ..... Severe Adverse Effect
SB ..... SmithKline Beecham
SH ..... *Schistosomiasis haematobium* (urinary schistosomiasis)
SMTC ..... Sustainable Management Training Center, Jos, Nigeria
SRRA ..... Sudan Relief and Rehabilitation Association
SSOCP ..... South Sudan Onchocerciasis Control Program
TCC ..... Technical Consultative Committee of APOC
TX ..... treatment
UNICEF ..... United Nations Children's Emergency Fund
UTG ..... Ultimate Treatment Goal
WHO ..... World Health Organization
WVI ..... World Vision International

ABSTRACT

The vector born parasite *Onchocerca volvulus* (causing river blindness) infects about 18 million people in 37 countries, 750,000 of whom are blinded or severely visually impaired. Periodic mass treatment with ivermectin (Mectizan®) in disease-endemic communities prevents eye and skin disease caused by this infection. As part of a global effort to eliminate onchocerciasis as a public health problem by the year 2007, the Global 2000 River Blindness Program (GRBP) of The Carter Center collaborates with the ministries of health of eleven countries, maintains field offices in Guatemala, Cameroon, Nigeria, Sudan, Ethiopia and Uganda, and belongs to international coalitions that include the Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), the World Bank, the InterAmerican Development Bank (IDB), Merck & Co., international bilateral donors, and other nongovernmental development organizations. Special GRBP partners include the Lions Clubs International Foundation (LCIF), and the African Programme for Onchocerciasis Control (APOC). In October 1999, TCC and Lions Clubs announced the Lions-Carter Center Sight First Initiative to increase our collaboration in the global effort for onchocerciasis control, including the establishment of a new river blindness control program in Ethiopia.

The Carter Center hosted its fourth annual Review for 1999 program activities of its GRBP on February 7-9, 2000 in Atlanta. The objectives of the Program Review were to: 1) assess the status of each program, 2) identify impediments and problems in program implementation and potential solutions, and 3) promote sharing and standardization of information. Each GRBP-assisted program reported on the number of assisted Mectizan® treatments provided, training, research and development activities, and surveillance for adverse reactions to treatment. The African programs also reported on their APOC experiences. A particular focus of the Review of 1999 was to establish the Ultimate Treatment Goals (UTG) for each program. The UTG is defined as the sum of the known or estimated eligible populations living in all at risk villages (arv's) in a GRBP assisted-area. The eligible at risk population (earp) are all persons living in an arv who can receive Mectizan® (e.g., who are over five years of age and in good health, and excluding pregnant and early lactating women). The Nigeria program reported on the pilot initiatives for combining lymphatic filariasis elimination and schistosomiasis control with onchocerciasis control activities. Key aspects of the discussions are summarized in this report.

Since its launching in 1996, GRBP has assisted in providing over 21.2 million Mectizan® treatment encounters. In 1999, 6,631,242 persons were treated (96% of the 1999 annual treatment objective [ATO]) in GRBP-assisted programs; this represented an 15% increase in treatments over 1998. As in previous years, 69% of all GRBP treatments were in Nigeria. Of the treatments in 1999 4,758,002 (72%) were accomplished in partnership with the LCIF Program in Nigeria, Cameroon, and Sudan. The GRBP ATO for 2000 is about 7.4 million treatments, an 11% increase over 1999 treatments. Priorities for GRBP

in 2000 include: 1) maximizing treatment and health education efforts to reach ATO's and UTG's, 2) monthly reporting of Mectizan® treatments, 3) documenting interruption of transmission in the Americas, and 4) sustainability and 5) adapting Mectizan® distribution and health education methods to other diseases (lymphatic filariasis and schistosomiasis).

EXECUTIVE SUMMARY

and eyes and cause inflammation and disease. Mectizan® (ivermectin) a microfilaricidal drug that can be given as a single oral dose annually in "mass" community-based treatment programs, while not being curative can prevent disease from developing in those who are infected. In 1987, Merck & Co. decided to donate Mectizan®, for as long as necessary, to all people affected by onchocerciasis. This donation was an important stimulus for the current initiative to globally control onchocerciasis using a strategy of community-based treatment.

The Carter Center and River Blindness: In 1987, Merck approached then executive director of The Carter Center Dr. William Foege for assistance in organizing the global distribution of Mectizan®. The MEC/MDP, was created in 1988, and housed at the Atlanta-based Task Force for Child Survival and Development, an independent partner of The Carter Center. The global initiative has grown to one that has enabled about 30 million treatments per year since 1996 and over 150 million treatments since the MDP began. Indeed, the donation has stimulated what is widely considered to be a model of how industry, international organizations, donors, and national ministries of health can successfully work together toward a common goal.

In 1996, The Carter Center expanded its role in the coalition fighting river blindness by acquiring most of the operations of the River Blindness Foundation (RBF), a nongovernmental development organization (NGDO) founded by John and Rebecca Moores in 1990. The GRBP was established at The Carter Center to assume the field activities of the RBF. GRBP's primary aim is to help residents of affected communities and local health workers establish and/or sustain Mectizan® distribution and related health education activities. The office in Guatemala serves OEPA, which coordinates activities to completely eliminate the infection in all six onchocerciasis-endemic countries in the Americas (Brazil, Colombia, Ecuador, Guatemala, Mexico, Venezuela). In 1997, GRBP expanded to a collaborative program in Sudan (with support of Lions Clubs SightFirst) as a part of The Carter Center's peace initiative and Guinea worm disease eradication efforts there. In 1999, with expanded support from LCIF (under a new Lions-Carter Center Sight First Initiative), The Carter Center accepted an invitation to assist in onchocerciasis control activities in Ethiopia in 2000.

Partnerships:

The GRBP of the Carter Center works in partnerships at all levels. In all cases, the program works with ministries of health (MOHs) and their national onchocerciasis control programs executed within and through the indigenous primary health care system. GRBP staff work in the field with the rural communities using information, education, and communication techniques to improve understanding and empowerment of people to be full partners in the program and the drug delivery process. As mentioned above, GRBP has a long and evolving partnership with Lions Clubs and the Lions' SightFirst Program.

GRBP technical staff are housed in the Division of Parasitic Diseases at the CDC. GRBP works closely with the MDP, which is housed at the Task Force for Child Survival and Development, also in Atlanta.

Partners in the African Programs: In Africa, GRBP partners include the MOHs in host countries (Cameroon, Ethiopia, Nigeria, Sudan, and Uganda), United Nations organizations (WHO, UNICEF, and the World Bank), and other NGDO's. In 2000, The Carter Center's relationship in Africa with the Lions Clubs expanded from GRBP-assisted activities in Cameroon, Nigeria, Sudan, to include Uganda and Ethiopia. GRBP is a member of the NGDO Coalition for Mectizan® Distribution that includes Christoffel Blindenmission, Helen Keller Worldwide, Interchurch Medical Assistance), International Eye Foundation, HealthNet International, Lions Club International, l'Organisation pour la Prevention de la Cecite, Sight Savers International, and the US Committee for United Nations Children's Emergency Fund. Another important partner is APOC, which is executed by WHO and funded through a trust fund housed at the World Bank. APOC, a $124 million dollar, twelve-year program launched in 1995, aims to establish "community-directed" river blindness treatment programs in an estimated 19 African countries by 2007. The APOC provides funds and technical/managerial support to five year Mectizan® distribution projects carried out by ministry of health/NGDO partnerships. The Carter Center currently has eleven projects assisted by APOC, in all five African countries it assists. The Carter Center also plays a special institutional role in APOC through a standing seat on the APOC technical steering committee (the Technical Consultative Committee). Within the national coalitions, GRBP country representatives currently chair the Uganda and Cameroon national NGDO coordination groups.

Partners in the American Programs: GRBP/The Carter Center provides the administrative framework for OEPA. Headquartered in Guatemala, OEPA is the technical and coordinating body of a multinational, multiagency coalition working for the elimination of all onchocerciasis morbidity and transmission from the Americas by the year 2007. Regional technical and programmatic goals are developed by a Program Coordinating Committee with representation from key members of the initiative (and on which The Carter Center holds an institutional seat). GRBP works with the Pan American Health Organization (PAHO), the CDC, and several US and Latin American universities. The Carter Center has funding for OEPA from the InterAmerican Development Bank. Through the OEPA initiative, GRBP indirectly partners with the national programs and MOHs of all six endemic countries of the Americas (Brazil, Colombia, Ecuador, Guatemala, Mexico and Venezuela).

Assisted Treatments

Nomenclature used by the GRBP program: A major focus of GRBP is on routine reporting by assisted programs. The reader is referred to Annex 3 for a discussion of the GRBP reporting process, and treatment indices used by the program and in this report.

Important terms include the treatments achieved (TX), annual treatment objectives (ATO), eligible at risk population (earp), arv, UTG, and full coverage.

Treatments Assisted by the Program: In 1999, the GRBP program had reached 78% of its overall UTG of 8,554,746 by assisting in Mectizan® treatments of 6,631,242 persons (Figure 1). The Nigerian program reached 91% of its UTG and Uganda with 86%. Programs in need of additional growth included OEPA (62% toward its UTG), Cameroon (49% of UTG), and Sudan (48%).

In 1999, GRBP assisted in providing health education and Mectizan® treatments to a total of 6,631,242 eligible at risk persons in 13,375 arv's in 9 GRBP-assisted country programs (96% of the 1999 treatment objective); this represented a 15% increase in treatments over 1998 (Figure 2). Summary tables of monthly treatments of eligible at-risk populations (earp) and arv's by program are provided for the years 1998 and 1999 (Tables 1 and 2). Most (69%) treatments were in Nigeria (Figure 3). Of the treatments in 1999, 4,758,002 (72%) were accomplished in partnership with LCIF, which is a major partner with The Carter Center in Nigeria, Cameroon, and Sudan (Figure 4). Since its launching in 1996, GRBP has assisted in providing over 21.2 million treatments with Mectizan® (Figure 5) .

The GRBP Annual Treatment Objective (ATO) for the eligible at risk population (earp) projection for 2000 is 7,415,440 million treatments with Mectizan® (Figure 2). Table 3 shows GRBP ATO'S recent years. GRBP projected a 33% growth in earp treatments between years 1996-97, a 7% increase for 1997-98, a 15% increase between 1998-99, and an 11% increase between 1999-2000. Many GRBP-assisted programs (Nigeria, Uganda, Mexico, Ecuador, and Colombia) have or are reaching their UTG in their areas of operation, and thus theoretically have reached full treatment coverage (Once the UTG is reached no further growth would be expected in future years, other than that represented by routine population growth of 2-4%). GRBP-assisted areas in need of ATO expansion toward the UTG include Cameroon, Sudan, Venezuela, Guatemala, and Brazil. The overall 2000 ATO of 7,415,440 will aim to reach 87% of the GRBP of 8,554,746 treatments per year (Table 4). Attaining full coverage quickly is especially urgent in the Americas because of the goal to eliminate onchocerciasis by 2007 there.

The cost per treatment in GRBP-assisted African programs decreased significantly in 1999 in Cameroon, Nigeria, Sudan, and Uganda from $0.80, $0.16, $0.82, and $0.45 in

and so does not aim to interrupt all transmission of the *O. volvulus* parasite. Fundamental to the APOC strategy, therefore, must be establishing "sustainable" Mectizan® delivery systems that will continue after the withdrawal of outside funding. APOC advocates "Community Directed Treatment with Mectizan" (CDTI) as the favored distribution method over "community-based" or "mobile distribution" since CDTI is reckoned to be more likely to remain for the duration. An explanation of the reasoning for this is beyond the scope of this report, and the interested reader is referred to the special volume on the Mectizan® program that appeared as a supplement to the *Annals of Tropical Medicine and Parasitology*, April 1998: 92, Supplement 1. Monitoring progress toward sustainability will be an important element of APOC's program evaluation, which consists primarily of external monitoring by independent scientists and consultants. APOC is developing methods for 'community self-monitoring' as well. GRBP also is trying to monitor indicators of the ability of the program to continue after external funds are withdrawn (see Annex 1), including community and government support for the program, and estimates of costs per treatment. In contrast, establishing indefinitely sustained treatment programs is not the goal of OEPA, since the strategy promoted in the Americas (twice per year community-wide active mass therapy in all endemic villages) is designed to interrupt the transmission of the onchocerca parasite. If OEPA is successful, at some point mass Mectizan® treatments can be halted.

Figure 1:

Figure 2:

Figure 3:

Figure 4:

Figure 5:

Figure 6:

Table 1:

Table 2:

Table 3:

Table 4:

NIGERIA

Nigeria is the most highly endemic country in the world for river blindness, having as much as 40% of the disease global burden. It is estimated that 27 million Nigerians need treatment with Mectizan® for onchocerciasis (i.e, the Ultimate Treatment Goal [UTG] is 27 million). The National Onchocerciasis Control Program (NOCP) began in 1989 with Mectizan® treatments of about 49,566 persons, progressing to provide over 13 million treatments by 1999.

The Global 2000 River Blindness Program (GRBP) Nigeria has offices in Jos, Lagos, Owerri, Benin City, and Enugu. The primary activities consist of: 1) direct assistance to treatment activities in nine 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 GRBP, Helen Keller Worldwide, Christoffel Blindenmission, MITOSATH**,** International Eye Foundation, SightSavers, and UNICEF, 3) working to implement and evaluate the African Program for Onchocerciasis Control (APOC) strategy of Community Directed Treatment (CDTI) programs and (4) collaborating with the Centers for Disease Control and Prevention (CDC) in maintaining a training center to support country-wide instruction in management issues related to Mectizan® program administration (Annex 4). A major GRBP-partner in seven states in southeastern Nigeria (Abia, Imo, Edo, Delta, Anambra, Ebonyi, and Enugu States) has been the Lions Club International Foundation (LCIF) SightFirst Program. The Lions Clubs District 404, with LCIF support, is actively involved in the mobilization, health education, and treatment activities in those seven states. The new Lions-Carter Center SightFirst Initiative partnership will expand LCIF SightFirst support in 2000 to all GRBP-assisted programs in Nigeria.

Treatment Activities: In 1999, GRBP Nigeria helped provide health education and Mectizan® to 4,532,677 persons (Table 5), a 17% increase in treatments compared to 1998. GRBP-assisted treatments represented 34% of the 13,171,149 treatments provided in Nigeria in 1999 (Figure 7)**.**

were community-level distributors; there were also 23 State Onchocerciasis Coordinators, 579 Local Onchocerciasis Control Coordinators, and 1,075 District Health Staff trained. In addition, numerous advocacy visits were made to decision makers in all assisted states and Local Government Areas (LGAs) to solicit their support of the program. This is especially important in light of turnover in officials associated with the new civilian government The numbers of persons to be trained in 2000 are projected to be 20,909, a 19% increase compared to 1999 figure. There will be a special effort to increase the number of persons trained at the community level to implement CDTI (Community Directed distributors -[CDDs]) over those trained in 1999 to hopefully reduce the work load, shorten the distribution period and increase treatment coverage.

Mectizan®: In 1999, GRBP received a total of 13,415,000 3-mg Mectizan® tablets. The (3- mg) tablet per person index was calculated to be 2.89 for Nigeria. There were no severe adverse reactions reported in GRBP-assisted programs in Nigeria, including in Delta State, where the filarial parasite *Loa loa* is known to occur (Note: persons infected with *Loa loa* are at risk of having more serious adverse reactions when treated for the first time with Mectizan® - see Annex 5). Close monitoring for secondary reactions according to MDP recommendations will continue in these states, although all these areas are now entering into third and fourth round therapy, so the risk of reaction is low. Currently, all Mectizan® for mass treatment in Nigeria is imported by UNICEF and stored at the UNICEF warehouse prior to distribution to the various partners. The entire shipment of tablets needed for GRBP assisted programs in 2000 (13,759,500) was received in late 1999.

APOC: All GRBP projects in Nigeria are now in the process of transitioning to the APOC CDTI strategy. The administrative burden involved with APOC, however, has resulted in slow allocation of funds needed for treatment activities. This has necessitated the advancing of funds by GRBP for APOC sponsored activities which are not reimbursed without careful attention to APOC regulations. As a result, GRBP has provided more funds to the APOC transition than originally anticipated. The request for decentralized (village level or subdistrict level) training of CDDs and detailed census updates has resulted in particular strain on GRBP assisted field activities. Concern was expressed at the Review that APOC requirements may reduce treatment coverage in GRBP assisted areas.

Jos Training Center: The Sustainable Management Training Center (SMTC) is a project carried out in collaboration with the CDC and Emory University with the goal of developing better management skills for project planning and implementation (e.g., problem solving, financial management, the use of data in decision making, and logistics). GRBP interest in the SMTC is related to the training needed for personnel at the periphery of the MOH health system to support the community level distribution as envisioned by the APOC CDTI strategy. SMTC was originally supported by a grant by the Shell Foundation that ended in 1998. Since then, The Carter Center has supported much of the core in country funding (salaries, offices, logistics etc) for the SMTC, although students pay a tuition to attend the

training sessions. To date, the SMTC has trained 256 participants in all States of Nigeria except Akwa Ibom and Rivers. Unfortunately, as a result of decreased funding, the SMTC in 1999 held only four management training workshops (compared to seven in 1998).

/albendazole treatment for Lymphatic Filariasis (LF) and praziquantel treatment for urinary schistosomiasis in Plateau and Nasarawa States. Health education is an integral part of both components of this initiative.

LF treatments were not launched as originally planned in 1999 due to a request from the World Health Organization (WHO) to the FMOH to not begin activities until the completion and circulation of a formal multicountry adverse reaction monitoring protocol for the first 2000 persons treated in each country. However, GRBP did assist in the distribution of praziquantel for schistosomiasis in three villages (Mungkohot, Andaha, and Katanza), beginning in October 1999. A discussion of the 1999 assessment activities for LF and schistosomiasis treatment activities in Plateau and Nasarawa is provided in Annex 7. Beginning in 2000, the program hopes to launch combined Mectizan®/albendazole treatments under the WHO protocol in two LGAs, Pankshin in Plateau State and Akwanga in Nasarawa State. Baseline mosquito data collections will continue in collaboration with CDC in an attempt to measure impact of treatments on LF infection rates in the vector. Additional funds for CDC laboratory support of this monitoring work will be sought.

Challenges to the Onchocerciasis Program:

- APOC funding delays pose difficult challenges considering the need for heightened

The Carter Center Nigeria office. This resulted in decreased training sessions.

- Sustaining the enthusiasm of community members for taking Mectizan® might be a challenge since villagers 'feel better' after having taken the medicine for several years, and therefore believe treatment was no longer needed.

- Integration of treatment activities against schistosomiasis in onchocerciasis control seems operationally, to work, but there remain issues of rapid mapping of schistosomiasis (rather than doing dipstick urine blood assessments in each community to be treated), and methodology needs to be developed to dose by height rather than by weight, since scales are expensive and do not remain functional for long under field conditions.

RECOMMENDATIONS 2000 for GRBP NIGERIA

APOC:

- Financial and technical reporting to APOC should be improved as a matter of urgency. An emphasis must be placed on timely submission of reports, and on getting APOC funds to the field before mass treatment activities are undertaken. In addition, attention to APOC requirements for reimbursement of advanced funding is needed so that advance GRBP funding can be reimbursed, when appropriate.

- Reports should be separated by State in graphics and reports (in other words, not provided as 'IMO/ABIA' or PLATEAU/NASARAWA). Denominators reported to APOC should be total at risk population (population living in villages targeted for CDTI).

Treatments:

- Given the polyvalent roles of the CDDs in both Nigeria and Sudan, the program should devote some management time to study how these expanding roles affect individual programs and the CDD's themselves, for example (attrition).

***Lions*:**

- Work with the local Lions District 404 to define their continued role in the Nigeria program.

Government support:

- Nigeria should provide more financial and material support for the program from all levels of Nigerian government, (Federal, State and Local) which (with few exceptions) has contributed only minimally to the national onchocerciasis effort so far.

Transmission impact:

- Analyze data from the sentinel village evaluations in Plateau and Nasarawa States, supplemented by additional field observations and studies, with focus on the impact of treatment on reducing the transmission of onchocerciasis. Some of this work could be linked to the LF transmission evaluation impact studies.

Other diseases:

- Continue to adapt the Plateau/Nasarawa Onchocerciasis Programs to lymphatic filariasis elimination and schistosomiasis control.
- Launch LF treatment activities in 2000

Map 1

Figure 7

Figure 8

Figure 9:

Figure 10

Figure 11

Figure 12

Figure 13:

Table 5

GRBP-ASSISTED NIGERIA TREATMENTS, 1998 AND 1997, BY STATE

UGANDA

Onchocerciasis affects about 1.8 million persons residing in 18 (out of 39) districts in Uganda. The River Blindness Foundation (RBF) first began treatment activities in Uganda in 1993, with the Global 2000 River Blindness Program of the Carter Center (GRBP) assuming that role in 1996. Currently, GRBP-assisted programs are active in all four foci (e.g., Southwest, West Nile, Middle North, and Mount Elgon) of onchocerciasis in the country and in 10 of the 18 endemic districts: Kisoro, Kabale, Rukungiri, and Kasese (in the Southwest focus bordering the former Zaire); Nebbi, Moyo and Adjumani (the West Nile focus bordering Sudan and the former Zaire), Gulu, Kitgum[1], and Apac (the Middle North focus); and Mbale (the Mount Elgon focus in the east, bordering Kenya). Other Nongovernmental Development Organizations (NGDO) partners in Uganda include Sight Savers International (in Masindi, Hoima, and Kibale districts), Cristoffel Blindenmission (in Bushenyi and Mbarara districts), the Church of Uganda (in Arua District), and the German bilateral assistance agency Gemeinschaft fur Technische Zusammenarbeit (in Kabarole District).

Treatments: The program helped to treat 819,467 persons, 94% of its 1999 annual treatment objective (ATO) (Table 6), and 74% of all Ugandan treatments provided by both indigenous and international NGDOs (1,157,272) (Figure 14). Mass treatment activities took place in 1,730 high risk villages. ATO levels in Kasese (81%) district were below the desired coverage (90%) due to the displacement from insecurity of over 50% of the population in onchocerciasis endemic communities. In 2000 GRBP plans to assist in treating 906,500 persons in Uganda with Mectizan® (an increase of 4% compared to the 1999 ATO-Table 3) in 1,859 communities. The ultimate treatment goal for GRBP Uganda program is 950,000 treatments per year, meaning that the 2000 ATO (906,500) aims to reach 95% of that full coverage goal.

Training/Retraining: A total of 5,674 heath workers were trained in 1999 in all 10 GRBP assisted districts. Most of those trained were community directed distributors (CDDs) (5,591) selected by the communities, in addition to 240 district officials who pledged to support the program by actively participating in mass mobilization activities. Overall, there is an average of 1 CDD for every 14 households (Table 7).

Mectizan®: In 1999, a total of 2,646,485 3mg Mectizan® tablets were received by GRBP. The overall average (3- mg) tablet per person for GRBP Uganda in 1999 was 2.84.

APOC: All GRBP-assisted projects in Uganda except Kitgum have been approved to receive APOC funding. In 1999, APOC funds for district activities only arrived in September. As a result treatment activities were delayed and implemented during the rainy season. The budget proposal to APOC for support was reduced significantly by

[1] Mectizan® treatment activities in Kitgum district are restricted due to insecurity

APOC management. This resulted in GRBP and government funding more than the originally anticipated 25% of project costs.

Sustainability indices:

Community support: The issue of monetary incentives remains a key indicator for achieving the desired coverage in Uganda. Whether incentives for CDDs should be provided, and if so by whom (NGDO, government or community), remains a big issue in Uganda. It is general knowledge that incentives are provided to other health/community workers by other ministry of health projects. This raises questions among CDDs as to why APOC does not do the same. On the other hand, a study by the GRBP Uganda team showed that monetary incentives have been negatively related to high community coverage in Uganda.

Government support: The need for districts to begin to disburse funds for onchocerciasis control activities is considered critical to achieving sustainability. Currently all funding requirements are met by external agencies, yet APOC stipulates that external funding must decrease over time. To obtain greater government support, advocacy visits were carried out to the districts to obtain from top-level officials their pledges of support for the program. Visits to the sub-county level to meet local supervisors and community leaders were needed to convince district health staff that communities are capable of taking responsibility for the program.

Cost per treatment: Overall, cost per person during 1999 was US$ 0.16. This index ranged from US$ 0.07 to 1.38, primarily due to economies of scale (Table 8). APOC provided only about 50% of project costs.

Constraints:

- Coverage in 1999 (94%) was lower than in 1998 (98%) due primarily to severe displacement of people in Kasese district. Overall 50% of the areas with support from GRBP are insecure. Most unstable are the districts of Adjumani, Apac, Kasese, Gulu, Moyo, and Kitgum. The main roads to these areas were unsafe and the program had to use air travel for supervisory visits by both GRBP and district staff.

- District health staff are not convinced that communities can take some responsibility for their health. In addition there is general belief that communities need close supervision from the central level.

RECOMMENDATIONS 2000 for GRBP UGANDA

APOC:

- Work to eliminate the financial and administrative bottlenecks at the national secretariat and in the districts.

Treatment Figures:

- Continue to work on better information systems to monitor treatment of visitors in GRBP-assisted areas. This is an area of potential operations research support from APOC.
- Work in Kitgum when security permits.

Sustainability:

- Continue to publish GRBP operations research work with a focus on sustainability issues such as incentives for CDDs, CDD attrition, expanded community directed treatment, and impact of advocacy at the district level on government participation.

Map 2

UGANDA

FIX APOC AREAS

Table 6

GRBP-ASSISTED UGANDA TREATMENTS, 1998 AND 1997, BY DISTRICT

Table 7:

Table 8:

CAMEROON

Onchocerciasis is widespread in Cameroon, with some 5.1 million infected, and about 62% of its population of 15 million at risk of infection. About 60,000 people are estimated to suffer some degree of visual impairment, and perhaps 1 million persons have onchocercal skin disease. Mectizan® treatment has been accepted as the principal

does not occur in North Province). Nevertheless, surveillance structures for monitoring adverse reactions in all GRBP assisted areas will be maintained and strengthened. The provincial health delegates and the provincial chiefs of community health have been fully briefed about *Loa loa*-related reactions, and the referral and treatment program for patients with such reactions, if any were to occur, has been integrated into a primary health care system reinforced to handle such cases should they occur.

APOC: APOC has insisted that the program in the North move more quickly to the transition to CDTI. With the endorsement by the MOH of CDTI and financial support from APOC, the program is under pressure to complete training and reorientation activities to allow CDTI transition. In 1999, 40% of the communities trained CDDs to carry out the CDTI strategy of APOC. In 2000, 30% more communities will make this transition, and it is expected that in 2001, the final 30% will be conducting Mectizan® distribution using the CDTI strategy. GRBP Cameroon hopes to apply to APOC for support of West Province in 2000 to allow a similar transition process to CDTI to be funded and established.

Sustainability Indices:

Community involvement: Community involvement in the design and implementation of the Mectizan® distribution is now much more important given the MOH reorientation towards APOC CDTI. In all areas the communities targeted for mass treatment have functioning village health committees that have been informed through information, education, and communication activities about the purpose of the project. Community-based workers have been involved with the outreach nurses in delivering treatment and therefore will be important resources during the transition to CDTI.

Government involvement: The integration of the program into the National Primary Health Care system has been relatively successful, but little money has been released by the government in support of the program.

Cost per treatment: Cost per treatment in 1999 averaged US $0.39 (US$ 0.10 in the West and US$ 0.44 in the North). However, this figure excludes cost recovery monies and the Ministry of Public Health contribution.

Challenges & Constraints:

- Ongoing restructuring of health areas by Ministry of Public Health interferes with data collection processes and requires frequent advocacy visits.
- Increased demand for incentives by community members, health personnel, and local authorities.
- Lack of reliable transportation in West Province (old vehicles purchased by LCIF in 1995).

- Separate inventories are needed for tracking 6-mg and 3-mg tablet inventories.
- Insecurity due to bandits in the North.
- Need for special monitoring and training for *Loa loa*
-

RECOMMENDATIONS 2000 for GRBP CAMEROON

North Province (APOC):

- APOC funds must be received before mass treatment activities begin.
- Prompt transition to CDTI in the North, adopting an intensive training agenda to allow the strategy of CDTI to be accepted in a mature program that has used an outreach treatment policy for many years.
- Combine all treatment summary data on Phase 1, 2, and 3 into one table.
- Refine population data to better calculate Mectizan® needs for North Province.

West Province:

- Work to increase treatment activities to reach the West Province's ultimate treatment goal.
- Refine population data to better calculate Mectizan® needs for West Province.
- Apply to APOC for support of West Province when the LCIF project terminates in the year 2001. Consider requesting an extension of funding from Lions to help in this transition

Cost recovery:

- Develop a proposal to APOC for support of a protocol for evaluating the impact of cost recovery on coverage in the North Province.

Loa loa:

- Reestablish Mectizan® treatments soon in areas co-endemic for onchocerciasis and Loasis, in accord with national and international recommendations.
- Continue to maintain surveillance systems for severe adverse effects, particularly in West Province.
- To the extent possible, help the NOTF generate criteria to allow treatment to continue in loasis endemic areas

Mectizan®:

- Monitor the security of Mectizan® and the delivery/release of tablets

Map 3

CAMEROON

Figure 15

Narrow tops of bars

Figure 16:

Figure 17

Table 9

MONTHLY GRBP-ASSISTED CAMEROON TREATMENTS, 1998 AND 1997, BY PROVINCE

SUDAN

There are an estimated two million persons at-risk of onchocerciasis in Sudan, and 10,000 cases of onchocerciasis-related blindness. Of the several endemic areas in the country, the southern (principally southwestern) focus is the most significant and is characterized by high prevalence of blinding onchocerciasis. Indeed, some of the highest rates of blindness due to onchocerciasis in the world occur in the southwestern focus of Sudan.

The decades-old civil war in Sudan continues and as a result, channels of communication between the Government of Sudan (GOS) and the non-government held areas in the south remain key to coordinate and accelerate the onchocerciasis program. Operation Lifeline Sudan (OLS) is a consortium of Nongovernmental Development Organization (NGDOs) and United Nations agency UNICEF is the lead agency working in the contested southern part of the country. Within the structure of the OLS, Health Net International (HNI) is the NGDO that coordinates the distribution of Mectizan® in OLS areas in a program known as the South Sudan Onchocerciasis Control Program (SSOCP). SSOCP is composed of NGDOs with onchocerciasis control activities in areas served by OLS. HNI works to standardize training and reporting formats for the 11 NGDOs engaged in treatment activities. A total of 30 NGDOs have expressed interest in doing Mectizan® treatment in southern Sudan (Table 10) All parties work closely with the Sudan Relief and Rehabilitation Association. In 1997, Sudan established a National Onchocerciasis Task Force (NOTF) that includes both the GOS and SSOCP. The NOTF receives support for Sudan's campaign against onchocerciasis from Lions Clubs International Foundation (LCIF) (through The Carter Center) and the African Program for Onchocerciasis Control (APOC). Treatments in Sudan have been steadily increasing, despite the war, since President Carter negotiated a four month long “Guinea worm cease fire” in 1995, that also helped to launch Mectizan® treatments in conflict areas.

Treatment Activities: Mectizan® distribution activities greatly improved in both the northern and southern regions in 1999, despite the continuing civil conflict, famine, drought, and floods. LCIF funds, provided through The Carter Center, helped support the GOS and three NGDOs active in the SSOCP: Aktion Afrika Hilfe, International Medical Corps, and World Vision International. In 1999, GRBP assisted in treating a total of 326,779 persons with Mectizan® treatments in Sudan, a 17% increase compared to the 1998 total of 278,444 (Figure 18). Of GRBP-assisted treatments, 80% (261,094) were administered by GOS (with support from LCIF, GRBP and APOC). This represented a 104% of ATO of 251,310. In OLS areas, a total of 65,685 people were treated through the SSOCP (with support from HNI, APOC, LCIF and GRBP) as shown in Table 11. The ATO of GRBP assisted NGDOs in Operation Lifeline Sudan was not established in 1999. Another 82,867 treatments were assisted by other NGDOs operating within the SSOCP (Table 11); thus the total treatments provided by SSOCP in rebel held areas in Sudan in 1999 was 148,552 (119% of the south Sudan ATO), and for all Sudan 409,646 (109% of the ATO). The distribution of treatments by area is shown in Figure 19. Most GOS areas saw increases in

the treatments provided, except in Raja (Figure 20). The 2000 ATO for Sudan was given (by Dr. Homeida) as 409,232 for GOS areas and for GRBP-assisted NGDOs in SSOCP 80,000 (about 268,000 for all SSOCP assisted areas). Thus, the 2000 ATO for GRBP in Sudan is 489,232. The crude ultimate treatment goal (UTG) for GRBP Sudan affiliated programs is an estimated 738,132, meaning that the 2000 ATO (489,232) aims to reach 66% of that full coverage goal. Revisions of the ATO and UTG are expected.

Training/Retraining: In 1999, training occurred for 219 target communities for a total of 722 community-directed distributors (CDDs) and health workers. This level of training was considerably higher than in 1998 (299 CDDs and health workers trained). In 1999, a total of 464 CDDs and 258 health workers were trained in Mectizan® distribution: this represented a 115% increase in CDDs trained, and a 211% increase in health workers trained, over 1998 (216 CDDs and 83 health workers). In addition 17 onchocerciasis control supervisors, and 24 nurses received training. Two major training workshops were conducted in Khartoum in March and November 1999. Results from an evaluation study carried out in south Sudan by a student (Dr. Carlita Richards) from Emory University showed that CDDs were generally well trained and understood their responsibilities within their communities. However, they were not always able to report or record data required by APOC/CDTI guidelines due to illiteracy.

A major concern was expressed by HNI about the need for better technical support for the SSOCP.

Mectizan®: In 1999, wastage of Mectizan® was minimal in GOS areas. The 3mg tablets were well accepted and, to avoid wastage, Mectizan® was transferred from one zone to another as needed. In the south, however, there was more wastage due to insecurity and fuel shortages that delayed delivery of opened bottles for redistribution.

Each CDD in the north was provided with a kit of essential drugs to treat side effects. One serious reaction with hospitalization and recovery was mentioned; details were not given but it was apparently not judged to be coma related (e.g. not due to *Loa loa*).

At the beginning of 1999, 700,000 Mectizan® tablets were available for distribution. An application for Mectizan® was made to Mectizan Donation Program for treatments for year 2000. A total of 1.2 million 3-mg tablets were received in Sudan in September 1999. Of these, 525,500 tablets were delivered to the field by the end of October.

APOC: In 1999, two external APOC evaluation ('monitoring') exercises were conducted in seven locations of south Sudan. The standard terms of reference for these exercises included: how treatments are undertaken, the extent of community involvement in decision-making related to the distribution, community ownership and satisfaction, quality of training, quality of records, involvement of the health system, and the quality of supervision. The evaluators found that the communities were in varying degrees of 'evolution' or compliance with APOC CDTI guidelines: some were judged to be 'program directed', others met criteria for 'CDTI.'

The GOS program in the north is also partially supported by APOC. In 1999 APOC contributed 42% of all expenditures in the GOS program. These funds were used for training, mobilization, and health education, and supervision exercises. The other 58% were provided by The Government of Sudan and GRBP/LCIF.

Sustainability indices:

Community involvement: In general, communities are well organized and are committed to the distribution of Mectizan® using CDTI. Many communities are selecting their CDDs, and some community leaders are promoting ownership of the program and contributions to CDDs for their efforts. There is, however, still need to increase the involvement of communities in CDTI.

Government involvement: Generally, the onchocerciasis control program is viewed as an example of a successful health delivery system. Onchocerciasis control supervisors are knowledgeable and work well with the community health department. CDTI fits well into the Sudanese health policy that now stresses maximizing community ownership and participation.

What is interesting in Sudan is how the integration of the onchocerciasis control program into the primary health care system has progressively strengthened that PHC system, despite the war. Due to a shortage of health staff, onchocerciasis coordinators are often coordinators of other programs,

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Constraints:

In 1999, Mectizan distribution activities took place in Sudan despite the following difficult circumstances:

- The ongoing civil conflict
- Mectizan wastage due to short shelf life, especially in passive treatment activities in SSOCP
- Treatment activities required in areas devoid of any health infrastructure, or in areas where the Primary Health Care system is non operational.
- Other diseases such as diarrhea, tuberculosis, trypanosomiasis, and malaria are prevalent and lethal (compared to onchocerciasis). The onchocerciasis control program is sometimes the only health program in operation, therefore introducing an ethical element where the provision of health services for these other diseases is also urgently needed. The onchocerciasis program cannot be dedicated only to onchocerciasis.
- Loss of trainers and trainees. Two CDDs were shot and killed in 1999 while administering Mectizan in Equatoria State and the Wau area of Bahr El Ghazal. Rapid turnover of NGDO staff makes training and advocacy a constant task.
- In some areas people continue to prefer diethylcarbamazine (DEC) tablets to Mectizan® (they are skeptical about any new treatments).
- Difficult transportation. To facilitate Mectizan® coverage in remote areas, frequent travel to the affected zones by government officials and supervisors is necessary. Often agencies and programs do not have vehicles on site, and therefore must share available resources with other programs. Vehicles are often lost to the warring parties.

RECOMMENDATIONS 2000 for SUDAN

Activities in conflict areas:

- Flexibility and creativity must be employed whenever possible when applying WHO/APOC guidelines and Mectizan® delivery strategies under the conditions that

SUDAN MAP 5

SHOW ALL SUDAN, NOT JUST SOUTH

FIGURE 18

FIGURE 19

Figure 20:

Table 10

Table 11

GRBP-ASSISTED SUDAN TREATMENTS, 1999 AND 1998, BY AREA

ETHIOPIA

Ethiopia is the largest, most populous country in the Horn of Africa, with 60 million people and an area of 435,000 square miles. Onchocerciasis was first reported in southwestern Ethiopia in 1939 by Italian investigators. The northwestern part of the country was reported to be endemic in studies done in the 1970's. Currently it is estimated that 7.3 million persons are at risk of onchocerciasis, and 1.4 million are infected. The levels of endemicity in communities were defined by nodule prevalence rates obtained from the Rapid Epidemiological Mapping of Onchocerciasis (REMO) exercise conducted in 1997. The results indicated that out of 43 zones in 6 regions surveyed, 11 zones were hyper-endemic and 13 meso-endemic. REMO has not yet been completed throughout the country.

The National Onchocerciasis Task Force has been tentatively established and will function through the Ministry of Health's (MOH) Malaria and Other Vector Borne Disease Control Unit (MOVDCU). A National Plan of Action for onchocerciasis control activities in Ethiopia was drafted at a workshop in Nazareth on September 14, 1999 with assistance by many partners, including The Carter Center. The plan proposed phasing the delivery of Mectizan® tablets and health education into Onchocerciasis endemic areas identified in the 1997 REMO exercise. In December 1999, the MOH invited The Carter Center to be its partner in an application to the African Program for Onchocerciasis Control (APOC) for support of treatment activities in Kafa Sheka zone of the Southern Nations Nationalities and Peoples' Region (Map 6) The proposal targeted 50% of the eligible at risk population in the zone (239,436) for the first year, with expansion to the Ultimate Treatment Goal (652,815) by year 3. These, the first mass Mectizan® treatments in Ethiopia, are expected to begin in late 2000. Programmatic activities will begin in mid year, including mobilization and training of distributors to carry out treatment activities using the CDTI strategy. Table 12 shows the schedule for CDTI project development by Phase in Ethiopia, according to the National Plan.

Treatments: Following approval of the Kafa Sheka zone CDTI proposal by APOC in February 2000, treatment and health education activities are expected to begin in late 2000/early 2001.

Training: The program plans to begin Community-Directed Distributor selection and training at all levels in the second or third quarter of 2000 prior to the beginning of treatment activities.

Assessments: Kafa Sheka zone has a total of 8 woredas (districts) with an estimated total population of 816,019. There are a total of 148 arv's: 85 hyperendemic and 63 mesoendemic. Table 13 lists the CDTI villages in Kafa Sheka zone, showing estimated population and status of REMO exercises.

Mectizan®: An application for Mectizan® will be submitted to the MDP in early 2000. Based on the treatments projected for the first year, a request will be made for 718,308 3-mg tablets. The tablets will be consigned directly to the World Health Organization office in Addis Ababa and sent to the MOH central stores in Addis Ababa.

RECOMMENDATIONS 2000 for GRBP ETHIOPIA

Assessments:

- Encourage the completion of REMO assessments in Kafa Sheka zone, and begin similar exercises in other suspected endemic regions of Ethiopia

Treatments:

- Assist with the launching of treatments and health education in 2000/2001.

Mectizan® :

- Encourage the completion of an application for Mectizan® to the MDP as soon as possible.

Training:

- Assist with advocating for a CDTI workshop to provide training and orientation on the CDTI strategy to be carried out by APOC staff.

MAP 6

Table 12

Table 13

ONCHOCERCIASIS ELIMINATION PROGRAM FOR THE AMERICAS (OEPA)

The Onchocerciasis Elimination Program for the Americas (OEPA) is a regional coalition working to eliminate both morbidity and transmission of onchocerciasis in the Americas through sustained, semi-annual (i.e., every six months) distribution of Mectizan®. The OEPA initiative began shortly after passage in 1991 of Resolution XIV of the 35th Pan American Health Organization (PAHO) Assembly, which called for the elimination of

been forwarded by OEPA to WHO/PAHO for further review and consideration for endorsement.] The IACO meeting ended with an address by new PCC member Mr. Augustin Soliva, Former International President of Lions Clubs. The new involvement of the Lions in the OEPA initiative, under the Lions-Carter Center Sight First Initiative, was warmly welcomed by the IACO'99 participants.

Treatments: In 1999, OEPA assisted in treatment of 273,875 persons with Mectizan, an increase of 3,253 (1%) over 1998 (Figure 22), which was 79% of the 1999 annual treatment objective (ATO). Table 14 indicates treatments by country for 1998 and 1999, and is graphically illustrated (for the years 1996-99) in Figure 23.

1. Brazil provided Mectizan® treatments twice to 2,746 persons in 1999. These treatments were provided in migratory Yanomami communities in the northern states of Roraima and Amazonas. Treatments in Brazil represented an 75% increase from 1998 treatments, and 154% of its ATO of 1,784. The treatment strategy utilizes the health care centers situated in accessible base camps ('polo bases') that are staffed by ministry of health and Nongovernmental Development Organization (NGDO) personnel. 1999 treatments occurred in 7 endemic polo bases (of which 3 are classified as high risk village (hrv) due to an infection prevalence of $\geq$

population), of which 29 villages received treatment twice in 1999. The NGDO Christoffel Blindenmission assists the Ecuador program. A major effort is being made to refine data management systems and train field workers in better health education techniques. IACO'99 recommended Ecuador for pre-certification exercises in 2000. Ecuador offered to host IACO 2000 in Guayaquil.

4. Guatemala: A single round of treatments was provided in 331 endemic villages (including all 45 hrv's) to 76,985 individuals, which represented (59%) of the 1999 ATO of 131,586. The overall treatment coverage in 1999 represented a 17% decrease over treatments provided in 1998. IACO 99 recommended that OEPA focus on helping the MOH improve coverage in 2000, perhaps through involvement of NGOs in Mectizan® treatment activities. These is a possibility of carrying out pre-certification exercises in two small foci in San Vicente Pacaya and Santa Rosa. The program hopes to better coordinate with the Mexican program treatment activities for the migratory population on the shared border.

5. Mexico treated 152,624 persons (86% of its 1999 ATO) semiannually in 953 villages, 46 of which were hrv's. This represents a 5% increase over 1998, and 56% of all Mectizan® treatments given in 1999 in the Americas. Major activities in 1999 included health education workshops for Mexican field workers, and rapid

challenges to the OEPA goal of eliminating all new onchocerciasis morbidity and transmission in the Region by 2007.

[Editor's note - Since the Program Review, some data revisions in at risk villages (arv) treatment numbers for the regional program have been made by OEPA which are reflected in this chapter and Table 12 but not in Table 1. Additional minor data revisions are anticipated].

RECOMMENDATIONS 2000 for OEPA:

Program assistance:

- New funding is crucial for OEPA. As The InterAmerican Development Bank grant expires in 2001, OEPA needs to secure resources to provide maximum support to the Venezuelan, Guatemalan, and Brazilian programs, which still have not reached their ultimate treatment goals (UTG).
- Publish a *Weekly Epidemiological Record (WER)* article highlighting progress in 1999.

Transmission:

- Document the interruption of transmission in certain areas of the Americas.
- Help standardize the application, interpretation and quality control of the polymerase chain reaction techniques to measure infection rates in all major American blackfly vectors.
- Model transmission dynamics in all major American blackfly vectors.
- Seeks ways to escalate the attack on onchocerciasis using other interventions in combination with Mectizan® and health education.

Treatments:

- Set a goal that in two years all programs will have reached 85% of their UTGs.
- Advocate semiannual treatments in all areas (including hypoendemic villages).
- Establish a better reporting system that allows monitoring of coverage, by village, in each round of treatment, throughout the region.

Mectizan® :

- Assist the MDP whenever possible with issues related to importation of Mectizan® into the Americas.

Certification:

- Continue to promote the adoption of certification criteria.
- Help PAHO establish criteria for certification of onchocerciasis elimination.
- Develop and carry out 'preparatory exercises towards certification of elimination' in Mexico, Colombia, and Ecuador.
- Continue to support OEPA representation at the World Health Assembly.
- Write PAHO about the Barbacoas focus in Colombia in accord with an IACO '99 recommendation.

MAP 5

OEPA FIGURE 21

TREATMENTS IN AMERICAS

FIGURE 22

1996 - 1999 Mectizan® Treatments in the Americas, by country

FIGURE 23

AT RISK POPULATION

FIGURE 24

AT RISK VILLAGE ASSESSMENTS IN THE AMERICAS: 1995 versus 1999
DELETE THIS ONE BUT WE WILL SUBSTITUTE THE FORMER FIGURE SIX HERE IN THE OEPA SECTION (ORDER NOT YET CLEAR OF GRAPHICS)

TABLE 14

TREATMENTS IN THE AMERICAS, 1999 AND 1998, BY COUNTRY

ANNEXES

ANNEX 1: LIST OF PARTICIPANTS

GRBP Headquarters

Dr. Donald Hopkins
Ms. Marisa Jensen
Dr. Joe Kuritsky
Ms. Misrak Makonnen
Ms. Wanjira Mathai
Mr. Stanley Miano
Ms. Megan Reiff
Dr. Frank Richards (Chair)
Mr. Rick Robinson
Dr. Ernesto Ruiz-Tiben
Ms. Faye Salim
Ms. Shandal Sullivan
Mr. Mark Tewari
Mr. Wyatt Ware
Mr. Craig Withers
Ms. Pamela Wuichet
Dr. James Zingeser

Country Representatives

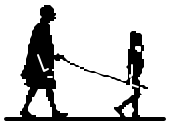
Dr. Albert Eyamba - Cameroon
Mr. Teshome Gebre - Ethiopia
Ms. Irene Goepp - HNI, SSOCP
Mr. Elvin Hilyer - Sudan
Dr. Mamoun Homeida- NOTF Sudan
Mr. Moses Katabarwa - Uganda
Dr. Emmanuel Miri - Nigeria
Mr. Bruce Ross - Sudan
Dr. Mauricio Sauerbrey - Latin America/OEPA

Mectizan® Donation Program

Mr. Andrew Agle
Dr. Mary Alleman
Dr. Bruce Dull
Dr. Charles Mackenzie
Dr. Stefanie Meredith

Other participants

Dr. Brian Bagnall- SmithKline Beecham
Dr. Steve Blount- CDC
Dr. Dan Colley - CDC
Mr. Ross Cox- Centers for Disease Control
Dr. Pik Pin Goh - Emory University
Dr. Danny Haddad- Hellen Keller Worldwide
Dr. Willa Lowrey- Guest
Ms. Nuha Mamoun Homeida- Guest
Dr. Charles MacKenzie - Michigan State University (Sudan)
Dr. Calita Richards- Emory University
Ms. Cyndi Stover- student assistant



ANNEX 2: **AGENDA**

Fourth Annual Program Review Meeting
Global 2000 River Blindness Program
The Carter Center, Cyprus Room
February 7-9, 1999

Monday, February 7, 1999

9:00 - 9:30	Welcome and introductory remarks	Dr. Donald Hopkins, Dr. Frank Richards
Nigeria		
9:30 - 10:30	Nigeria Presentation (Part 1)	Dr. Emmanuel Miri
10:30 - 11:00	Coffee Break	
11:00 - 12:00	Nigeria Presentation (Part 2)	Dr. Emmanuel Miri
12:00 - 1:00	Nigeria: Discussion/recommendations	Dr. Frank Richards
1:00 - 2:00	Lunch in Copenhill Café	
OEPA		
2:00 - 4:00	OEPA	Dr. Mauricio Sauerbrey
4:00 - 4:30	Coffee Break	
4:30 - 5:30	Discussion/Recommendations	Dr. Frank Richards
5:30 - 6:00	LF Update (Part 1)	Dr. Brian Bagnall

Tuesday, February 8, 1999

9:00 - 10:00	LF Update (Part 2, Nigeria)	Dr. Miri/Dr. Richards
10:00 - 11:00	Uganda (Part I)	Mr. Moses Katabarwa
11:00 - 11:30	Coffee Break (Group Photo)	
11:30 - 12:30	Uganda (Part II)	Mr. Moses Katabarwa
12:30 - 1:30	Lunch at Copenhill Café	
1:30 - 2:30	Uganda: Discussions/Recommendations	Dr. Frank Richards

Sudan

2:30 - 4:00	Sudan presentation (Part 1, GOS)	Dr. Mamoun Homeida
4:00 - 4:30	Coffee Break	
4:30 - 6:00	Sudan presentation (Part 2, SSOCP)	Ms. Irene Goepp

Wednesday, February 9, 1999

9:00-10:00	Sudan: Discussion/Recommendations	Dr. Frank Richards

Cameroon

10:00 - 11:00	Cameroon presentation (Part 1)	Dr. Albert Eyamba
11:00 - 11:30	Coffee Break	
11:30 - 12:30	Cameroon presentation (Part 2)	Dr. Albert Eyamba
12:30 - 1:30	Lunch in Copenhill Café	
1:30 - 2:30	Cameroon: Discussion/recommendations	Dr. Frank Richards

Other items

2:30-3:30	Mectizan® Issues	MDP/GRBP staff
3:30-4:30	Ethiopia presentation	Mr. Teshome Gebre

4:30-5:00	Coffee Break	
5:00-5:30	Ethiopia: Discussion/recommendations	Dr. Frank Richards
5:30-6:00	Lions Clubs Update	Mr. Peter Lynch
6:00-6:30	General conclusions/reflections	Dr. Frank Richards

ANNEX 3: GRBP REPORTING PROCESSES

At Risk Villages (arv's) An epidemiological mapping exercise is prerequisite to identify at risk villages (arv's) for mass Mectizan® treatment programs. The assessment techniques used in the mapping exercise in Africa varies from those used in the Americas. Although detailed discussion of the mapping processes is beyond the scope of this document, a summary 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 villages having onchocercal nodule rates $\geq$ 20% for mass treatment. The mapping strategy is based on studies that show that most if not all morbidity from onchocerciasis occurs in villages with nodule prevalences of > 20%. In the first stage of REMO, survey villages are selected from areas which are environmentally likely to support black fly breeding and therefore transmission of *O. volvulus*. In the second stage, the survey villages are visited and a convenience sample of 30-50 adults are examined (by palpation) for onchocercal nodules. The mean nodule prevalence for each village sample, along with the latitude and longitude coordinates for that village, are entered into a geographic information system that then is used to define endemic zones surrounding the sample villages having nodule prevalences of $\geq$ 20%. Villages falling within the treatment 'zone' are considered 'at risk' and offered mass Mectizan® treatment. In contrast, in the Americas the goal is to eliminate both morbidity and transmission from *O. volvulus*, and as a result all villages where transmission can occur are considered 'at risk' and offered mass Mectizan® treatment activities twice a year (i.e., every six months). It is recommended that every village in known or suspected endemic areas have a rapid epidemiological assessment of 50 adults (who would have both nodule examinations and superficial skin biopsies to identify *O. volvulus* microfilariae in skin). Villages where one or more persons are positive (sample prevalence >3.3%) are considered 'at risk,' and recommended for the mass treatment campaign. Thus, the cutoff prevalence for treatment varies between Africa and the Americas.

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rebel-held areas of south Sudan). In the Americas, the ministries of health in the six countries report treatments quarterly to the OEPA office in Guatemala City, which then provides a combined regional report to PAHO and GRBP.

The data from monthly reports are summarized, and supplemented with additional information, at annual GRBP Program Reviews held each February at The Carter Center in Atlanta. These Reviews (which are modeled after those developed for national Guinea Worm Eradication Programs) convene all GRBP program directors to discuss problems, formalize final treatment figures for the previous year, and establish new treatment objectives for the coming year (see below). Data on Mectizan® treatments provided by other programs operating in other parts of the countries GRBP assists, when available, are also discussed.

GRBP Treatment Indices: Treatment indices are reported as the numbers of persons or villages (communities) treated (TX) by state or province for the month. The cumulative treatment figures are compared to annual treatment objectives (ATO's). GRBP uses two ATO's, both of which are established during the Program Review based on projections of program capacity. Communities targeted for active mass distribution are to receive community wide Mectizan® treatment for all eligible to take the medicine. The ATO for mass drug administration in arv's [ATO(arv)], is the total number of villages in which a program projects it will provide mass treatment during the year. The ATO for eligible at risk population [ATO(earp)] is the number of persons who can receive Mectizan® who are known or thought to be living in arv's. The eligible at risk population (earp) are all persons living in arv's who can receive Mectizan® (e.g., who are over five years of age and in good health, and excluding pregnant women). The ATO(earp) is expected to be the same figure used in the annual request for tablets submitted to the Mectizan® Donation Program. Program directors are urged to define their ATO's using the latest epidemiological mapping information and village census data from the most recent treatment rounds. Given the complex emergency in Sudan (characterized by war, famine, and displacement), only a rough estimate of the ATO(earp) can be made, and reporting of an ATO(arv) has not yet been established.

Full Geographic Coverage and the Ultimate Treatment Goal: Full geographic coverage is reached when the program is able to extend mass treatment services to all arv's in the assisted area. The ultimate treatment goal (UTG) is defined as the sum of the eligible populations living in all arv's in the assisted-area. That is, the UTG is that number of persons estimated to ultimately require Mectizan® treatment once a program has the capacity to provide full geographic coverage. At the point when the program can demonstrate that it has treated the UTG, it is said to have reached full coverage; in other words full coverage is defined by the point TX(earp)=ATO(earp)=UTG. GRBP program progress is judged by the ability to meet ATO objectives, and to increase those objectives over a reasonable time period to reach full geographic coverage and the ultimate treatment goal.

INDICES OF SUSTAINABILITY

GRBP programs are asked to report annually on three sets of indices for sustainability, including: Community involvement (absolute and expressed as a percentage of total communities treated), National and Local Government involvement (absolute and expressed as a percentage of total communities treated), and Costs (absolute and expressed as cost per treatment). There has been difficulty among GRBP programs in complying with reporting of sustainability indices. The guidelines for the reporting follow:

Community involvement: The number and percent of treated villages in which the community is involved in the design and implementation of the treatment program and in the selection of their community-based distributor (CBD). If data are available on monetary or in kind community support for CBDs, formation of village health committees, and community support for CBDs to collect Mectizan® from a central point, these should also be reported.

Government involvement: The number and percent of treated villages in which the CBD is a part of, or is supervised by, the primary health care system. Does the local and central government have a line item for onchocerciasis control in its budget? If so, how much of this budget has been released to the program?

ANNEX 4: MECTIZAN® ACCOUNTABILITY

Mectizan® Inventory at GRBP:

In 1998, a Quicken^{R} based inventory system was implemented in GRBP programs in Africa. The goal of the system was to better track the inventory by standardizing the reporting on the usage of Mectizan®. Mr. Rick Robinson traveled to Nigeria in July 1998 to verify the accuracy of the data being entered into the Quicken system. The objectives were specifically to answer the following questions: 1) Are there records supporting the issuance of tablets? 2) Are those records accurate? 3) Are the records being entered into the database on a timely and consistent basis? and 4) Are the remaining (unused) tablets physically present? Global 2000 HQ administrative staff (Mr. Robinson) visited 1 to 3 communities in each of the 9 GRBP-assisted states in Nigeria, and interviewed community-directed distributors (CDDs) on their record keeping, support from the communities, and whether they had enough Mectizan® during the treatment period. Communities were selected randomly and visits were made unannounced.

In general, Mr. Robinson found the records were in place and accurate at all levels. There were very few discrepancies but nothing serious. The following observations were made:

- CDDs generally had complete household registers but they did not have on site community treatment summaries (which had been sent forward to the LGA level).
- It was difficult to verify if the number of tablets sent to the field (according to records at the project office level) were received. This was due to the different disbursement sites, and the lack of a system to track and verify the status of Mectizan® inventory during the year.
- Wastage was a concern at the MOH level, but CDDs confirmed that they used all the tablets given to them or provided them for use in other areas prior to their expiration. CDDs were aware of the Mectizan® expiration dates and carried out treatment activities within the suggested 8 week period. CDDs with excess tablets at the end of the treatment exercise send tablets to be distributed in other communities. However, these transactions were not well documented, making them difficult to trace.
- Some of the CDDs received in-kind support from their communities.

Ms. Wanjira Mathai presented a comparison of GRBP ato figures to the same objectives as recorded at MDP. Some discrepancies were noted, and it was emphasized that the same objective reported to MDP should be used in GRBP reports.

All GRBP program representatives noted that monthly reporting of the Mectizan® status was indeed simplified by the Quicken accounting system, and that it was not a burden to report monthly on the status of the drug.

Mectizan® Recommendations for 2000:

- All unused tablets should be returned to GRBP project offices for final counting at the end of treatment exercises. The destruction of Mectizan should be in accord with recommendations to be produced in the near future by MDP.

- GRBP local finance and HQ staff should develop guidelines for testing all field records (including Mectizan inventory) on an ongoing basis during the year, including random spot checks.

- CDDs should be encouraged to date all Mectizan® bottles when opened, and use standardized forms including the minimum data to be collected for the purpose of inventory management.

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ANNEX 5: SUSTAINABLE MANAGEMENT TRAINING CENTER (SMTC) IN JOS, NIGERIA

The objective of the Sustainable Management Training Center (SMTC) in Jos, Nigeria, is to develop better management skills among public health practitioners with a focus on Guinea worm eradication and onchocerciasis control (through Mectizan® delivery). Experts in international health management at Rollins School of Public Health of Emory University and Centers for Disease Control and Prevention (CDC) assist in the "training of trainers" who will teach project planning, problem solving, financial management, the use of data in decision making, logistics, and total quality management ("TQM") techniques. SMTC is coordinated by Dr. Abel Eigege and Ms. Ifeoma Umolu, with several other Global 2000 Nigeria staff members functioning as staff members, along with staff from the Federal Ministry of Health of Nigeria and United Nations Children's Emergency Fund (UNICEF).

In 1999, four management training workshops and one reunion were held at the National Global 2000 office in Jos (compared to seven in 1998). A total of 46 managers were trained from 33 states and the Federal Capital Territory Abuja (119 in 1998). Overall, 256 participants have been trained at the Jos training center since its inception in 1996 from 33 Nigeria States (Map 7). The Federal Capital Territory, and The Republic of Guinea Those trained included Federal, State, and Local Ministry of Health workers (72% of the trainees), Nongovernmental Development Organization (NGDO) employees (7% of trainees), and Religious Missions (22%) working in health and community development. The majority (35%) of participants to the workshops in 1998 were sponsored by NGDOs, 19% by UNICEF/Nigeria through their Zonal Offices, and 30% by the Federal Government. A total of 71 trainees graduated in 1999. Of these, 40% were sponsored by UNICEF zonal offices in Bauchi and Ibadan to help strengthen primary health care there primary health care, nutrition, and agriculture there.

The program has been recognized internationally, and Dr. Eigege and Mrs. Maduka (coordinator of one of the GRBP/Lions southeast projects) attended the International Conference of Clinical Epidemiology in Mexico to present an overview of the SMTC in Jos, and its complementary role in the epidemiology and control of disease. In addition, Dr. Kenneth Korve, GRBP Nigeria, spent six weeks in Atlanta, attending with CDC support the

Map 7

Nigeria SMTC Map

ANNEX 6: *LOA LOA*

b. Enhance community awareness and education with regard to recognizing and responding to adverse reactions following treatment of Loa-infected people with Mectizan®.

c. Enhance awareness and training of community distributors and all health personnel involved in the program with regard to recognizing and responding to adverse reactions following treatment of *Loa*-infected people with Mectizan®.

2. In all other program areas where one or more of the following apply:

- **No previous treatment with Mectizan®.®**
- **Fewer than two rounds of annual treatment with Mectizan® have been carried out.**
- **Two or more rounds of annual treatment with Mectizan® have been carried out but with coverage of less than 60% in each community.**
- **Cases of serious CNS dysfunction following treatment with Mectizan® have occurred.**

a. Prior to mass treatment with Mectizan®, a Rapid Epidemiological Assessment (REA) should be done in each community to document the endemicity of onchocerciasis as hyper-, meso-, or hypo-endemic If a community is hypo-endemic (nodule prevalence under 20%), mass treatment should not be done.

b. If the community has hyper- or meso-endemic onchocerciasis, treatment with Mectizan® should be carried out over a fixed period of time with a defined period of careful observation by community distributors for days 2-8 after treatment and surveillance by medical personnel for days 3-5 after treatment (where day 1 is the day of treatment).

c. Enhance community awareness and education with regard to recognizing and responding to adverse reactions following treatment of *Loa*-infected people with Mectizan®.

d. Enhance awareness and training of community distributors and all health personnel involved in the program with regard to recognizing and responding to adverse reactions following treatment of *Loa*-infected people with Mectizan®. The objective of this effort should be early identification of serious CNS dysfunction and prompt referral of patients to a district hospital or

designated center where staff is appropriately trained and supplied for case management. Family members should be encouraged to accompany the patient and provide care.

B. Programs that give individual treatments with Mectizan® to people with proven onchocerciasis

1. Clinic-based treatments:

a. After confirming infection with *Onchocerca volvulus*, but prior to treating with Mectizan®, possible co-infection with *Loa loa* should be assessed. In the absence of hematologic diagnostic methods, patients should be asked questions to determine if *Loa loa* is probably present in their community of residence or employment.

b. Prior to treating with Mectizan®, the possibility of adverse reactions after treating *Loa-i*nfected people should be discussed with the patient.

c. If the patient is at risk of serious adverse CNS dysfunction following treatment with Mectizan®, he/she should be monitored by medical personnel as described above in section A, item 2b.

These recommendations are intended to minimize complications following treatment with Mectizan®, in known and suspected *Loa*-endemic areas, should they arise. The risk of complications will be further reduced when the distribution of Loa loa is delineated and a practical means for determining the intensity of infection is available.

The ultimate decision on how to proceed with community-based mass treatment of onchocerciasis with Mectizan®, in a given country, should be made by the National Onchocerciasis Task Force (NOTF) and the Ministry of Health, which has final authority and responsibility for all decisions. Moreover, the decision on how to proceed with the treatment of individuals with onchocerciasis in clinic-based settings is the responsibility of the individual physician.

Map 8: loa loa map

ANNEX 7: THE GRBP NIGERIA LYMPHATIC FILARIASIS (LF) ELIMINATION AND URINARY SCHISTOSOMIASIS CONTROL INITIATIVE

Rapid Assessments: In 1999, village assessment activities for lymphatic filariasis and SH in Akwanga and Pankshin LGAs consisted of community diagnosis by history, physical examination for hydrocele, Immuno-Chromatographic Tests (ICT), ELISA, and dipstick test. Assessment activities in Akwanga and Pankshin have covered a total of 153 villages: 95 in Akwanga, and 64 in Pankshin. Data of assessment results for a total of 59 villages for LF and 61 for schistosomiasis in the two LGAs are provided as a line listing in tables 15 and 16. The results thus far confirm that community hydrocele prevalence rates are strongly correlated with ICT. It was also shown that examination for hydrocele (not history), supplemented with ICT card tests where hydrocele rates are low, could be used as the rapid assessment procedure in the pilot program. The overall rate of endemicity for LF in the assessed villages was 24 % (range 0-67%), and 21% (range 0-80%) for SH.

Entomology Surveys: Three entomological surveys were conducted in 1999: two for mosquitoes and one for black flies. An external consultant, Dr. Tovi Lehmann of CDC, joined Prof. John Onyeka and Prof. Hayward Mafuyai at the University of Jos to conduct these baseline studies.

Health Education: Health education materials for lymphatic filariasis and SH were jointly developed by The Federal MOH and Global 2000, based on the results of a KAP survey conducted in 1999. Materials for SH were printed (2000 brochures, posters, flip charts for Community-Directed Distributors (CDDs), and 1000 schistosomiasis calenders were reproduced for distribution). LF materials will be printed, pending WHO and FMOH approval for the launching of combined therapy, which is expected in 2000.

Training: In the three villages where SH control activities began, a total of 22 CDDs were trained on the disease, its treatment, management of side effects, and health education.

SH Control Launching: The urinary schistosomiasis treatment program was launched in the villages of Mungkohot (Pankshin LGA, Plateau State) and Andaha (Akwanga LGA, Nasarawa State) by the State Ministries of Health on October 11-12, 1999. Dr. Frank Richards attended the launching ceremonies. The ceremony in Mungkohot, where the prevalence of urinary schistosomiasis in school children is >80%, was attended by the governor, the deputy governor, and the state commissioner for health. In Andaha (prevalence in children of 56%), the deputy governor, a representative of the state health commissioner, and the *Chun Mada (*an influential traditional leader in the area who has been a great support to all Global 2000-assisted programs there) attended. A total of 8,744 people were safely treated with praziquantel in Andaha, Mungkohot, and Katanza villages (October- December 1999). Many thousands more are projected to be treated in these two LGAs in 2000.

LYMPHATIC FILARIASIS AND SCHISTOSOMIASIS RECOMMENDATIONS 2000

Lymphatic Filariasis:

- Complete the initial roll out WHO protocol treatment activities in 2000 persons.
- Complete the originally proposed 160,000 treatments in Akwanga and Pankshin LGAs, with FMOH and WHO 'green light' approval.
- Continue mosquito collections, and measure impact of treatments on LF infection rates in the vector. Obtain funding to test the mosquitoes at CDC using molecular techniques.
- Help to finalize a WHO approved rapid assessment and mapping protocol and then use it to complete assessment activities throughout all of Plateau and Nasarawa States.

Urinary Schistosomiasis:

- Complete SH treatment activities in all at risk villages in the Phase one LGAs (Akwanga and Pankshin).
- Analyze data for height and weight to determine whether the program can use height to determine praziquantel dosage.
- Work with partners to find better methods for rapid assessment for SH that do not require sampling every village.

Analysis and Publications:

- Complete analysis of various data bases.
- Prepare the most important studies for publication.

Map 8

Table 15

Table 16

Annex 8: GRBP Publications

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Katabarwa, MN. and Mutabazi, D. (1999): Community-directed, ivermectin-treatment programmes for onchocerciasis control in Uganda: the selection and validation of indicators for monitoring sustainability at the district level. Annals of Tropical Medicine & Parasitology, Vol. 93, No.6, 653-658 (1999).

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