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**ONCHOCERCIASIS CONTROL IN THE WHO AFRICAN REGION:
CURRENT SITUATION AND WAY FORWARD**

Report of the Regional Director

Executive Summary

1. Africa accounts for 99% of the river blindness cases in Africa and South America. The WHO African Region has recorded unprecedented success in the control of onchocerciasis (river blindness). However, the Region risks the loss of over US\$ 2.5 billion investments from endemic countries and their development partners. Countries which have maintained active control and surveillance of disease also risk the loss of significant economic development and alleviation of poverty.
2. Due to conflict, irregular budgetary allocation from national financing mechanisms, the co-endemicity of onchocerciasis and loiasis, and poor surveillance, 13 countries still have high disease prevalence and reservoirs of *Onchocerca volvulus* infection. There is danger of resurgence of disease because of the long flight range of the vector blackfly known to transmit cross-border infection.
3. Over 117 000 communities and 350 000 community-directed volunteers in 15 countries are participating in the distribution of ivermectin for effective disease control, but evaluation in 10 countries shows that community efforts to put in place sustainable programmes are compromised by the weaknesses of the health systems.
4. For over 30 years, two comprehensive pro-poor health development partnerships have addressed the elimination of onchocerciasis as a public health and socioeconomic problem in Africa, but their efforts need to be sustained by national governments. This worrying situation led to the Yaounde Declaration in 2006.
5. This document provides an overview of the current situation and proposes the actions to be taken to ensure that the gains already made are preserved and that onchocerciasis is eliminated in Africa.

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DRAFT RESOLUTION

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BACKGROUND

1. Onchocerciasis (river blindness) is a debilitating insect-borne disease caused by a parasite, *Onchocerca volvulus*, transmitted via the bite of the blackfly. Infection leads to severe skin disease with unrelenting itching, visual impairment and blindness. Irreversible onchocercal blindness is the world's fourth leading cause of preventable blindness after cataract, glaucoma and trachoma. It causes and perpetuates poverty. It creates stigma, hinders agricultural productivity, generates massive economic losses and imposes a disproportionate disease burden on poor rural communities. Throughout Africa, 120 million people are at risk, with 37 million heavily-infected.¹
2. In 1974, a comprehensive health, agricultural production and rural development partnership, the Onchocerciasis Control Programme (OCP), was established in 11 west African countries.² The main strategy used by the programme was vector control through application of larvicides to riverine blackfly breeding sites.
3. In 1989, ivermectin, a microfilaricide, was registered for treatment of onchocerciasis, and OCP adopted mass treatment with ivermectin as its secondary strategy. In 2002, the programme closed, having achieved its goal of disease elimination in 10 countries (Sierra Leone being the exception, due to civil conflict). OCP was highly cost-effective, at less than one dollar per annum per protected person, with an economic rate of return of 20%.³
4. Since the OCP closure, Burkina Faso, Mali, Niger and Senegal have successfully maintained the programme achievements. The risk of onchocerciasis blindness in children born in these countries since 1974 has been very low. Burkina Faso, having maintained surveillance and transmission control, began production of cotton in onchocerciasis-freed areas. After the closure of OCP, WHO established a multidisease surveillance centre in Ouagadougou to support countries in the surveillance of onchocerciasis.
5. Benin, Guinea and Togo are maintaining control but their river basins require close surveillance. Surveys in Ghana suggest increasing disease prevalence (8% in 2001 to 27% in 2004 in some villages); the same upward epidemiological trend has occurred in Côte d'Ivoire, Guinea-Bissau and Sierra Leone due to civil conflict. Burkina Faso and Mali are also likely to be affected by any recrudescence in Côte d'Ivoire.⁴
6. In 1995, the African Programme for Onchocerciasis Control (APOC) was established to combat onchocerciasis in countries where the OCP strategy could not be implemented due to various reasons. APOC covers 19 countries⁵ in Africa.

¹ Remme JHF et al, Tropical diseases targeted for elimination: Chagas disease, lymphatic filariasis, onchocerciasis and leprosy. In: Jamison DT et al (eds), *Disease control priorities in developing countries*, 2nd edition, New York, Oxford University Press, 2006.

² Benin, Burkina Faso, Côte d'Ivoire, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Senegal, Sierra Leone, Togo.

³ Kima A, Benton B, Cost-benefit analysis of the Onchocerciasis Control Programme (OCP). World Bank Technical Paper No. 282, Washington, DC, World Bank, 1995.

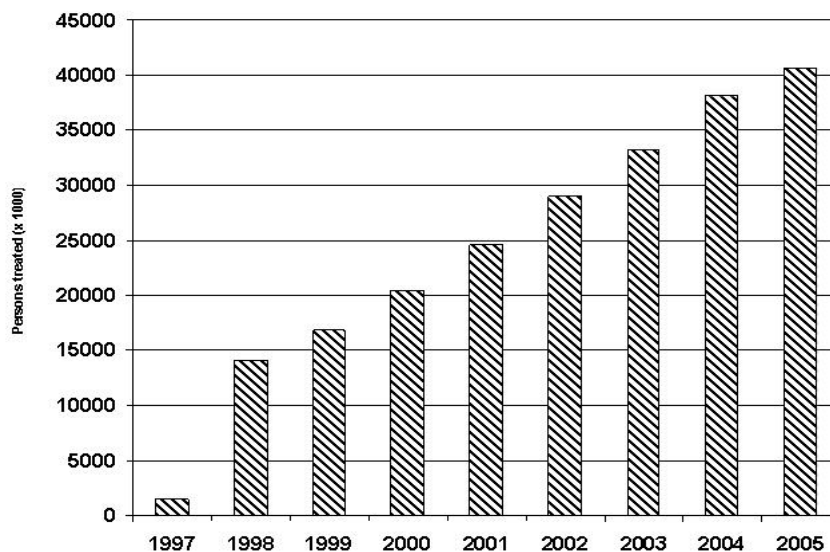
⁴ Hougard JM et al, Blackfly control: What choices after onchocerciasis? *World Health Forum* 19(3): 281–284, 1998.

⁵ Angola, Burundi, Cameroon, Central African Republic, Chad, Republic of Congo, Democratic Republic of Congo, Equatorial Guinea, Ethiopia, Gabon, Kenya, Liberia, Malawi, Mozambique, Nigeria, Rwanda, Sudan, Tanzania, Uganda.

7. The objective of APOC is to establish sustainable community-directed treatment with ivermectin (CDTI) programmes and, wherever possible, eradicate the vector using environmentally-safe methods. The CDTI programme has empowered 117 000 communities to take responsibility for ivermectin delivery, deciding how, when and by whom treatment should be administered, and overseeing programme implementation.

8. In 2006, over 350 000 community-directed distributors and 31 000 health workers in 15 countries participated in ivermectin distribution. In 2005, 40 million persons were under regular ivermectin treatment (Figure 1) in 117 000 hard-to-reach communities, averting 740 000 disability-adjusted life years (DALYs) annually at (US\$ 7 per DALY).⁶ CDTI functions effectively in areas where primary health care coverage is low. Projects are progressing satisfactorily in six countries.⁷ Reservoirs of transmission of infection still exist in eight countries.⁸ Blackflies have been eliminated in Equatorial Guinea and Uganda.

Figure 1: Persons treated with ivermectin between 1997 and 2005



9. CDTI has proven effective as an entry point for the co-implementation of other health interventions;⁹ for example, control of lymphatic filariasis and trachoma as well as distribution of vitamin A in Nigeria, and schistosomiasis control in Uganda.¹⁰ Co-implementation with other health interventions makes service delivery more acceptable to clients, increases coverage and facilitates services in areas with inadequate security or outreach.

⁶ WHO, *The World Health Organization, African Programme for Onchocerciasis Control Progress Report 2006*, Ouagadougou, World Health Organization, African Programme for Onchocerciasis Control, 2006.

⁷ Cameroon, Republic of Congo, Ethiopia, Nigeria, Tanzania, Uganda.

⁸ Angola, Burundi, Central African Republic, Chad, Democratic Republic of Congo, Liberia, Malawi, South Sudan.

⁹ Okeibunor JC et al, Additional health and development activities for community-directed distributors of ivermectin: Threat or opportunity for onchocerciasis control? *Tropical Medicine and International Health* 9(8): 887–896, 2004.

¹⁰ Ndyomugenyi R, Kabatereine N, Integrated community-directed treatment for the control of onchocerciasis, schistosomiasis and intestinal helminths infections in Uganda: Advantages and disadvantages, *Tropical Medicine and International Health* 8 (11): 997–1004, 2003.

10. To capitalize on the progress, a special partner meeting was held in Cameroon in 2006 to review the recommendations of a working group on the future of onchocerciasis control in Africa.¹¹ Following the review, the African ministers of health adopted the Yaoundé Declaration (Annex 1), expressing commitment to work together to accelerate the elimination of onchocerciasis as a public health and socioeconomic development problem.

11. This document identifies issues and challenges for onchocerciasis control for the African Region and proposes specific strategies towards achieving a future that is free from river blindness.

ISSUES AND CHALLENGES

12. Civil strife and conflict are obstacles to onchocerciasis control in Africa. Conflict has affected and still affects 3 out of 11 former OCP countries, and 7 out of 19 APOC countries, severely hampering control efforts.

13. Due to the long-range flight (400 kilometres) capability of the blackfly, countries with less effective or weak control programmes jeopardize the entire effort by risking re-introduction of infected flies into neighbouring countries. Cross-border onchocerciasis control coordination is also a challenge. With the exception of a few former OCP countries which hold regular cross-border meetings, obtaining government financing to rapidly expand coordination has been slow.

14. Africa's insufficient health workforce is another major constraint in maintaining the achievements of onchocerciasis control. Due to the rapid turnover of personnel and pressure on human resources in the health sector there are difficulties in maintaining a core of onchocerciasis expertise in health districts severely affected by onchocerciasis, and these are often the most underprivileged and ill-resourced districts. The effectiveness of community-directed distributors is compromised by lack of supervisory support due to the inadequate number of health workers at front-line health facilities.¹²

15. Co-endemicity of onchocerciasis with Loa loa infection has been observed mainly in central Africa and Sudan. Severe adverse neurological reactions, including several deaths, have been reported in persons with high intensity Loa loa infection following treatment with ivermectin. Among the 5550 patients treated with ivermectin in Cameroon and included in the analysis of Loa loa microfilarial load, the relative risk of presenting with a reaction of any type when showing Loa loa microfilaremia was one in 20.¹³

16. Co-endemicity is an obstacle to rapid implementation of control activities in these countries. There are also implications for the time and resources needed to strengthen peripheral health facilities for efficient management of severe adverse event cases. For this reason, Angola, Democratic Republic of Congo and South Sudan are experiencing delays in programme implementation as well as in achieving and sustaining high ivermectin treatment coverage.

¹¹ WHO/APOC, A strategic overview of the future of onchocerciasis control in Africa, WHO/APOC/CSA, August, 2006, Ouagadougou, World Health Organization, African Programme for Onchocerciasis Control, 2006.

¹² WHO, *Report of the external evaluation of APOC*, Ouagadougou, World Health Organization, African Programme for Onchocerciasis Control, 2005.

¹³ Gardon J et al, Serious reactions after mass treatment of onchocerciasis with ivermectin in an area endemic for Loa loa infection, *The Lancet* 350 (9070): 18–22, 1997.

17. Another major challenge is the sustainability of control activities. Evaluation of 48 CDTI projects in 10 countries shows that 25% of the projects scored low on community participation and were compromised by inadequate government funding and weak peripheral (subdistrict) health systems.¹⁴

18. Other challenges to onchocerciasis control programmes include the competition between externally-funded incentive schemes for various diseases in the same communities, motivation of community-directed distributors without monetary incentives, lack of national policies, and the effect of lack of harmonization on programme performance.

19. Resource mobilization for onchocerciasis control has become a great challenge after more than 30 years of financing by donors. Countries' budgetary provision, release of funds for ivermectin distribution projects and surveillance have had a negative impact on coverage rates and the epidemiological situation.

20. Another major challenge for onchocerciasis control programmes is to determine when to stop ivermectin (microfilaricide) treatment or to find a safe macrofilaricide that would kill or sterilize the adult worm.¹⁵ A current study in former OCP countries where treatment has been given for 18 years and where onchocerciasis infection has been virtually eliminated is testing whether ivermectin treatment can safely be stopped (without disease recrudescence). The results will need to be validated in areas with different epidemiological and entomological profiles, notably in sites where ivermectin treatment has been ongoing for up to 12 years.

21. There is serious concern that the impact of investments in onchocerciasis control by countries and their development partners together with the drug donation programme (total of US\$ 1.5 billion) will be lost. The challenges to onchocerciasis control in Africa, therefore, deserve urgent attention.

WAY FORWARD

Roles of countries

22. Countries are urged to consider the control of onchocerciasis as a development issue, giving priority to funding control activities from the national budget. Country ownership, sustainability and devolution of activities to the lower levels are the pillars of successful and effective control of onchocerciasis.

23. Endemic countries should encourage the primary health care approach of strong community participation; accelerate full integration of the control activities into the broader health system; and establish sustainable national programmes. Countries are urged to promote co-implementation of other interventions (distribution of insecticide-treated nets for malaria control, distribution of vitamin A and drugs for the control of lymphatic filariasis and soil-transmitted helminths) with community-directed treatment with ivermectin. Co-implementation will effectively provide multiple integrated health benefits to large, underserved rural populations.

¹⁴ WHO/APOC, Integration: A key issue of sustainability in the implementation of community-directed treatment with ivermectin, Ouagadougou, World Health Organization, African Programme for Onchocerciasis Control, 2004.

¹⁵ WHO/APOC, A strategic overview of the future of onchocerciasis control in Africa, WHO/APOC/CSA, August, 2006, Ouagadougou, World Health Organization, African Programme for Onchocerciasis Control, 2006.

24. Ministries of health and partners should pay particular attention to post-conflict areas and locations where epidemiology indicates increased disease prevalence, where there are reservoirs of infection, and where there is co-endemicity with loiasis. There are 13 target countries.¹⁶

25. Countries should urgently organize and fund cross-border meetings, and support mechanisms for addressing cross-border transmission. There is an urgent need for all countries to re-commit to intensified and unified control efforts. Ministries of health should develop strategic plans to maintain above 65% ivermectin treatment coverage in both endemic and non-endemic communities and strong community participation in the trans-border collaboration important to check transmission of infection.¹⁷

26. Endemic countries should act in accordance with the Yaounde Declaration on Onchocerciasis Control in Africa (Annex 1) and make regular annual budgetary allocations for control activities to avoid the loss of almost 30 years of investments and significant gains.

27. Countries need to put in place various mechanisms and resources such as efficient systems for the delivery of ivermectin to front-line community health facilities or collection points. Countries should accelerate their efforts to strengthen subdistrict (peripheral) level facilities, including human resources capacity, to enhance sustainability. These measures should be taken before regional onchocerciasis control support expires to ensure that long-term, low-level support continues to guarantee that progress towards disease elimination is maintained. Ministries of health should devise control and monitoring measures and integrate them with other communicable disease initiatives to improve cost efficiency.

Roles of countries and partners

28. Countries and partners are urged to support research to determine where and when ivermectin treatment can be stopped in different epidemiological settings. WHO and partners should continue to support research institutions to find a safe macrofilaricide (a drug that kills or permanently sterilizes the adult worm) to shorten the control period and achieve parasite elimination.

Role of WHO

29. Sustained surveillance systems are required to address the challenges and dynamics of onchocerciasis in all countries at risk of cross-border recrudescence. The Multi-Disease Surveillance Centre should be empowered by WHO and development partners to enhance its role in supporting the establishment of national and regional onchocerciasis surveillance systems.

30. The Regional Committee is requested to examine and adopt the proposed way forward for onchocerciasis control in the African Region.

¹⁶ Angola, Burundi, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Democratic Republic of Congo, Ghana, Guinea-Bissau, Liberia, Malawi, Sierra Leone, Sudan.

¹⁷ Remme J et al, Large scale ivermectin distribution and its epidemiological consequences, *Acta Leiden* 59(1-2): 177-191, 1990.

ANNEX 1

The Yaounde Declaration on Onchocerciasis Control in Africa

We, the African ministers of health, participating in the Special Summit of Partners of the African Programme for Onchocerciasis Control held in Yaounde, Cameroon, from 26 to 27 September 2006, to discuss the future of river blindness (onchocerciasis) in Africa,

Considering onchocerciasis as a major cause of poverty;

Concerned that, in spite of the efforts of the African Programme for Onchocerciasis Control (APOC), and before it, those of the Onchocerciasis Control Programme (OCP), over 120 million people in 19 countries still face the threat of river blindness;

Acknowledging that one obstacle standing in the way of successful onchocerciasis control has been the negative impact of conflicts in a number of APOC and ex OCP countries;

Recognizing that the movement of human populations and frequent social and political upheavals in the African Region have greatly increased the risk of transmission and/or re-emergence of onchocerciasis;

Concerned about the risk that more than US\$ 1.5 billion already invested by donors, the countries and their development partners could be lost;

Noting the efficiency of APOC interventions;

Convinced that integration and joint implementation of community-directed treatment with ivermectin (CDTI) with other health interventions will effectively provide many health benefits to remote populations;

Mindful of the urgent need for a macrofilaricide with a view to accelerate progress towards the elimination of onchocerciasis in all countries;

1. EXPRESS our commitment to work together to accelerate the elimination of river blindness as a public health and socio-economic development problem in all countries;
2. Call for the intensification of control activities and surveillance in post-conflict countries and countries with pockets of co-endemicity of onchocerciasis and loiasis (tropical eye worm);
3. ENDORSE the conclusions of the working group on the future of APOC and its recommendations to extend the life of APOC to 2015 and enlarge its activities to ex-OCP countries;

4. Affirm country leadership and recommend the establishment of national sustainable CDTI programmes in all onchocerciasis endemic countries of the Region;
5. Urge endemic countries to make annual budgetary commitment for onchocerciasis control activities as part of PRSP and in line with MDGs;
6. APPRECIATE the long-standing commitment of donors and NGOs to onchocerciasis control and the pledge of Merck to continue providing ivermectin (Mectizan®) for as long as they are needed;
7. REQUEST donors and development partners to support MACROFIL research and onchocerciasis surveillance;
8. RECOMMEND strongly that APOC provide a scientific evidence base to determine the steps, the period and the area where ivermectin treatment could be stopped in close consultation with affected countries;
9. INVITE all those who share our commitment to subscribe to the present declaration.

Done in Yaounde this twenty-seventh day of
September in the year of two thousand and six