REGIONAL COMMITTEE FOR THE EASTERN MEDITERRANEAN

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Agenda item 15(c)

ONCHOCERCIASIS CONTROL PROGRAMME
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Onchocerciasis is a parasitic disease caused by a filarial worm (Onchocerca volvulus) which is transmitted to humans by the bite of the blackfly (Simulium damnosum). The manifestations of the disease are caused by a reaction produced systematically, particularly in the skin and in the eye, by microfilariae. These are microscopic larvae produced in millions by adult female round worms. The worms, Onchocerca volvulus, reside in male and female pairs, in nodules, which can be seen and felt under the skin throughout the human body. The microfilariae cause skin inflammation producing intense itching, atrophy and ulceration. There is also systemic debilitation, poor appetite, weight loss and fever. The most serious complication produced by the microfilariae is damage to the eyes which can lead to blindness.

The disease is found in West, Central and East Africa and in Central Latin America. In the Eastern Mediterranean Region, it is found in Sudan and Yemen. It is also thought to occur in Democratic Yemen and along the borders between Yemen and Saudi Arabia.

The part of the world most severely affected is the Volta River basin which consists of seven countries, Benin (Dahomey), Burkina Faso (Upper Volta), Ghana, Ivory Coast, Mali, Niger and Togo. The surface area is 764,000 sq.km containing a population of approximately 16 million, of whom 1.5 million suffer from the disease; of these about 100,000 are blind.

These countries, over the years, had tried individually to do something about the disease but without significant effect.

In July 1968 a meeting sponsored by WHO, USAID and OCCGE (Organisation coordination coopération lutte grandes endémies) was held in Tunis to work out a strategy for the control of River Blindness (onchocerciasis) in West Africa. In 1970 at the request of Benin, Ghana, Ivory Coast, Mali, Niger, Togo and Burkina Faso the Preparatory Assistance Mission was set up by WHO and FAO with finance from UNDP. From 1971 to 1973 this mission worked out a strategy. the overriding objective of which was "to reduce onchocerciasis to a sufficiently low level so that it no longer represents either a public health problem or an obstacle to socio-economic development".

The Programme was formally launched in 1974 and larviciding started in 1975.

With a staff of 825 (96% Africans), including 62 professionals, and a vehicle fleet of 255, together with eight helicopters and one fixed wing aircraft, the control programme currently covers parts of seven West African countries. During its third phase 1986-91 it will extend to include Senegal, Guinea, Guinea Bissau and Sierra Leone with a total coverage of 1,320,000 km² and 45,000 km of river. There are nineteen donors providing financing for the programme and four UN sponsoring agencies. Implementation is guided by a joint programme committee (JPC) consisting of ministers from African countries, sponsoring agencies and donor representatives. The JPC is assisted by an expert advisory committee (EAC), with an ecological panel and the national onchocerciasis committees which advise on local issues.
The methodology adopted by the onchocerciasis control programme to control the disease has been to apply larvicide to kill the larvae of the blackfly which are found in rapidly moving river waters.

Like many complex programmes, the onchocerciasis control programme has experienced various problems, the most important of which are resistance to chemicals by larvae, and adult fly reinvasion. Owing to unique international collaboration on this programme there are now larvicides to cope with the resistance. The donor community has agreed to consider expansion to prevent reinvasion.

The following have been achieved to date:

(a) 90% of the original programme area is under control and there is no transmission of the disease.
(b) People infected at the beginning of the programme are recovering with virtually no risk of becoming blind.
(c) More than 3 million children born since the beginning of the programme are free of the disease.
(d) The liberated river basins i.e. 16 000 km² are now available for agriculture and a substantial part of these are being resettled.
(e) Over 150 nationals have been trained.
(f) Extensive research on larvicide and chemotherapy has been undertaken.
(g) Management capability and confidence is increasing in the West African countries, and this will be useful in tackling other development problems.

With regard to the problem in the Eastern Mediterranean Region, the situation may be summarized as follows:

1. Sudan

Results of surveys show that *Onchocerca volvulus* is the main parasite causing the disease in human beings in Sudan.

Both *Simulium damnosum* and *Simulium sirbanum* exist in southern Sudan, however, the former species is considered to be the main vector.

Onchocerciasis is a significant public health problem in southern Sudan along the Raja River. The disease is focal in its distribution. Most of the foci are villages inhabited by fishermen or farmers whose very livelihood depends on the river's water which is also used for bathing, washing and drinking. The areas most affected are Bahr-el-Ghazal and Wau in southern Sudan. The magnitude of the problem, including the proportion of blinded among those infected and the numbers at risk are not accurately known.

In the Raja district, where there are about 35 000 inhabitants, there are communities suffering from or at severe risk from blindness. In surveys carried out, the infection rate varied from 19 to 90%. Young children, about 12 years of age, are often observed suffering from scratched, wrinkled skin and cloudy eyes as a result of onchocerciasis.
While the information is scanty, it is sufficient to appreciate that the Raja area constitutes probably the worst focus of onchocerciasis in Sudan and that the infection rate is comparable with the worst foci in Africa which still remain uncontrolled.

In the Wau area, a project funded by the Special Programme for Research and Training in Tropical Disease has shown that the annual transmission of onchocerciasis may be reduced by up to 80%, if the stretch of river close to human habitation is treated with insecticide (Abate) to kill the developing stages of the blackfly which transmits the disease. This is because in wide areas of southern Sudan the population is limited in number and is grouped over wide stretches of land along the rivers.

A national plan for the control of onchocerciasis in Sudan has not yet been developed. The inaccessibility of affected areas and the lack of manpower and financial resources are major constraints. Yet research results from the project in Africa, mentioned above, indicate the feasibility of effective control through the localized control of vectors, the removal of causeways and vegetation to eliminate breeding sites and the treatment of affected populations.

2. Yemen

The disease is not considered a major public health problem here. Light onchocerciasis infections have been observed in five of the major wadis with permanent streams between the central highlands and the Tihama (coastal plains) at altitudes between 300 and 1700 metres. However, owing to the low density of the worm larvae in the skin, serological tests, rather than parasitological screening, should be carried out in these areas to assess the extent of the disease.

An unidentified species of Simulium damnosum complex was indicated as the vector of onchocerciasis in Yemen.

Little is known about the prevalence of the infection and its major clinical manifestations.

The population at risk lives in the three governorates of Taiz, Ibb and Hodeida, where 45% of the population of the country is to be found.

Blindness has not been observed as a complication of the disease in Yemen, probably because of the low infection rate. Patches of dark skin and nodules with oedema and itching are the main manifestations. The local Arabic name for the disease is "Sowda" meaning "black" which denotes the discoloration of the skin.

Although the control of the disease in Yemen might be feasible no control measures have yet been taken.