ONCHOCECIASIS CONTROL IN SIERRA LEONE

Achievements and Prospects after OCP
1. INTRODUCTION

1.1 Onchocerciasis in West Africa before OCP

- Onchocerciasis prevails in Africa, America and in the Arabian peninsula.
- It was estimated that in the world:
  - Approximately 122.9 million people are exposed to onchocerciasis.
  - More than 17.7 million people were infected with the disease.
  - More than 270,000 people were blind and at least 500,000 had visual impairment cased by onchocerciasis.

- Africa is the continent most affected, with more than 16.9 million (95%) victims. West Africa was not only particularly affected but most of all it had the most significant foci of the most serious form of the disease. These foci were located particularly in the northern parts of Benin, Togo, Côte d'Ivoire, Ghana, east of Mali, the south of Niger and were disseminated in the whole of Burkina Faso. It is in these areas known as the original area, covering 654,000 km² that the Onchocerciasis Control Programme in West Africa (OCP) was started. The Programme then extended to the foci south of Côte d'Ivoire, Benin, Togo and Ghana, then to the west of Mali, Guinea, Guinea-Bissau, Senegal and Sierra Leone. Today, the whole of the Programme area covers 1,235,000 km² with almost 40 million people. Before the beginning of the control operations, there existed more than 3 million onchocercal patients out of which approximately 135,000 were blind.

- Onchocerciasis is a parasitic disease. It is caused by a filarial (a worm) known as Onchocerca volvulus. The adult worm which develops only in man produces microfilariae which is transmitted to other men by the bite of a tiny fly commonly called "simulie", the vector of the disease. Onchocerciasis prevails only in rural areas, in the settlements located along the rivers with fast flowing current. The simulie reproduces in these rivers, hence the name "river blindness" which is still interchanged with the name onchocerciasis. The most exposed communities are those located approximately ten kilometres on both sides of the rivers.

- Blindness, the nuisance and other consequences of onchocerciasis are factors for the deterioration of the living conditions of these communities and the cause of the abandonment of the fertile riverain lands by the villagers.

- An agreement signed in 1973 between the participating governments and WHO defined the limits, the objectives, the of consultative structures and management of the Programme as well as the modalities for control operations and evaluation procedures.

- After approval of the mission report of the "Support Programme to Governments" in January 1974, the budget necessary for the implementation of the onchocerciasis control programme in the Volta basin was voted. WHO was then designated as the Executing Agency. In a fit of international solidarity, 22 countries and institutions financed the activities of OCP for nearly three decades.
1.2. **Control Strategies used**

The main strategy used is vector control to which ivermectin treatment was added in 1987. In certain areas, vector control was the method used and in others ivermectin treatment only. In some others on the other hand, the two strategies were combined.

1.3. **Results obtained in the OCP area**

- Onchocerciasis is now eliminated as a problem of public health in all the OCP area. In some limited foci however, there is the need to improve on the results achieved.

- Nearly 40 million people are protected today from onchocerciasis and more than 18 million children born since the beginning of the Programme have escaped the risk of onchocercal blindness.

- 600,000 cases of blindness have been prevented

- Presently, more than 25 million hectares of riverain lands have been redeemed and is being re-populated and developed. This will enable about 17 million people to be nourished.

It is to be noted however that, at some points, the results need to be improved. These are the tributaries of the Oti in Togo, the Ouémé in Benin, the Pru in Ghana, the Mafou and the Tinkisso in Guinea.

II. **ONCHOCERCIASIS IN THE REPUBLIC OF SIERRA LEONE BEFORE OCP**

Sierra Leone is one of the four countries of the western extension area of OCP. Eighty percent of the country lies within the endemic zone of onchocerciasis.

Onchocerciasis was responsible for thirty percent (30%) of the total blindness in Sierra Leone.

Several epidemiological surveys conducted by local and foreign scientists in various parts of the country revealed that one million people are at risk, 300,000 infected and 10,000 blind due to Onchocerciasis. It resulted in blindness rate of 5.9% in certain areas like Taia basin.

Parasitological survey conducted all over the country involving 271 villages in all the major river basins revealed the following:

1. 134 villages (48%) were found to be hyper endemic with prevalence of 60% and above.
2. 105 villages (387%) meso-endemic with prevalence
3. A total of 239 villages constituted hyper and meso-endemic areas (prevalence: 47 to 88.5%)

Community Microfilaria Load (CMFL) from 164 villages (60.8%) was between 6 and 67 microfilariae per snip.

Between April and July 1988, OCP entomology staff and Ministry of Health conducted extensive surveys on the transmission of onchocerciasis. The result of the survey showed Annual Transmission Potential (ATPs) ranging between 191 and 6,142 of seven of the sites studied (an ATP of 100 and below is considered tolerable and an acceptable threshold).
Annual Biting Rate in these same sites ranged between 6,223 and 26,873 (1000 is considered acceptable threshold.)

The results of these studies led to the extension of the OCP operational area in the country, which was reduced only by the escalation of the war.

III. STRATEGIES

Because of the conflicts which started in 1991 in the country activities have been stopped until 2000. The two main onchocerciasis control processes of Larviciding and Ivermectin distribution came to a halt in 1996 with escalation of the war.

3.1. Vector control

The main strategy was concentrated on larviciding to eliminate the fly at the larval stage of its life cycle.

Aerial larviciding started in the northern region in 1989 on Mongo, Kaba, Kolente, Seli, Bafi and Pampana basins. It was extended to the south and eastern regions in 1990 on the Taia, Sewa and Moa basins. A total of 35 catching points were established for entomological monitoring.

With the escalation of the war the aerial larviciding in the south and eastern province was abandoned in 1991. In 1992, the aerial larviciding in the south and eastern provinces were permanently suspended by the Programme due to the fact that the simulium soubrense B have limited migratory capability.

3.2. Ivermectin treatment

In 1987 ivermectin was introduced into the Programme as a microfilaricide. This is now the main thrust of the control activities.

Ivermectin treatment started in Sierra Leone in 1990 on a large scale by mobile teams. Geographical coverage of the country was then high with almost every district of the endemic zone covered.

The escalation of the war reduced the control measure only to ivermectin treatment, which was halted in 1996.

After the break of 1996, another method for the ivermectin treatment was adopted; the Community Directed Treatment with Ivermectin (CDTI), instead of the distribution by mobile teams.

Ivermectin distribution after the break in 1996 of all Oncho control activities in the country remain to be the only control measure in progress.

The CDTI involves training of health workers, training of Community Distributors, community sensitisation through the mass media, development and distribution of IEC materials to health facilities and communities, supervision of the distribution and data collection. The CDTI will cover very soon all the endemic areas.
It is preceded by an epidemiological evaluation to establish a new base line data in a number of villages in the endemic river basins.

The training of the trainers was carried out and the training of the district teams and of the Community distributors will take place as soon as possible.

3.3. The training of nationals

To ensure the sustainability of the achievements by the Participating Countries, OCP undertook the training of the nationals as well on the academic level as on the field activities.

3.4. Other strategies

Information, Education and Communication (IEC), epidemiological and entomological surveillance are also the strategies of oncho control.

IV. RESULTS IN 2002

4.1. Significant results in the Republic of Sierra Leone

* Vector control

After four years of larviciding the ATP was brought down to zero. As compared to the same time in 1988 at Musaia, Arfanya and Makwi. At Kaba Ferry and Yiffin, the ATPs were below 100 and the low transmission at these two sites were maintained by S. Yahese and S. squamosum species.

At Katik and Mongere where transmission is due to S. Soubrense B, ATPs were high at 888 and 171 respectively.

The results confirm the effectiveness of control even with ATP and Mongere and Katik above threshold.

In December 2001, the entomological surveillance was resumed and the monthly biting rates were high above the threshold of 1000 at all the catching points. In April 2002, the biting rate had dropped to below the threshold at all the catching points in the north.

The monthly transmission potential was zero in December 2001, which increased gradually until March and returned to zero in April.

* Epidemiological situation

A large current survey carried out in 2002 in the north part showed high prevalences. The prevalences are over 70% in many areas.

* Ivermectin treatment

The training of health workers is financially supported by OCP as well as the training of community distributors, the supervision of the distribution. The Sight Savers International contributes also financially to the implementation, the main collaborating NGO for Onchocerciasis control in Sierra Leone).
A total number of 301 health workers have been trained in the southern province, Kenema District in the eastern province and Western Area.

A current training of trainers on CDTI strategies is on going in the northern part.

A total number of 5,316 community ivermectin distributors have been trained in the southern province and Kenema District in the Eastern Province.

However, in 2001, Ivermectin distribution was resumed in conjunction with the emergency health service that was in force.

The Ivermectin distribution only took place in the safe areas of the Southern Province and part of Kenema District in the east as well as the displaced camps in all government held areas.

In 2001, the geographic coverage was 79.04 % (1418/1794) and therapeutic coverage was 57.68 % (184,850/320,438) in these areas. The treatment in 2002 in these areas is now in progress.

V. OBSERVATIONS

* Strengths

The return of peace and security to the country

1. Rehabilitation, resettlement and restructuring of communities
2. Tremendous awareness about the ONCHO and its treatment.
3. Acceptance of CDTI as indicated by the gradual increase in the ivermectin distribution coverage
4. Commitment of the government
5. Support by the NGO especially Sight Savers International
6. Availability of the willing staff
7. The decentralization of the health services in Sierra Leone
8. The continuous support of the OCP until the end of 2002
9. The World Bank intervention as proposed after OCP era.
10. The programme uses staff from other ministries and other units of the Ministry of Health.

* Weakness

1. Except for the OCP financial support the programme has no leverage over those staff.
2. The vehicles in use are either accident affected or too old and need continuous maintenance
3. The great loss in Makeni of all assets including thirteen vehicles warranted the relocation of ONCHO base in Freetown subjecting most of the present staff to internal displacement and inconveniency in programme operations.
4. The post war rehabilitation of health services has relocated experienced staff to other programmes and political positions, hence the in-experienced new National Co-ordinator.
5. The stoppage of vector control shall prolong the control measure in Sierra Leone.
VI. CONDITIONS TO SUSTAIN AND IMPROVE ACHIEVEMENTS

- Have an effective national system of ordering of the ivermectin through the structures of Ministry of Health.
- Ensure a permanent availability of the ivermectin in the eligible villages.
- Achieve the training of all the actors for the implementation of the CDTI
- Obtain at each treatment a geographical coverage rate of 100% and a therapeutic coverage rate of at least 65% in each village treated.
- Prepare the decentralized teams to be able to carry out the epidemiological and entomological surveillance.
- Prepare the decentralized teams to be able to collect data, to analyze them, to interpret them and to an adequate decision regarding the recrudescence.
- Mobilise adequate resources on the national budget and from the partners.
- Reinforce in human resources of the national team and decentralized teams.