A S S I G N M E N T R E P O R T

1977 - 1982

ZAIRE MALARIA CONTROL PILOT PROJECT - 660 - 11 - 531 - 058

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Purposes:

1. To strengthen the capability of the Government of Zaire (GOZ) to monitor and control infectious diseases.
2. To reduce the morbidity and mortality caused by pandemic diseases, with focus on selected diseases which may cause many deaths in young children.
3. To provide an experience base and to develop operational cadres, organizational infrastructure, and methodologies for the prevention and control of selected communicable diseases.

Objectives:

- The establishment of a model malaria control program in the Kinshasa region and in one nearby rural area.
- The extension and integration of these and other endemic disease programs into the health delivery systems of five developmental zones, with an estimated additional population of one million. These activities would be carried out in coordination with the Health Systems Development Project No. 660 - 057 and the planned Basic Family Health Project No. 660 - 067.
- The training and development of a cadre of Zairean health workers competent to plan and execute endemic diseases control programs.

Background:

General information relative to organized anti-malaria activities in Zaire (or Belgian Congo) has been found, as follows:

1947 - A Professor Vincke planned a large scale program for Lubumbashi and other principle localities in South Katanga.

1957 - An organization was created to coordinate anti-malaria activities, Service d'etude et de coordination de la lutte Antipaludique (SEDIA). This organization functioned until 1960 and in relatively limited areas.

1960 - Malaria control activities were reduced markedly after independence.

1960 - A consultation service for malaria was organized in 1960 by Dr. Isaria, WHO Malariologist. He was malaria and vector control advisor until December 1962.

1960 - During the early 1960s GOZ awarded contracts to private companies for aerial spraying of the city and limited house spraying for mosquito control. The population of Kinshasa (Leopoldville) was approximately 300,000. The measures were designed to protect the relatively large expatriate population and to establish a "sanitary barrier" around the expatriate population areas. Information relative to this short-lived effort, methods, results, and evaluation, is not available.

Background : Continued -

1961 - Dr.Isaris, WHO Malariologist, presented a plan for a national malaria service to the GOZ. He was unsuccessful.

1963 - Dr.A.Girault, WHO Malariologist, arrived in Zaire July 1963. His objectives were to make a country-wide survey of the malaria situation, to plan a training program for local cadre, and to prepare a plan for a national program.

1964 - Dr.Girault continued his survey and made an effort to revive SEOLA but was unsuccessful. He produced a map of the country showing endemicity levels of malaria in most regions.Concluded that the entire country is malarious, except possibly in the high altitude areas.His work was limited by lack of transport, indifferent cooperation and collaboration on the part of the Department of Health. His plan for a national malaria service was also not accepted by the Government.

1967 - Discussions were begun, relative to the integration of the anti-malaria effort into the rural health center network. There were no subsequent results from these discussions.

1970 - 73 (?) - WHO Malariologist, Dr. Thung Tung also tried to interest the Government in a malaria control program. His 2 - 3 year stay in Zaire was not productive.

1973 - USAID circulated its "AID Policy on Malaria Programs",dated 3 July 1973 . AID/Washington also sent Larry Cooper to Zaire to " review the general malaria problems and to recommend possible courses of action to overcome or modify the serious health, economic, and social impact of this disease on the citizens of Zaire." Cooper sent a summary report of his visit to Dr.William Close, special medical advisor to President Mobutu.

The ultimate emergence of the project documents prepared for the beginning of the Epidemic Diseases Project (Malaria:Measles) can probably be attributed to the"AID Policy on Malaria Programs" , the visit of Cooper, and the influence of Dr. Close with President Mobutu.

Narrative:

According to Syncrisis: The Dynamics of Health Care XIV: Zaire , Malaria is the major cause of morbidity in Zaire: Overall,an estimated 75% of the population remain outside the formal health care system.

The USAID Malaria Advisor found no staff,organization, etc., upon his arrival in Zaire, September 1977. A malaria commission,named by the MOH to facilitate the organization of the Pilot Project, did not seem to be aware of the nature of the WHO-AG concerning the Pilot Project. The Malaria Advisor found that they had begun to launch an environmental activity emphasizing drainage ditch cleaning and drug distribution in a random manner. There was no plan or possibility for evaluation.

Narrative: Continued -

Results of the environmental and drug distribution activities in four zones of Kinshasa were:

- 21,424 chloroquine tablets distributed.
- Approximately 75,000 meters of drainage ditches cleaned, approximately 14,000 cubic meters of trash,dirt,etc., removed.

AID/PHO and the Malaria Advisor were finally able to get the program back on track, according to the Pre-Ag, by April 1978. Cadre was named and the Program began on June 1, 1978.

After the actual beginning was assured,the Mission agreed to forward orders for equipment,materials, and vehicles.

The first round of spraying was applied in June 1979,preceded by a study tour to Senegal and Nigeria for the cadre in August 1978. Upon their return, a Plan of Action was prepared, the pilot project urban areas chosen. Geographical reconnaisance was carried out and and anti-malarials distributed during the latter activity.

Laboratory equipment began to arrive in late 1979, the last items of the original order arriving in March 1980. Vehicles ordered in 1978, arrived in March and May 1980.

Epidemiologist arrived in July 1980.

An external evaluation in November 1980 showed that the program activities were on time, despite delays encountered.

Description of Pilot Project Areas:

Kinshasa, Zaire with an estimated population of 2.5 million, is divided into 24 administrative divisions or zones. In the 1960s, Kinshasa (Leopoldville) had a population of 300,000.

Two zones, Masina, adjacent to the Ndjili International Airport, Njili, adjacent to Masina, and a portion of another Zone, Kimbanseke, were selected as the urban pilot project area. The area has a population of nearly 400,000. The zones are divided into collectivities or quarters. The Pilot Project further divided them, for its purposes, into sections and blocks. Rural area, in Madimba Zone, Bas Zaire, comprises 53 villages and a population of 7,200.

Methods:

Information collected on number of houses, number and age, sex of population, as well as location of sections, blocks,and streets in project areas.

Methods: Continued -

- Health education efforts made.
- Six monthly spray applications made.
- Epidemiological evaluation carried out.
- Susceptibility tests on vector mosquitos made.

Results:

- A cadre of health workers has been developed, with the capacity to plan, organise, implement, and evaluate anti-malaria activities.
- More than 100 "permanent" technical technicians and over 1000 seasonal technicians have been trained.
- One vehicle mechanic has been trained.

Spraying outputs have been:

	URBAN AREA		RURAL AREA	
	Houses Treated	Population Protected *	Houses Treated	Population Protected
1979	26,364**	192,321	-	-
1980	54,967	381,156	2,095***	7,367
1981	51,462	345,427	4,226	13,720
1982	25,148	168,138	2,243	7,092

* - Population protected directly
** - Initial application, one round. 1980;1981 - two six monthly rounds.
*** - Initial application, one round. 1981 - two six monthly rounds.
- Final spray rounds applied in 1982.

Epidemiological Outputs:

- Collected 28,443 blood smears between June and October 1981 in urban area for epidemiological evaluation purposes. Slide positivity rates (SPR) for Zones Ndjili, Kimbanseke, and Masina, respectively, were 7.6, 17%, and 11.4%, as compared with baseline levels of more than 33%. In the rural area, the SPR was 7.2% in the sprayed area and 30.8% in the adjacent unsprayed control area. Spraying has reduced the SPR in both the urban and rural areas.

- A total of 16,161 blood smears, collected during regular school surveys and malariometric studies, were examined for epidemiological evaluation purposes.

- Infant parasite surveys are conducted among the 0 -10 month age group. Approximately 300 blood smears are examined monthly. Analyses of this information will indicate trends of malaria transmission in the project area.

Epidemiological Outputs: Continued -

- During the final three months of 1981, the project's dispensary survey team visited a cumulative total of 473 dispensaries in the Pilot area, Kinshasa. Of 54,406 patient encounters, 17,327 or 32.4% complained of fever. Seventy - one percent with fever were in the 0 - 15 age group.

- Special school surveys are underway. Preliminary malariometric information has been collected from 498 schools in the 24 Zones of Kinshasa. Some 324,233 students are registered in 6,885 classes. This is believed to be the first organized malariometric effort, city - wide, since independence.

- Entomology activities included a series of susceptibility tests in the urban and rural areas before the spraying rounds were initiated. Anopheles Gambiae, the main vector, was found to be fully susceptible to DDT and Malathion, using the Standard WHO Method of testing.

- Routine entomological observations got off to a tardy start because of the difficulty of recruiting a Chief of the Section. A graduate of the National University of Zaire, with a major in Biology, was finally recruited and sent to ORSTOM, Brazzaville for a short orientation. Upon his return, indicator areas were plotted, subordinate staff recruited and trained and regular activities initiated. Main activities are adult capture by the pyrethrum - spray sheet method, larval collection, and night-biting observations. Information from adult captures by the spray sheet method, are shown below:

(1981)	UNSPRAYED AREA		SPRAYED AREA	
Month	[illegible]	[illegible]	[illegible]	[illegible]
September	1.5:1	0.8	2.9:1	0.6
October	1.7:1	1.2	4.1:1	1.04
November	1.0:1	0.3	6.2:1	0.5
December	14.0:1	1.9	10.2:1	0.3
(1982)				
January	2.5:1	0.27	4.21:1	0.12
February	6.1:1	0.96	9.43:1	0.196

[illegible] = Blood-fed/Gravid Ratio

[illegible] = Blood-fed to Human Index

These data have not been treated statistically because of the relatively short period of the observations. At this point, however, there appears to be the expected difference between captures made in sprayed areas and unsprayed ones.

Health Education Outputs:

The Health education team of [illegible], has made regular community contacts. Presentations have been made at community meetings, youth groups, civic clubs, schools, maternity clinics, community centers, markets, and other locations. Direct face to face contact for the Team during 1981, was approximately 35,000 persons.

Program Draftsman:

Produced detailed maps of all project areas. Copies of which, in addition to program utilization, have been requested from both the Kinshasa Water Company and the electric company. Such well prepared maps are unavailable in Zaire.

Transportation:

Drivers have been tested by the Malaria Advisor and the transportation kept under tight control. This is reflected in the lack of any accidents during working hours. Two trucks were damaged in [illegible] and 1980, respectively, as they were being driven by [illegible], not project drivers. The rules were changed and no additional accidents have occurred.

Food For Work:

Malaria Advisor initiated request for FFW items for field spray personnel and field entomological teams. The food was received from [illegible] Catholic Relief Service from the Food for Peace stocks. The food was repackaged and issued to the workers in the following amounts:

Bulgur - [illegible]	2,705 Kilograms
Powdered Milk	764 Kilograms
Cooking Oil	[illegible] liters

Personal Accomplishments of Malaria Advisor:

Conceptualized program plan of work and encouraged its implementation. Planned, selected, ordered, all required support materials, including laboratory and office equipment, [illegible] work space. Caused office and laboratory furniture to be purchased or manufactured locally, according to [illegible] specifications. [illegible] trucks, spraying equipment, drugs, uniforms, insecticides. [illegible] called recruitment of additional cadre and staff [illegible] training and orientation. Found study tour opportunities, [illegible] for and accompanied senior cadre to Senegal, Nigeria, and Haiti for study tours. Negotiated for and arranged short term technical training for four program technicians at ORSTOM, Brazzaville, Peoples Democratic Republic of the Congo. Initiated requests and prepared Plans of Work for several short term consultants. Have initiated and followed up paperwork and procedures for [illegible]ing and receiving off-shore commodities. [illegible] guidelines for [illegible] Protection and Preventive Action,

Personal Accomplishments - Continued

including management procedures, transportation control, purchasing, and stock control, as well as property control. Cordial relations have been maintained with the WHO Regional Office for Africa, Brazzaville. Through good relations with the Embassy General services, project shortfalls in certain repairs,maintenance,supplies,and other services are overcome.
Leadership has been provided, initiatives taken, and workable solutions or suitable alternatives to certain problems or sensitive situations have been found.

In Conclusion:

The "Malaria Pilot Project 0059", has produced a local cadre, knowledgeable about the techniques of planning, implementing, and evaluating a malaria control effort. Excessive capital and operating costs, as well as the lack of a well organized health infrastructure, prohibit the consideration of a national malaria control in Zaire. The existence of a relatively small cadre of well trained malaria specialists , already trained by GOZ, could provide a valuable, practical, and scientific resource for the developing basic health system of primary health care. These workers, well directed and adequately supported financially, could be utilizable country-wide for technical assistance in training PHC workers in anti-malaria techniques, designing and evaluating drug distribution programs, monitoring the reaction of malaria parasites to the expected proliferation of drug treatment programs.

That a specialized organization is necessary to ultimately make an impact on the reduction of prevalence and endemicity of malaria has been attested to in the Seventeenth Report of the WHO Expert Committee on Malaria,(page 21,para.(2)). It States, in part," It is evident that the limited "holding operations" of the control programs described under Tactical Variants 1 and 2 cannot be expected to have much influence on malaria prevalence and endemicity. For further progress to be made against the disease, it will be necessary to take additional measures with the object of reducing malaria prevalence."

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