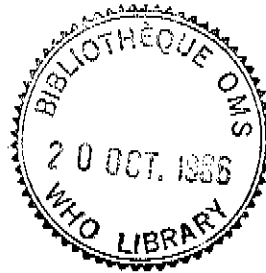




WORLD HEALTH ORGANIZATION
ORGANISATION MONDIALE DE LA SANTE

SCIENTIFIC GROUP ON THE INTEGRATION
AND MANAGEMENT OF VECTOR CONTROL IN
PRIMARY HEALTH CARE

Geneva, 4 to 10 November 1986



6694
VBC/PMO/SG/WP/86.2
ORIGINAL: SPANISH
(ENGLISH)

NOT AVAILABLE
(TRANSLATED IN
AMRO)

INTEGRATION AND MANAGEMENT OF VECTOR CONTROL
IN PRIMARY HEALTH CARE
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1. INTRODUCTION

Although vector control and troublesome pests in the 1930s and 1940s was a responsibility of the general health services, with the advent of specialized campaigns against the vectors of dengue, yellow fever, malaria, Chagas' disease, onchocerciasis, and bancroftosis, the activities carried out by the services were debilitated and ended up by disappearing, remaining at best relegated to some sporadic actions oriented to combating flies and rodents, especially in populous urban centers, and combating some species of insects that become a sanitary problem in urban areas of high social and economic level or on coastal bathing resorts periodically visited by local and foreign tourists.

Generally speaking, control measures for vectors developed by the regular health services are limited only to petrolization of cisterns, swimming pools, and other types of major water deposits that could become breeding places for mosquitoes; to the destruction of some smaller deposits; and to educational recommendations to promote the collection of refuse, the drainage of permanent swamps, and the use of mosquito nets.

Some countries with greater resources undertook environmental sanitation activities with the assistance of their departments of sanitary engineering and succeeded in finishing important drainage and channeling works that have already disappeared or, if they still subsist, have deteriorated as a consequence of the abandonment for the lack of resources for their preservation and maintenance.

With the campaign of eradication of *Aedes aegypti* initiated in the 1940s, separation of the control of vectors from the general health services also began. This campaign was followed by the campaign to eradicate malaria (second half of the 1950s), to control Chagas' disease in Venezuela and Brazil by means of insecticides, and other campaigns, such as control of filariasis (Brazil), equine encephalitis, and onchocerciasis (Robles' disease) (Guatemala).

In some countries with densely populated cities (Rio de Janeiro, Sao Paulo, Mexico City), specialized autonomous entities were established to combat certain pests (FEEMA, CETESBE, SUCEN). They continue to carry out such control, based for the most part on the use of insecticides in different formulations and methods of application, but without promoting neither the health services nor the community participation in the process.

Although there exist some examples of the involvement of the community in the control of vectors, there are also--and very dramatic ones--examples of the total failure of this participation. Such is the case of the campaign for eradication of *Aedes aegypti*, which attempted (and temporarily achieved) eradication of this vector with the use of insecticides, but did not sufficiently promote basic sanitation or behavior change in persons, who with their custom of throwing on their grounds wastes and deposits that serve as breeding places for flies and mosquitoes or conserving them for future use, as in the case of used tires, permanently maintain conditions for breeding and dissemination of the vector.

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It is clear that in order to put an end to these customs an entire process of socioeconomic development among the population would have had to be set up at the same time, which unfortunately was not done. The problem consequently worsened owing to the exaggerated natural increase of persons of limited economic resources who inhabit areas where the vectors of diseases are most abundant.

2. CURRENT SITUATION IN SOME COUNTRIES OF THE REGION

Region of the Caribbean

In almost all the countries of the Caribbean the control of vectors is carried out largely within the traditional approach of vertical campaigns, although there are exceptions, such as Barbados, Trinidad, and Jamaica. It is considered that the effectiveness of the programs, whether vertical or horizontal, is basically equal, or somewhat less in the case of horizontal actions, which put greater responsibility on the municipal and local level than on central management of the problem.

Most of the programs for vector control in the Caribbean have developed actions against a single vector, Aedes aegypti, although recently a trend has been noted toward broader control of pests in view of budgetary improvements and greater intersectoral participation.

In 1985, with the support of WHO, St. Lucia began a pilot program for vector control at the community level, putting emphasis on the control of Aedes aegypti, troublesome pests, roaches, flies, and rodents through actions related to the management of refuse and other solid wastes and the reduction of sources.

In this project, in addition to WHO, the Ministries of Health, Community Development, Agriculture, and Education also participate. As a test, in order to supplement educational action, two of the pieces of equipment ("silver boxes") sent by WHO are being employed in the community.

In Dominica, without support from WHO, a program of community development was initiated with emphasis on conferences and talks in several health centers, schools, and civic centers. In this activity the "silver box" is also used to facilitate the educational process.

Colombia

Primary care in vector control has not been used. Some short-term, isolated actions have been carried out with community participation, especially in emergency situations.

Costa Rica

In this country, responsibility of vector control lies with the Department of Control of Arthropods and Rodents (NMES) that is in charge of the programs for malaria, Aedes aegypti, and other activities for the control of harmful animal life and/or transmitters. The Department depends on the Division of Epidemiology, and its action is vertical, although with a certain degree of regional deconcentration in comprehensive health services.

In 1973 a program of extension of coverage to the rural area (PSR) was initiated in the country utilizing the infrastructure of the malaria program, which put emphasis on achieving community participation in eradication actions. With its support, numerous local health committees were set up which achieved significant advances in health education, use of mosquito nets, employment of repellents, protection of dwellings, and basic sanitation. However, today it is considered that the measures of surveillance and programmed control cannot be left to the responsibility of those committees.

In eradication of Aedes aegypti community participation has been sought through the acceptance of recommendations to eliminate the domestic sources of reproduction of the vector.

In the control of Culex sp. there are examples of community participation in the application of larvicides and the procurement of these products with the technical advisory services of the Department, especially in environmental sanitation.

El Salvador

In 1974, the Council of Ministers recognized that the malaria problem could not continue to be the responsibility only of the Ministry of Health but rather that all the country's population should be involved.

A start was made by programming integrated actions in the area of the future international airport, especially environmental sanitation works, with the cooperation of other sectors (defense, public works, agriculture). In 1978, plans were prepared to eliminate breeding places of anophelines with community participation in some localities of the Department of Chalatenango. The number of promoters was increased, who at the present time have the mission of obtaining community participation in the reduction of breeding places with the support of resources coming from other sectors, for example, heavy equipment dredging of lagoons, drainages, opening of channels, etc. (see Sketch 1 and 2). Already there more than 157 works of this type have been carried out in municipalities of La Libertad department on the southern coast of the country. The community participates in the works and is responsible for their maintenance.

Sometimes support resources (equipment, advisory services, etc.) are requested from international agencies, such as AID, or from cooperatives that operate in areas where the process of agrarian reform has already been established. These cooperatives usually contribute tractors or other equipment and funds for payment of the wages of local personnel. At the current time there are more than 60 cooperatives that participate in plans for vector control of malaria, both in the sanitation works already mentioned and in household spraying with insecticides or the application of larvicides in selected breeding places (see Sketch 3).

In our opinion, the activities of vector control that are carried out in El Salvador with community participation are perhaps the most exemplary of the Region.

Guatemala

The verticalism is maintained in this country regarding vector control. Nevertheless, some examples of separated activities that have been carried out with the community participation are given, even though they have been promoted by the control programs instead of the health services.

Some owners of farms participate in the control of simuliid vectors of onchocerciasis, giving personnel that properly trained apply insecticides in breeding places of black flies.

The anti-Aedes aegypti campaign promotes the sanitary education among local communities in order to eliminate breeding places and used tires. Some positive results have been reached.

In a separated test with B. thurigiensis for the control of anophelines a certain intersectorial collaboration was achieved to the cleaning of treated breeding places.

Haiti

In Haiti there are two entities that work in vector control, both dependent on the Ministry of Health: The National Service of Major Endemic Diseases (NMES) and the Division of Public Hygiene. The first is an autonomous entity that maintains a vertical situation within the administration. Its principal actions are directed to the control of malaria through the spraying of residual insecticides, the distribution of drugs, and the application of larvicides. It also combats other troublesome pests with spatial applications of insecticides (ULV).

The second entity deals with the control of Aedes aegypti and other mosquitoes such as Culex sp.

Although in Haiti conditions exist for true community participation in the control of vectors, this is not taking place at the time. In the past, the community was involved in the drainage, filling, and cleaning of breeding places in some localities, but this participation was paid for in money or in consumer goods.

Honduras

This country has put into action a policy of primary health care, but rules good enough have not been given to maintain this. The activities of vector control were integrated within the system of General Services many years ago. However, they are done with specific personnel coming from the old malaria eradication campaign. The community participation within the context of primary health care has been looked for in order to obtain the maintenance of some works on larval control (drainages and cleaning of breeding places), in coordination with the community development promoters, and for the recollection of mosquito specimens and triatomines for their prior identification in the laboratory.

Paraguay

Community participation in programs for vector control in Paraguay has been located among the activities of voluntary collaborators. These collaborators, who at the beginning were trained to take blood samples for the diagnosis of malaria, were subsequently trained to identify anophelines and triatomine for the purpose of monitoring entomologically the advances of the malaria program or determining the geographical distribution of the transmitter species of Chagas' disease. With this procedure the distribution of triatomine in the country was determined over an area of more than 350,000 km² of the national territory, in addition to the index of household infestation, which showed that 14% of houses were infested with Triatoma infestans.

Suriname

Malaria control activities in Suriname in the interior of the country are the responsibility of the primary health care level, inasmuch as an agreement delegated the corresponding actions in the interior of the country to the Medical Mission, a private entity financed jointly by the governments of Suriname and certain religious organizations. In 1983 this entity assumed the execution of antimalaria activities together with those carried out by the formal control campaign. Even so, coordination between the two entities has not been as good as might be expected, and the Official Campaign has succeeded in considering that the Mission is dangerously separated from the official regulations in force as, for example, the suspension of certain spraying activities with insecticides previously programmed.

In accordance with recent information, it is considered in Suriname that the integration of vector control within the primary care level has not been successful, since the official antimalaria program still maintains its vertical structure and the activities are carried out by the two groups separately.

In Suriname it is hoped that prompt deliberations and suggestions will soon take place that will lead to progress in this important matter.

Venezuela

This country firmly supports maintaining the vertical system of vector control measures; however, there are two examples in which certain interest is shown in a more integrated approach.

One is the program of control of Chagas' disease, which is facing serious financial difficulties, which are reflected in a reduction of the triatoma control activities. This has awakened growing interest in promoting community participation in improvements in housing to impede colonization of the vectors of the disease. These activities are promoted jointly with the development of other programs for housing maintained by the Ministry of Health, especially in the states of Cojedes and Trujillo. Currently, research proposals are being carried out with the support of universities, TDR/WHO and the Government in order to determine the scope and the benefits of community participation in the control of Chagas' disease.

Another example is found in Sucre State, where an epidemic outbreak of malaria has taken place, after the state territory was in the maintenance phase. The central authorities decided that the local PHC level should participate actively in the solution of the problem. The program has been initiated with a plan of progressive training sessions of the components of the General Health Services in epidemiology and control of malaria, including aspects related to community participation. In this process the Epidemiology and Malaria Control Modules developed in PAHO/HPT are being used successfully.

3. TRAINING REQUIREMENTS FOR PRIMARY HEALTH CARE AND COMMUNITY WORKERS IN VECTOR CONTROL

Local health and community workers are assuming greater responsibility for vector control, but they are usually inadequately trained in the methodology of this discipline. The kind and degree of training for community workers is different than that required for the highly specialized personnel of the traditional, vertically structured eradication campaigns. The level of difficulty and degree of specialization of the subject matter taught will depend on the level of education of the workers and the number of other activities in which they are involved. These factors differ with each country and region, and the courses must be adapted accordingly.

As a general rule, the amount of material for them to learn should be minimal, the level should be unsophisticated and the skills they must acquire should be simple. Didactic material should be written in a short, simple, straight forward manner, giving appropriate examples of each point made, and with copious illustrations. Training modules should be developed for the different levels of responsibility and supervision (eg. epidemiologists, entomologists, field supervisors, brigade chiefs, field inspectors) depending on the organizational structure of the health system. Participants in higher level courses should act as "multipliers," organizing and teaching local courses for their charges at the next lower level.

The more involvement at the local level in the planning, organization and teaching in a course, the more enthusiasm and support will be obtained.

Field personnel involved in vector control may be divided into two categories: the "generalist" and the "specialist." The generalist is involved in many other activities in the field, such as vaccination campaigns, distribution of oral rehydration salts, food hygiene, etc. He should know the rudiments of vector biology and control, in order to recognize and resolve most vector problems that arise.

For example, in relation to Aedes aegypti infestation, he should be able to:

1. Explain to the householder what is the importance of the mosquitos with regard to disease transmission, and why and how he should avoid mosquito breeding on his premises.
2. Distinguish, by unaided eye, among genera of larvae of Aedes, Culex and Anopheles.
3. Inspect houses, collect larvae and adults, complete inspection forms.
4. Deploy and monitor oviposition traps.
5. Treat breeding sites with larvicide application and by destruction of non-useful containers.

The specialists, on the other hand, is a worker who devotes all of his time to vector control and has specialized functions, requiring a higher level of training in such areas as:

1. Space spray treatment of neighborhoods with portable or vehicle-mounted equipment.
2. Microscopic identification of vector species.
3. Microscopic detection of eggs from ovitraps.
4. Interpretation of results of field inspections.

At the beginning of a course, it is important to establish the level of vector control knowledge of the participants, preferable with a written test. During the course, frequent quizzes should be given to detect communication problems on the important points. After each quiz, the questions and answers should be discussed with the participants. If many of the participants are not absorbing the material sufficiently, the pace of the course can be decreased at the very beginning.

During the presentations by the instructors, they should frequently ask questions to the participants. If the instructors memorize the names of the participants on the first day of the course, it will be much easier to monitor each one, and they will feel that they are receiving more personal attention.

Field exercises, with careful supervision of each participant, are important. Simulations can also be useful: For example: "You are in a town with such and such Aedes aegypti infestation. A case of dengue occurs. What should you do?"

A "seminar" or "workshop" approach is frequently more successful than a "course." Instead of listening passively to lectures, the participants are invited to present the vector control problems of each of their zones, and the other participants assist in developing solutions to those problems.

4. FINAL COMMENT

AMRO considers it fundamental that in order to achieve general health services participation in the control of disease vectors, strong motivation of all the persons involved in the process must first be obtained. For this purpose, it is necessary to begin to train the necessary institutional personnel with all basic knowledge, both technical and in the social sciences, so that implementation of the system is successful. Nothing can be hoped for if pronouncements become only manifestations of good intentions that are made by small groups of officials responsible for control at the central level. These declarations do not lead to laying down solid bases so that a sustained program may be implanted and

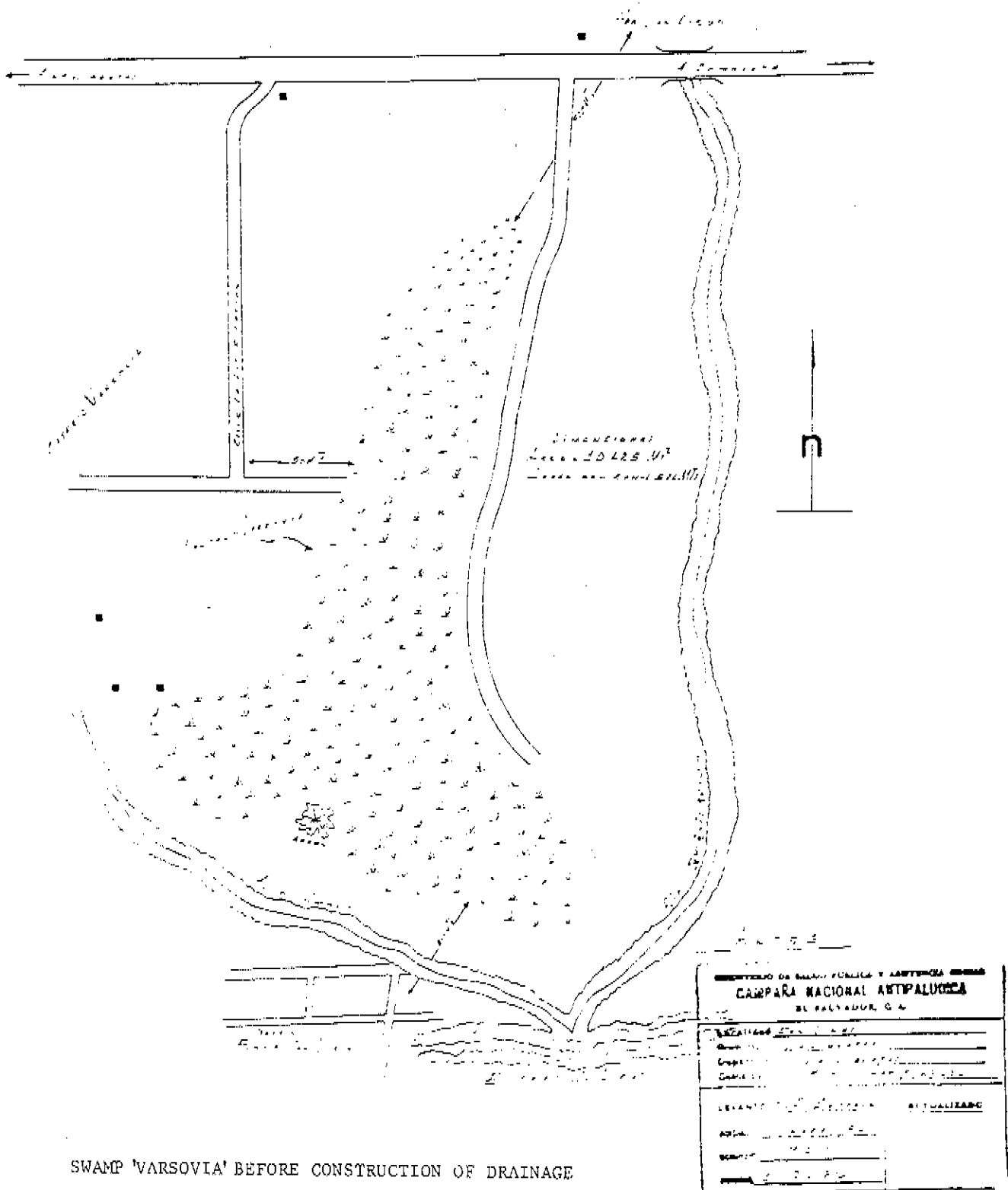
maintained. Isolated efforts are currently being carried out that constitute good examples of the interest that some countries have in strengthening the process of vector control within the strategy of primary care and with intra- and extrasectoral and community participation. However, although the potential of the community is large, the motivations that are currently being utilized are limited.

In order to take a firm step in this field, it is necessary to first prepare personnel that knows how to work with communities and how to motivate them, help them to identify their problems, convey knowledge to them in an adequate manner, and give them the necessary moral and material support during the entire process. This personnel would in reality become a highly specialized team that would work jointly within a community or a group of communities affected by a problem in order to identify their characteristics, the persons who could solve it, and those who would subsequently take charge of maintaining the actions undertaken.

If this is not the case, we believe that it would be unrealistic to hope that workers in a general health service at the local level could successfully face a problem of vectors, which are elements of the epidemiological chain that traditionally have demonstrated greater capacity for adaptation and survival in an environment where their natural enemies also live and where weak control measures are only occasionally undertaken against them.

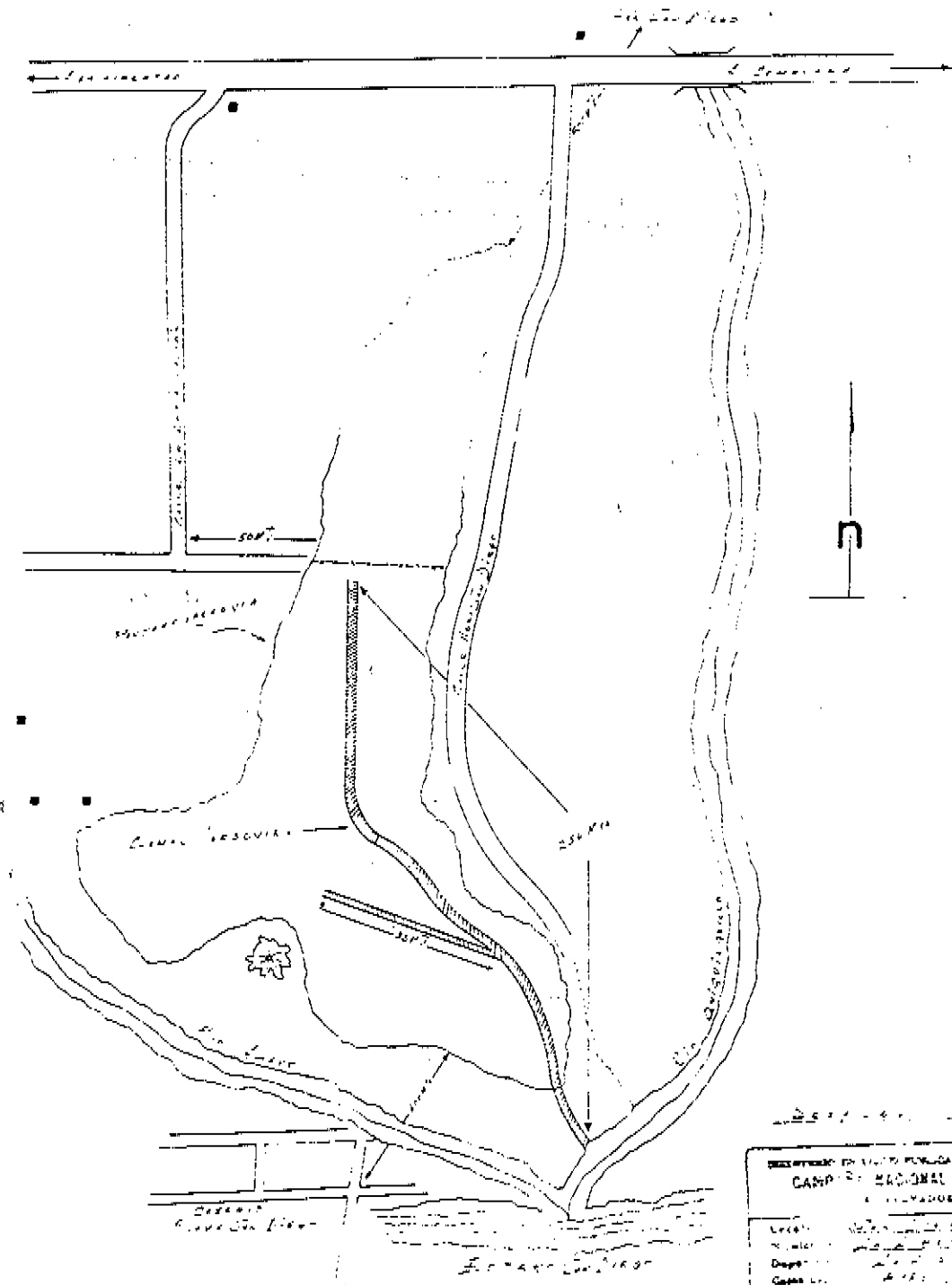
REFERENCES

Reports from above-mentioned countries.



SWAMP 'VARSOVIA' BEFORE CONSTRUCTION OF DRAINAGE

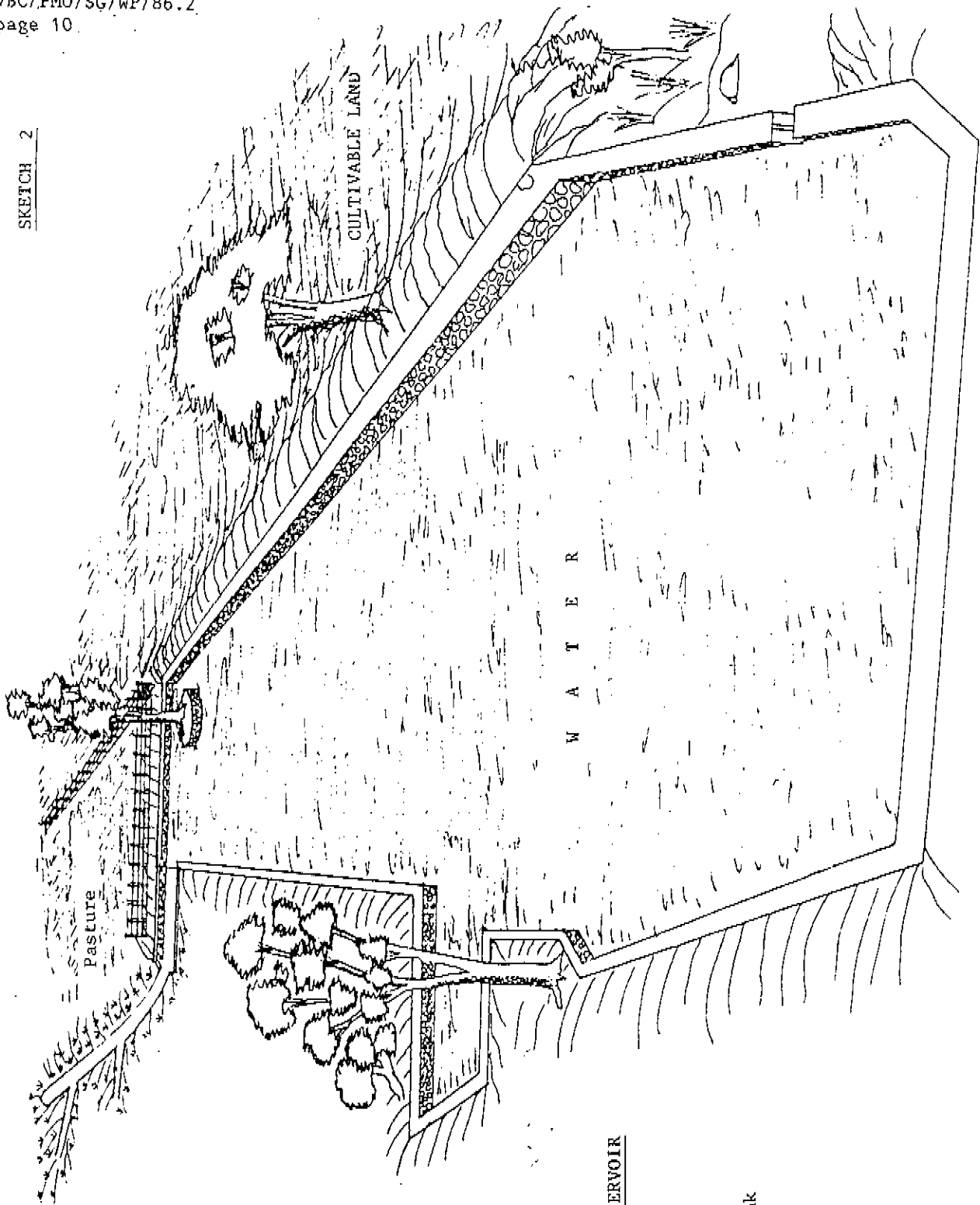
SKETCH 1-A



SWAMP 'VARSOVIA' AFTER CONSTRUCTION OF DRAINAGE
WITH THE PARTICIPATION OF THE COMMUNITY

DIRECCION DE OBRAS PUBLICAS Y SERVICIOS SOCIALES	
CAMP. DE SERVICIOS ANTIPALUDICOS	
EQUADOR, C.A.	
Localidad:	...
Fecha:	...
Scale:	...
Author:	...
Editor:	...
Printer:	...
Scale:	...

SKETCH 2



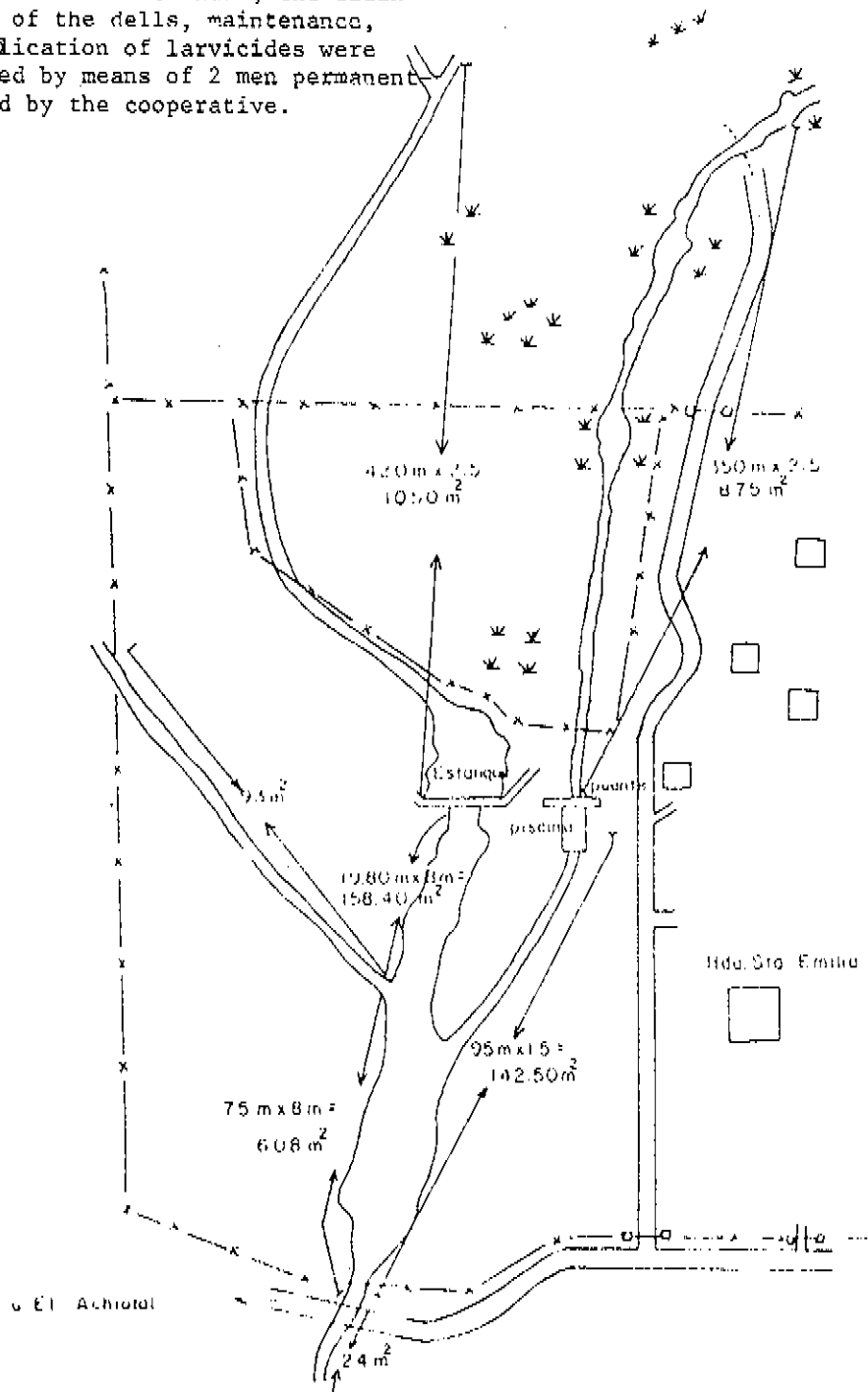
DESIGN OF RESERVOIR

Cas. El Caribal
C/. Bananera
M/. Conchagua

Seen by South flank

SKETCH 3

Note: In this "Hacienda", the cleanliness of the dells, maintenance, and application of larvicides were obtained by means of 2 men permanently paid by the cooperative.



WORKS DONE IN THE "SANTA EMILIA HACIENDA" WITH THE PARTICIPATION OF THE COOPERATIVE OF THE "HACIENDA"

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