

LEISHMANIASIS CONTROL STRATEGIES

A CRITICAL EVALUATION OF
IDRC-SUPPORTED RESEARCH

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Leishmaniasis control strategies


Leishmaniasis control strategies: A critical evaluation of IDRC-supported research

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A Strategy For Control Of Cutaneous Leishmaniasis Through The CIMDER's Primary Health Care Model

Jaime Becerra¹ and Marleny Muñoz²

Introduction

Three years ago Kenneth S. Warren, honoured by the London School of Hygiene and Tropical Medicine with the Heath Clark Lecture, brought into discussion the old conflict between tropical medicine and tropical health, between scientific research and public health. The antagonism between Sir Patrick Manson and Sir Ronald Ross served as the historical reference to dissect the evolution of the two fields. Although both men were clear about the goal of "science for development" differences appeared when considering the means to this end. Manson's interest in the strength of biomedicine represented scientific research for development, while Ross's concern with operation of results acted in the name of public health for development. Warren's main conclusion seems to be a good reference point to keep in mind during our paper: **"Today, the conflict between tropical medicine and tropical health is being resolved with the realization that they are truly complementary disciplines"** (Warren 1990).

The inherent complexity of tropical diseases is fertile ground for allowing the settlement of multiple disciplines. The study of diseases occurring within the zone lying between the Tropics of Cancer and Capricorn, has been a multidisciplinary effort. In 1975, when the World Health Organization (WHO) initiated its Tropical Diseases Research Program (TDR), a new age of tropical medicine was established. Since then, a large amount of money has been allocated by institutions like the Rockefeller Foundation, the International Development Research Center (IDRC), WHO, the MacArthur Foundation, and others, to the study of the biomedical aspects of parasitic diseases. The results have been striking, especially in the fields of molecular biology, biochemical pharmacology and parasitology, to the understanding of host-parasite relationships, the refinement of diagnostic tools and the path towards vaccine development (Warren 1990).

An important proportion of funds has also been devoted to the inquiry of priorities in terms of sociology and economics (UNDP/World Bank/WHO-TDR 1980; Rosenfield, Goladay, Davison 1984). Today, there is a better understanding of factors neglected in the past: the behaviour of man in the cycles of transmission, mobility and migration as a key factor in the perpetuation of disease, and the microfocality nature of transmission, among others (Gillet 1985; Mata 1982; Sevilla et al. 1988; Bonilla et al. 1991).

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The interdisciplinary approach has been tried at least with some of the tropical diseases (UNDP/World Bank/TDR 1980). It is clear that when a science requires information coming from another science to solve problems in such a way that an interaction to transform the science is established, the interdisciplinary approach is real. In this sense, the impact of interdisciplinary teams working directly towards the control of tropical diseases remains to be evaluated.

The model we propose at this meeting is the result of a joint effort between two Colombian research institutions to move forward in the study of tropical diseases. The International Center for Medical Training and Research (CIDEIM), and the Center for Multidisciplinary Research on Development (CIMDER), are working together in order to combine the experience of the two institutions to develop a strategy based on social participation to control Cutaneous Leishmaniasis in the Colombian Pacific Coast. This initiative is an encouraging example of interdisciplinary cooperation for research and research for development. CIDEIM is a center with broad biomedical experience, having explored for more than a decade the clinical, parasitological, immunological and epidemiological aspects of leishmaniasis (Weigle and Saravia 1990). As a complement to this, for more than 15 years CIMDER has been involved in health services research and development. CIMDER has designed, tested and evaluated Primary Health Care (PHC) strategies, technologies, and training models which have been used at the local, national, and international levels (Salazar 1991).

Our hypothesis is that through the implementation of a PHC strategy currently operating in Colombia, adjusted to the particular reality and characteristics of cutaneous leishmaniasis, we will be able to develop a model for control suitable not only to leishmaniasis but to other tropical diseases as well. Using Kenneth Warren's words: We have realized that we had been applying complementary approaches waiting to be merged as a synergistic tool.

CIMDER's Primary Health Care Model

CIMDER is a non-governmental organization (NGO) nested within the Universidad del Valle, the third major official university in Colombia. Our group started as a multidisciplinary team in 1974. The changing realities, needs and resources at the community and academic levels compelled us to shift towards an interdisciplinary approach to research, although we hope in the future to evolve to a transdisciplinary stage in which a total system with no definite frontiers between disciplines, no definite frontiers between communities and researchers, is possible.

Since the founding of the center we have been devoted to Operative Research, defining our mission as: **the design of strategies to increase wellbeing of communities taking the health sector as the starting point.** Years before the Alma Ata Conference, we were working to approach development based on many of the principles later covered by the PHC concept (WHO 1978). From our perspective **PHC is defined as the local**

and permanent production of individual, collective, and institutional answers to the health problems. The model we have created is aimed at the development and strengthening of this production ability, focusing on three sectors as the target of actions: Community, Municipal Administration, and Health Institutions (Figure 1).

Every sector has been assumed as an avenue of research to carry out studies concentrated on the design and testing of methods and technology to improve the model. Following, we will summarize some characteristic components of this model with special emphasis on the community sector.

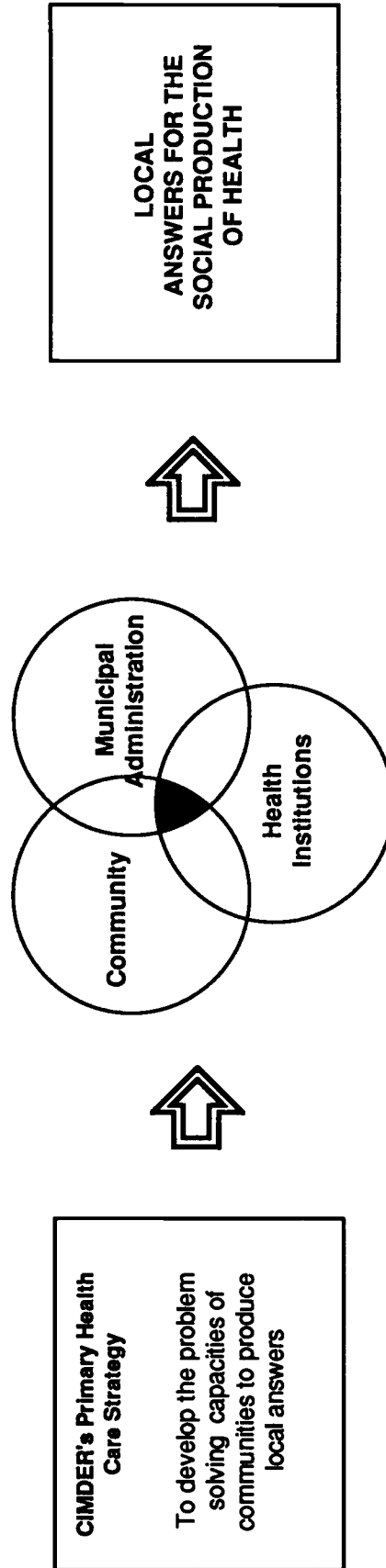
At the community level, work has focused on family leaders, community health workers (health promoters), and health volunteers. In the case of family leaders, we consider the mother as the center of actions. We have designed a participant pedagogy strategy called "**School for Mothers**", with the following objectives:

- i. To increase the mother's problem solving capacity in PHC.
- ii. To promote self-care in health.
- iii. To favour creation and strengthening of groups, community participation, and municipal development.
- iv. To identify health problems, exposed people and priority risks.
- v. To transform the home into an integral part of the first level of health attention.

The educational methodology created to cover these objectives is a non-formal education program and a technological package produced using participatory criteria (Salazar and Becerra 1989). The final product is a transformed woman looking at herself in the mirror of self-esteem and determination. The instruments used to implement "School for Mothers" are intended to produce an act of appropriation by the mother. The *Health Educator Handbook* may be used by the mother to empower other mothers via a mother-to-mother teaching process. The handbook *Let's Talk About Our Health: Solutions to Prevent and Cure at Home*, is a practical and easy-to-use manual written in a colloquial style to implement risk focused health education at the household level. The *Health Advisor* is a sort of health file to give a quick help to solve specific health problems. The *Risk Identification Card* is a tool to help mothers identify risk factors existing at home and in the community. Finally, a Family Learning Network, a Knowledge Transmission Network, and a Solidarity Network are achieved.

Currently, there are "Schools for Mothers" in nine Colombian states, and during the last two years 1,134 mothers have been educated through this program. "School for Mothers" has been adopted by UNICEF in Colombia in order to strengthen the 55,461

Figure 1
CIMDER's Primary Health Care Model



Welfare Homes with community mothers who are supported by the Colombian Family Welfare Institute and take care of 831,915 children.

Working with Health Promoters, who are community health workers paid by the state, is another front of community action pursued by the CIMDER PHC model with the following objectives (Salazar 1990):

- i. To endow the Health Promoter with methodologies and instruments to help them to effectively perform their functions.
- ii. To generate a community health worker profile appropriate to community needs, historical conditions, and local reality.

To reach these objectives the Health Promoters have a technological package with the following tools: A community-based Health Information System, a Micro-Health Post, a tri-coloured strip to assess children's nutritional status, a modified Snellen Table, and a multi-pocket bag. Approximately 20% of the Health Promoters in Colombia have been trained with this methodology.

The Health Volunteers are members of the community, non-paid, and usually women, who represent another effort to integrate people, non-formal education, community participation, and the social production of health. The objectives of this work are:

- i. To strengthen the capacity of the health volunteer to use methodologies and instruments to generate answers to health problems at the local level.
- ii. To promote a process of improvement of living conditions.
- iii. To encourage the use of simple and uncomplex instruments to plan (diagnose, program, execute, monitor, and evaluate) health actions.
- iv. To transform health volunteers into active subjects and not collaborative objects.
- v. To establish a mechanism to increase coverage in the health sector.

At present, around 7,680 health volunteers are deployed within 13 Colombian State Health Services. At the municipal level, our work has been directed to the Community Participation Committee, a governmental instrument created to regulate community participation. The objectives of this work are:

- i. To design Strategic Planning tools to be used in the health municipalization process. This way, the power of communities to co-manage health with state and local directives, must be strengthened.

- ii. To generate methods, instruments and mechanisms to process information at the municipal level to establish an input to the decision taking process.
- iii. To fortify the communication process between the health sector and different community groups.

At the institutional level work has been focusing on increasing efficiency, technological development, and the generation of a culture of dialogue between the service givers and takers at local and university hospitals. Software packages and workshops have been developed to help at crucial points in the hospital administration: supplies, personnel, finance, costs, information, systems, leadership.

A Model for Control of Cutaneous Leishmaniasis

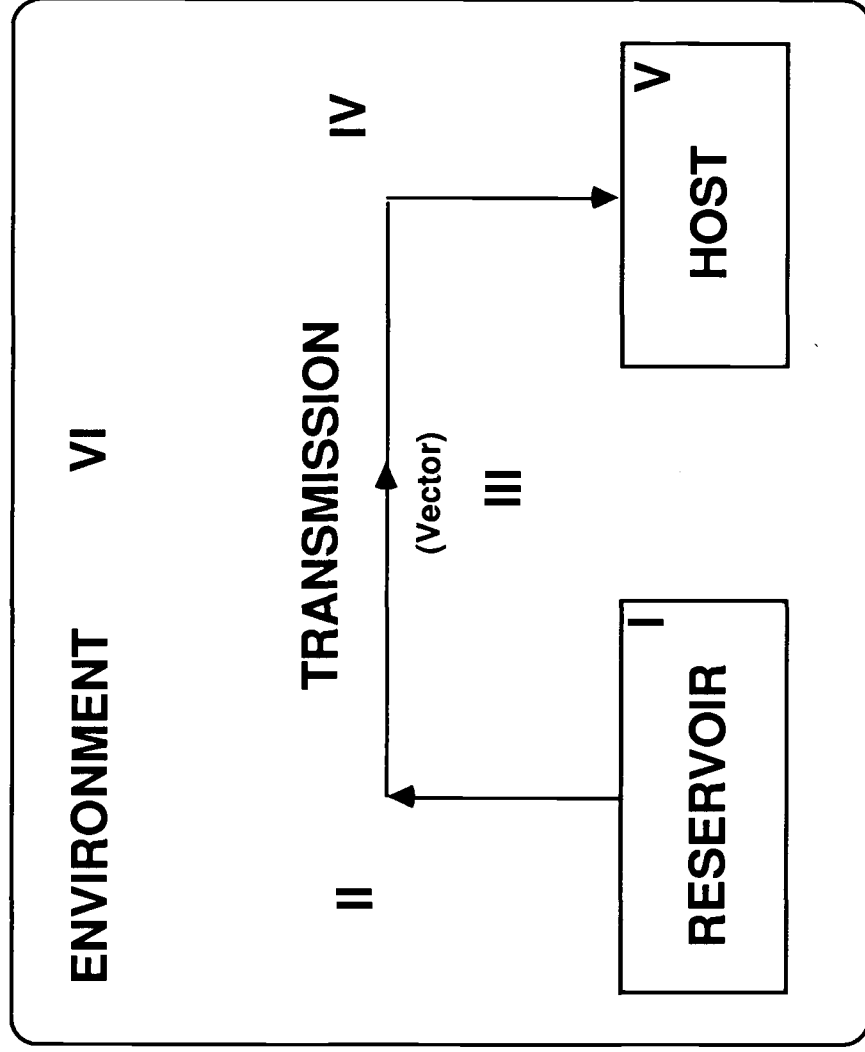
Our starting point is a theoretical model for control of infectious diseases developed by Alzate at the Universidad del Valle (Alzate 1987). This model has been applied to the training of medical and postgraduate students in public health and epidemiology, and to cost-benefit appraisal of public health interventions. Four elements are considered in the model: reservoir, transmission, host, and environment (Figure 2).

We consider a reservoir to be any person, animal, arthropod, plant, soil or substance (or combination of these) in which an infectious agent normally lives and multiplies, on which it depends primarily for survival, and where it reproduces itself in such manner that it can be transmitted to a susceptible host. The transmission is any mechanism by which an infectious agent is spread from a source or reservoir to a person (direct, indirect, and airborne). The host is a person or other living animal, including birds and arthropods, that affords subsistence or lodgement to an infectious agent under natural conditions (Benenson 1985). The environment refers to the physical and social conditions around transmission.

Six strategies for control are derived from these elements:

- I. To keep the size of the reservoir to the minimum.
- II. To avoid the entrance of the infectious agent into the environment.
- III. To interrupt transmission.
- IV. To avoid the entrance of the agent into the new host.
- V. To improve the resistance of the new host.
- VI. To modify the whole environment.

Figure 2
A Model for Control of Infectious Diseases



(Modified from Alzate, A., 1987)

It is not our aim to oversimplify the extremely diverse array of disease manifestations produced by the different leishmania (Walton, Wijeyaratne, and Modabber 1987). However, for brevity's sake, we will restrict our proposal to cutaneous leishmaniasis keeping in mind the similarity in the transmission cycle for the group of diseases that constitute the leishmaniasis.

A strategic plan combining control measures dependant upon the epidemiological characteristics of the foci, has been advocated in the past (Marsden 1984). Insecticide spraying to attack the vector, destruction of animal reservoirs, and the treatment of infected people have given some successful results in few countries. However, the fact that leishmaniasis is a neglected disease, ignorance about insect vectors and animal reservoirs especially in forest leishmaniasis, and the lack of a good pharmacological support against the disease, presents obstacles for implementing these measures in many cases.

PHC as an option to integrate leishmaniasis control has been reviewed (WHO 1990; De Raadt 1987). Some of the advantages are that: (i) wider geographic coverage of control activities can be obtained; (ii) continuity of activities is enhanced since the responsibility for implementation rests in the hands of the population affected; and (iii) the cost of the strategy is low.

Figure 3 presents the proposed model for the control of Leishmaniasis. In general terms, it could be considered a "package deal" to interest the community in the whole problem of the social production of health. Three synergistic strategies ("Schools for Mothers" implementation; Community Participation Committees functioning; and Health Institutions support) would be directed mainly towards two points in the disease cycle: transmission and host. The lack of information about the reservoir and some ecological and socioeconomic constraints to environmental modification do not limit the pursuit of these aspects, at least currently.

The "Schools for Mothers" process which seeks to change attitudes and behaviours through knowledge appropriation, gives rise to real community participation in the choice of technological options for leishmaniasis control (Figure 4). The decision to use insecticide-treated bed nets, repellent soap, insecticide spraying, or protective clothing, is taken by the people. Researchers and PHC agents play roles as catalysts who offer appealing possibilities, options and suggestions, not impositions.

The recent cholera outbreak provided a good opportunity to test a partial application of this model. Since June 1990, community work was started with a "School for Mothers" at the Lower Calima, a region near the Colombian Pacific Coast. A year later, when the cholera epidemic arrived from Peru, the 2,784 inhabitants of the zone were organized, prepared and in good condition to face the problem. The net result was a cholera rate around 7 per 10,000 contrasting with the 1-3% at the surrounding area (Collazos and Gutiérrez 1991).

Figure 3

A Model for Control of Leishmaniasis with CIMDER's Strategy

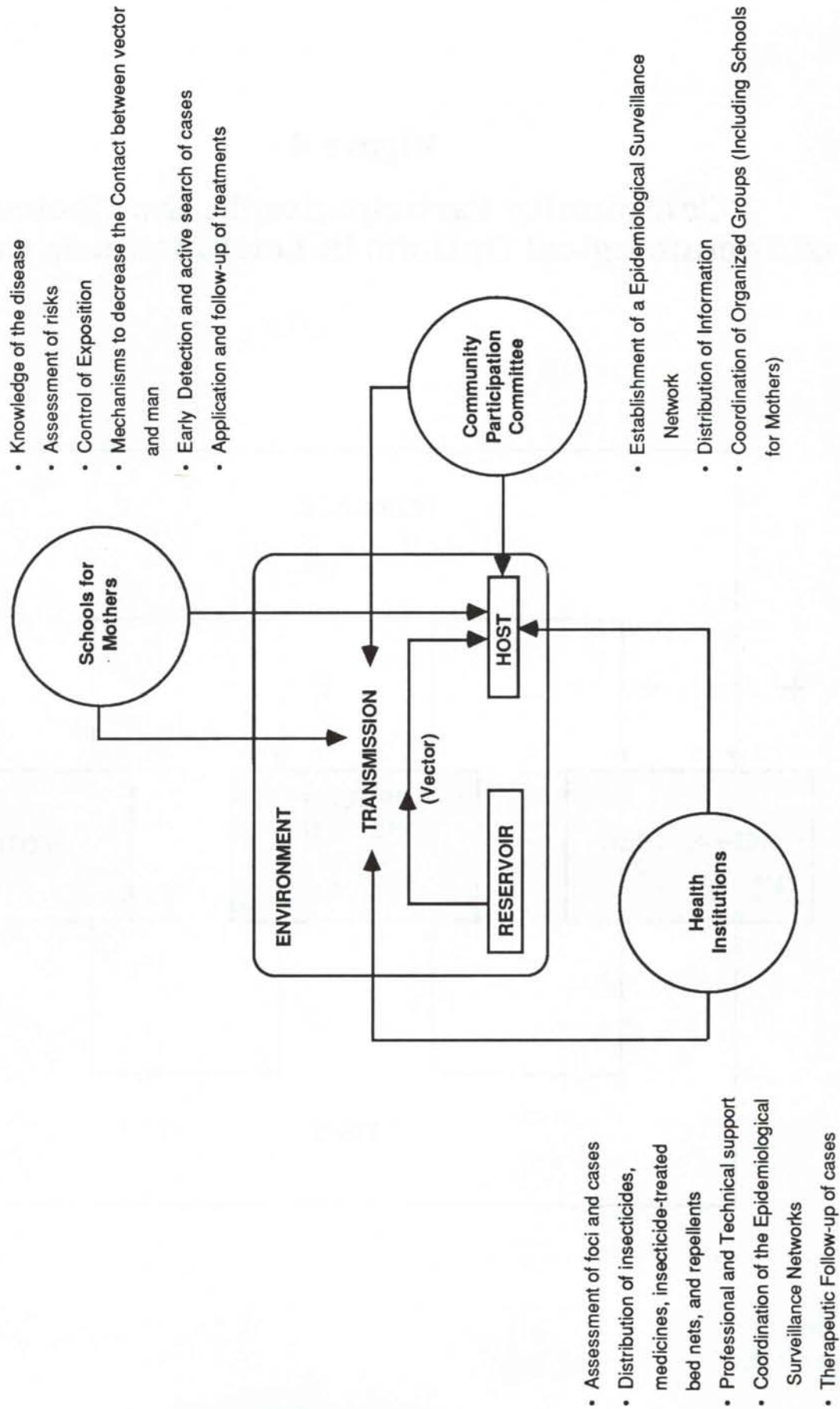
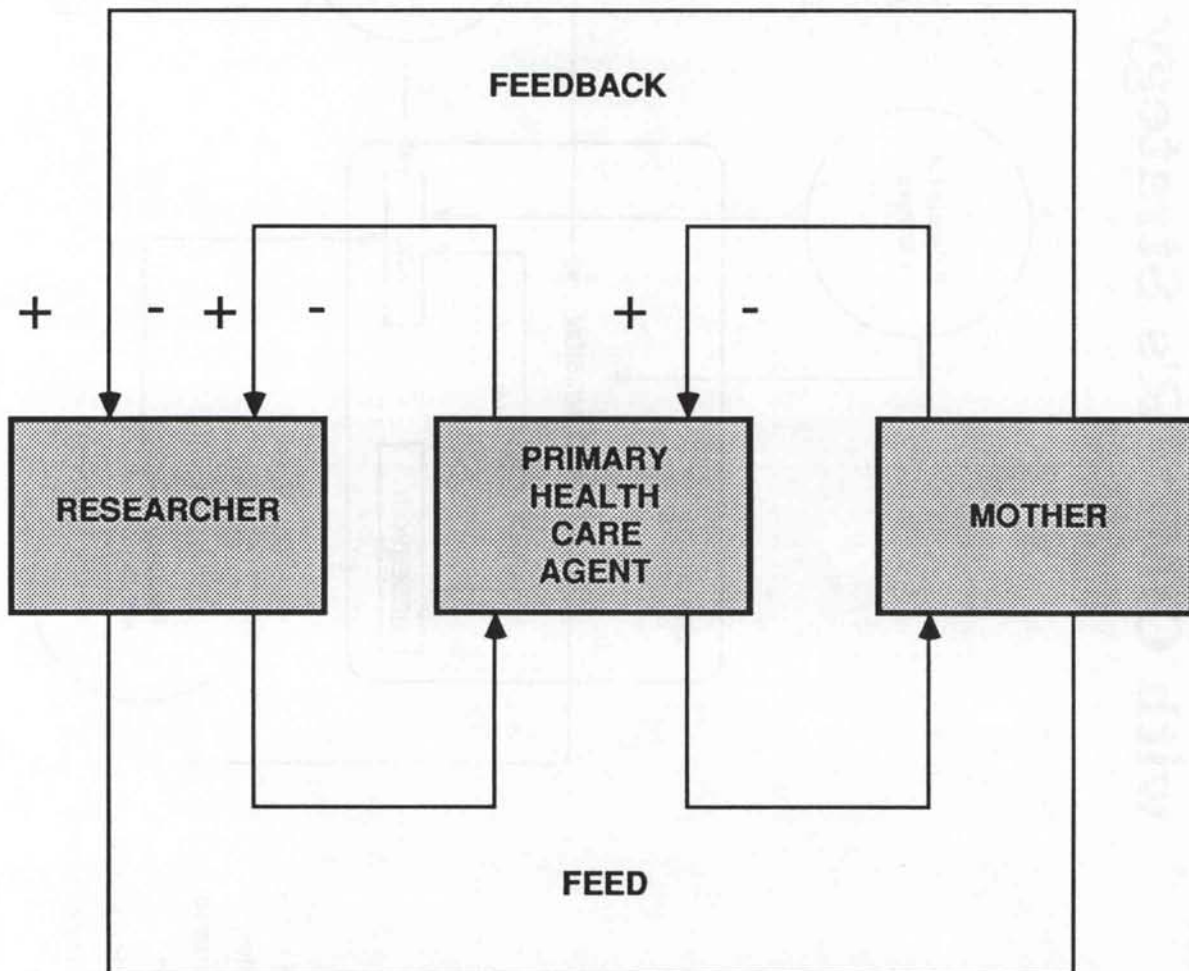


Figure 4
Community Participation in the Choice
of Technological Options in Leishmaniasis Control



Conclusion

Since 1978, when the Alma Ata conference outlined the principles of equitable distribution, community involvement, focus on prevention, appropriate technology, and multisectoral approach to define health for all by the year 2000 as a goal, the disease-targeted approach to control tropical diseases shifted to primary health care (Warren 1990). The political decision taken by more than a hundred countries to obtain a **"level of health that will permit the people to lead a socially and economically productive life"**, established a golden age for primary health care. The option for a selective or a comprehensive approach was later developed (Walsh and Warren 1979). However, even when choosing selective primary health care as the initial strategy to control, its nature of transiency was clear. When regions, countries and programs are asked for results, and this includes tropical health, it is realized that we are at some point on the way to health for all, far away from the beginning but also far away from the goal (WHO 1990).

Recently it has been noted that the conflicting viewpoints polarizing the health policy debate (i.e. selective versus comprehensive primary health care, integrated versus vertical programs, preventive versus curative services) is a confounder because the options are limited to actions that can be carried out by ministries of health (Jamison and Mosley 1991). There is an urgent need to gather, analyze, and concentrate all the available information coming from different fields accepting that they are all pieces of the puzzle. What we need, is a pragmatic approach to the problem of tropical disease control to develop a versatile model to apply at the local level. This model must consider health as a social product and not merely the result of a single sector action. Within this conceptual framework the goal should be the strengthening of the resolute ability of every community to produce answers against tropical diseases.

Acknowledgements

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