3) Contribution to resource saving

Through spending resource on preventive maintenance and standardization, reduction of repair cost and efficient use of facilities and equipment will be achieved. Better maintenance and repair system will make the project cycle of equipment longer, thus, cost for equipment will be saved.

6.3 Program for Poverty Area

6.3.1 Program for rural poverty area

(A) Goals and targets

The goal of the model health program for the rural poverty area is to promote preventive health awareness and to develop a "healthy village" model through strengthening of social participation capabilities and improvement of living conditions of the community members, as part of an integrated rural development model. The concept of the "healthy village" includes not only the aspects of health sector but also the ones of income generation and health-related infrastructure, which includes the following ideas:

- A village where the inhabitants live in safe and clean environment with good accessibility to public health services, basic health-related infrastructure, and primary education
- A village which has its own self-reliant community organization working for health promotion in the communities
- A village where the inhabitants actively participate in health promotion activities for the entire community with understanding importance of health
- A village where the inhabitants can equally enjoy the outputs of the health promotion and income generation projects

Major target group of the program is the entire population living in the catchment area of La Esperanza Hospital. The beneficiaries of this program will be the people of the Dept. of Intibucá, which is 124,681 inhabitants. The municipalities of La Esperanza and Yamaranguila were selected to develop model projects for entire program implementation.

(B) Development concept

- Concentration on prioritized strategies clarified using the proposed matrix (refer to Figure 7)
- Promotion of participatory development
- Contribution to the development of a "healthy village"
- Strengthening coordination among related organizations

(C) Model project

The model program is composed of the following two priority model projects. These two model projects are to be integrated to function as the core projects for developing the "healthy village" model program and extending it to the entire area of the Dept. of Intibucá. The Figure 8 shows the position of the two model projects for developing the "healthy village" program.

(1) Model project 1: Establishment of "Healthy Village Training and Extension Center" (refer to Figure 9)

1) Objective

A Healthy Village Training and Extension Center will be established in order to promote community activities by providing base facilities and institution building for community development organizations, to improve community members' cultural accessibility to health services, and to improve nutrition conditions and income generation opportunities

2) Components

- To provide institutional strengthening of existing committees
- To provide health and food preparation education for community leaders
- To provide technology transfer related to planning and implementation of water resource development project
- To provide community members with basic agriculture knowledge and practice
- To operate demonstration farm located near the training center
- To operate an equipment lending system on a fee basis
- To establish farmers' cooperative to facilitate access to community funds
- To provide good quality seeds and training on use of pesticides and fertilizers
- To provide practical training in small scale food processing and food preservation
- To provide marketing skills and sell the products in the center

3) Management

Implementation organization:	MSP Health Region 2 (Health Area 2 Office)
Coordination required:	Intibucá governor's office, Municipal governments, AMHON, Sec. RRNN, SEP, SANAA, FHIS, PRAF, BANADESA and ACCESO project

4) Effectiveness

a) Contribution to the decentralization policy

Community development organizations including CODEP and CODEMs are to be well organized and well functioning. It will help improve project planning and implementation

capabilities of the local governments and communities and then contribute to smooth promotion of decentralization.

b) Contribution to the problem-strategies Matrix proposed

Through the activities of the Center, the social participation will be strengthened and institutionalized. As for the improvement of health education intervention, the Center will contribute to effective dissemination of information on living conditions improvement, appropriate to actual local needs through its health education and demonstration activities. Water supply and management systems will be also improved through community activities led by CODEMs utilizing the knowledge and the equipment provided by the Center, which will improve the accessibility to water and basic sanitation in the communities. Improvement of the agriculture production for home consumption and income generation will contribute to promotion of the strategies of poverty alleviation and improvement of access to food.

These strategies will promote effective use of the limited human and financial resources. High IMR, MMR, malnutrition, poor access to water and basic sanitation, which are priority health problems in the rural poverty area, will be lessened.

(2) Model project 2: Improvement of community members' accessibility to health services (refer to Figure 10)

1) Objective

Institutional and physical infrastructure of Health Area 2, La Esperanza CESAMO and Yamaranguila CESAR will be strengthened for attaining the objectives of preventive health awareness among the communities and improvement of accessibility to health services.

2) Components

- Institution building of each health provider from hospital to midwife level
- Improvement of CESAMO/CESAR staff's outreach consultations to the deprived, distant communities
- Improvement of communities' interest in health services: health festivals, healthiest community/child award, group medical check-ups, etc.

3) Management

Implementation organization: Health Region 2 (Health Area 2)

Coordination required: Intibucá governor's office, Municipal governments, AMHON, SEP, FHIS, PRAF, ACCESO project

4) Effectiveness

a) Contribution to equity

Through improvement of accessibility to health services, the project will contribute to equity and equality promotion among the community members including those living in the deprived areas.

b) Contribution to the problem-strategies Matrix proposed

Communities' understanding of the health services will be improved through promotion activities and outreach programs by the CESAMO and CESAR. Through outreach programs and safe and clean birthing places, high risk pregnant women will be effectively identified in the communities (and referred). This will contribute to improvement of accessibility to health services; MMR and IMR are expected to decline.

A preventive health outreach program implemented by the CESAMO and CESAR will serve as an effective health service point in communities. Referral systems to maternity and primary health care services will be promoted and functioning well without establishing a new system or new building.

6.3.2 Program for urban poverty area

(A) Goals and targets

The goal of the program for the urban poverty area is to improve the access to preventive and emergency care at the primary level, mainly focusing on maternal and child health services and emergency health care; and to contribute to organization and unification of communities in the marginal areas by strengthening social participation capabilities. The target group of the program is the entire population living in the urban marginal area in Tegucigalpa. The number of the beneficiaries is 733,056 inhabitants based on the population living in the catchment area of the Metropolitan Health Region Office. In collaboration with the Metropolitan Health Region and the Tegucigalpa Municipality, target communities of Colonia Villa Cristina and Colonia Villanueva were selected utilizing participatory approach methodology and in-depth information gathering.

(B) Development concept

- Concentration on prioritized strategies clarified using the proposed matrix refer to Figure 11)
- Promotion of participatory development
- Strengthening of existing community activities
- Improvement of awareness and utilization of health service network in the primary level
- Coordination among related organizations

(C) Model projects

This program is composed of the following two model projects. These projects can be implemented simultaneously since management is under the same organization. In addition, it is more effective and efficient to attain the objectives utilizing the limited financial and human resources rather than implement them separately.

(1) Model project 1: Improved actions to promote social participation activities (refer to Figure 12)

1) Objective

The objective of the project is to create a receptive environment for promoting social participation activities in the communities by strengthening the social participation unit of the Metropolitan Health Region and improving the support for those activities in the Region and the CESAMOs in the target communities.

2) Components

- Institutional strengthening of the Metropolitan Health Region for promotion and coordination of social participation activities in communities
- Establishment of a "Health Promotion and Information Center" in the Metropolitan Health Region Office
- Institutional building of CESAMOs as project base in the communities
- Strengthening Patronato/Water Boards as key players for promoting community development activities

3) Management/Operation

Implementation organization:	Metropolitan Health Region Office
Coordination required:	Municipality, AMHON, SEP, FHIS, PRAF and ACCESO project
Organization of the center:	director of the center, chief of development unit, chief of public relations unit, chief of information systems unit, operator, secretary
New staff for two CESAMOs:	personnel for information system

4) Effectiveness

a) Contribution to the decentralization policy

The function of promoting social participation activities in the Metropolitan Health Region Office will be strengthened being recognized as a "Health Promotion and Information Center" in the entire urban marginal areas of Tegucigalpa Municipality. This will improve the project planning and implementation capabilities of the Health Region Office and the communities, which will contribute to the decentralization promotion.

b) Contribution to the problem-strategies Matrix proposed

Social participation will be promoted through the Center activities. Its coordination systems among service providers, municipalities, donors, NGOs, and communities will be developed. CESAMOs in the target communities will be improved for supporting community activities. In the communities, the project planning and implementation capabilities of the Patronatos and Water Boards, which are the key community development organizations, will be strengthened. Unification of communities will be fostered; it will lead not only to more community-involved management of water and basic sanitation projects, but also to more community-oriented and sustainable project implementation for improving living conditions. The project help service providers, municipalities, donors, NGOs, and communities to share and make full use of existing experts, experiences, and facilities without introducing a new system.

(2) Model project 2: Improvement of awareness and utilization of the health service network in the primary level (refer to Figure 13)

1) Objective

The objective of the project is to promote the proper and effective use of the planned emergency clinics and renovated maternity ward in San Felipe Hospital with the resulting goal of improved emergency and MCH services. The target of these improved services is the Tegucigalpa marginal area residents.

2) Component

- Development of a liaison and improved referral system among existing and newly established emergency clinics and maternity wards at Hospital Escuela and San Felipe Hospital

- Improvement of the CESAMO staff's outreach activities related to prenatal, neonatal, and postnatal care, as well as, health education about hygiene, vector control, prevention of violence and accidents
- Marketing of proper use of maternity and emergency health services at the primary level

3) Management

Implementation organization:	Metropolitan Health Region
Coordination required:	Municipality, AMHON, SEP, FHIS, PRAF, ACCESO
New staff for the Region Office:	chief of management of health service network, assistant (training and public relations)
New staff for two CESAMOs:	chief of management of health service network

4) Effectiveness

a) Contribution to equity

Through improvement of accessibility to health services, the project will contribute to equity and equality promotion among the community members. In addition, the project will help promotion of community members' awareness and understanding on proper use of the health service network including the emergency clinics which are newly introduced and currently being designed in the urban marginal area in Tegucigalpa.

b) Contribution to the problem-strategies Matrix proposed

A primary level network will be established in the target communities, including maternity and emergency services. Proper and effective use of Hospital Escuela, Hospital San Felipe, and the new emergency clinics will be understood by the community. This knowledge will contribute to diminish congestion at Hospital Escuela and improved emergency, maternity, and MCH services. The CESAMOs will be improved as basis for MCH care and forefront providers of the health service network in the communities; high risk pregnant women will be appropriately identified and referred to Hospital Escuela through the prenatal consultation in the CESAMOs. This will lead to improvement of access to health services.

In addition, improved maternal and primary health care services will become available in the CESAMOs. Members of the community will have increased knowledge about effective utilization of public health service providers and referral system. Hygiene,

nutrition, and vector control health education programs will be effectively provided through improved outreach programs by CESAMOs.

Without establishing a new system or new building, this project will promote community members' understanding on and accessibility to health services through strengthening the outreach programs of the CESAMO and CESAR.

6.4 Program for Integrated Development Area

6.4.1 Objectives

Implicit in this model health program is the need for systematic efforts at all levels to identify problems, establish priorities, and initiate actions. Strengthening the ability of the regions to plan and identify opportunities for making public health resources more effective in improving health is an important element of achieving the objective of the NMHP. Many of the general recommendations in the NMHP will be implemented through the Regions and local initiatives will benefit from more effective regional leadership. Further, the national commitment to decentralization places greater responsibilities on regions and areas for planning in addition to managing and implementing program activities. The model health plan for Integrated Development Areas addresses this range of issues

6.4.2 Prioritization of health problems

(A) DALY method

The burden of disease has been defined as the loss to society of productive years due to premature death and disability. One measure, Disability-Adjusted Life Years lost (DALYs), has been developed to measure the impact of premature mortality and morbidity caused by different health problems in a particular setting. DALY counts lost years of life of population due to premature death and disability, instead of the traditional way which counts only the frequency of deaths or disease.

By using DALY as an indicator of health status, both premature death and disability would be measured in a single indicator in combined form. As a result, it can be used to support explicit decision making in

- Setting priorities among a variety of health services;
- Setting priorities for health research;
- Identifying disadvantaged groups and targeting health interventions; and
- Evaluation and monitoring of activities.

DALY can also contribute to improve coordination among institutions or agencies involved in the health sector.

(B) Application to the Health Region 7

To assess the utility of using burden of disease as a criterion of setting health priorities, estimates were prepared for Health Region 7. Since disability data were not available, an intermediate measure, Years of Life Lost (YLL), was used to indicate disease burden of the population in the form of premature death. Mortality was calculated by cause for each sex and for five age groups. The causes were grouped into three major categories which encompass the major different health interventions of interest; 1) communicable, maternal & perinatal causes, 2) non-communicable diseases, and 3) injuries.

(C) Result

Preliminary result of burden of disease by age, sex and broad cause group measured by YLL are illustrated. By broad cause group, categorized into communicable, non-communicable and injury, communicable and maternal and perinatal causes are still the largest contributor to the whole population. Two thirds of these occurred during infancy for both sexes. An astonishingly high share of burden caused by injuries is found, particularly for males between 12 to 49 years of age.

Using mortality as a measure of the burden of disease, therefore, program priorities for the region would be targeted at communicable disease, maternal & perinatal causes with special emphasis on reducing infant mortality, and injury of working age males, followed by non-communicable disease mainly for reproductive age of women (refer to Figure 14).

6.4.3 Strategies for health improvement

(A) Programming

The results of the analysis of mortality in Health Region 7 indicates that a few key problems account for the majority of premature loss of life. Making the biggest improvement in the incidence of mortality will require selecting the activities with the

greatest cost-effectiveness for each different cause. The Global Burden of Disease study has analyzed the major types of interventions in terms of their potential to reduce mortality from specific conditions. These data have been assembled here and related to the specific causes of mortality identified in the earlier analysis. For each cause, the most cost-effective interventions have been identified together with an estimate of the range of cost per year of reduced mortality. The information provides the basic starting point for the identification of a program structure with the potential for making the maximum reduction in premature death (and ultimately disability). As such, it represents the specific activities around which planning needs to take place and for which resources need to be available (refer to Table 1).

(B) Health Planning

Current mortality data present a number of difficulties which need to be addressed before they can be effectively used for planning. While working with aggregate categories overcomes some of the problems, improvement in the collection and monitoring of basic mortality data is a high regional priority. In the initial work in the region, the study team and counterparts carried out a number of informal analyses of existing data. Additionally, EPIMAP, a program to provide geographic analysis of the distribution of epidemiological characteristics including mortality and morbidity, was installed in the computers of the Regional office and staff of that office were instructed in its use. It is recommended that this process be continued and that efforts be made to incorporate additional analyses into the current planning processes.

Additionally, the significant variation in the estimates of age-specific mortality indicate a need for review and improvement. Ideally, improved information on morbidity, in particular that related to accidents and violence and communicable diseases, also needs to be collected.

(C) Health Financing

Two major lines of action have been proposed; improvement of the financial structure and service mix of IHSS and expansion of revenue generation through cost-recovery in the MSP facilities.

The NMHP recommends that the existing cost recovery activities be expanded by restructuring the charges to generate both increased revenues, implementing improved waiver and exemption systems to protect those who are unable to pay, and to support extension of insurance coverage through IHSS and others to expand the pool of users able to pay for curative care services.

Health Region 7 already incorporates elements of the NMHP recommendations. With respect to the IHSS recommendations, the Olancho region of IHSS already covers over 2000 employees for expanded health benefits. The NMHP supports extension of this model to other regions and, as well, expansion in Health Region 7. Additionally, both the hospital and the regional service delivery settings have implemented formal cost-recovery programs although charges are relatively low.

It is recommended that the Hospital San Francisco and Health Region 7 be selected as the setting for the pilot project to be implemented. This would permit building on the existing experience in Olancho and, as well, developing a expanded cost-recovery initiative in an area most likely to experience both economic growth and an increase in the demand for services over the near and medium term.

The results of these efforts would then be generalized to the MSP system as a whole, recognizing that fee schedules and expectations of revenue generation would have to be established in each region or area based on local economic realities.

(D) Program intervention

On top of those current programs run by the Health Region 7, further emphasis should be put on the Alcohol control, prenatal and delivery care, family planning and "Integrated Management for Sick Children", as these program can be seen as one of the most cost effective countermeasures against the burden of diseases owned by the society.

The accomplishment of each CESAMOs and CESARes, as a front-end facility of the service delivery system to solve the above-mentioned issues, measured by the ratio of the number of first attention per health staff assigned there, indicated wide variety of efficiencies. Comparison among four health areas gives general impression of low scores in those health units located in the area 3. Perhaps it can be well explained by

geographical and cultural inaccessibility characterized in this area. However, the underlying conditions, which contributed to those low performance, could be identified as follow; 1) decentralization of management has not been legalized and institutionalized to the municipal governments and communities as a part of ACCESO project, 2) cultural barrier to health institutions and low level of community activities, and 3) low access because of low service quality (medicine, medical equipment, low availability of doctors and nurses) and poor conditions of road and/or radio communication system, poor management of institution and lack of operation fund. Adding to that, the planned MCH clinics for respective health areas are hardly operational except one in Catacamas. Major reason of non-operational conditions for MCH would be poor management ability and/or low accessibility for inhabitants.

Improved local managerial ability, with an instrumental assistance by the ACCESO project, will facilitate monitoring and evaluation of those program performances to contribute further enhancement of health planning and programming at the regional and municipal levels. The review of the performance, which includes each UPS level at the bottom, to reflect various local situations, should be incorporated into a regional health system's performance, particularly for an interventions that requires certain technical skills or equipment such as high risk delivery.

7. IMPLEMENTATION PROGRAM

7.1 Stage-wise restructuring of health-related institutions

With promoting the NMHP's fifteen strategies and the health model programs, the roles and functions of health administrative agencies and health service providers will be reviewed and restructured for strengthening the decentralization system. Figure 15 and 16 show the inter-relationship with health service providers and 15 strategies in case of "without programs/projects by NMHP and model area programs" and "with programs/projects".

MSP and IHSS are the national administrative agencies in the health sector. Currently, MSP provides public health service administration for several levels ranging from the central/regional/area levels to individual health service provider levels. The health region offices and the area offices of MSP have functioned as the regional and area health prevention and control centers for community members.

As for the health service delivery, there are several organizations involved. MSP has national hospitals in the central level, regional/area hospitals and MCH clinics under the regional office. The emergency clinics, whose construction is being planned, will be included into the MSP's health service providers. The health centers such as CESAMOs/ CESARes are the major primary health care providers supervised by the area health offices. IHSS has provided health services through its own hospitals and clinics, also. Besides MSP, IHSS, and health service providers, the municipality offices are the important players for improving community members' health conditions. They have had limited initiatives in health promotion and service delivery so far. However, through the municipalization policy and implementation of the ACCESO project, the municipalities are to start taking responsibilities for the health improvement of community members.

The major changes introduced by these programs/projects is summarized as follows;

MSP central level will focus on policy making, programming, budgeting, standard setting, supervising and monitoring. The current MSP's functions of managing and operating individual programs and projects will be decentralized step by step to the health regions and areas and to municipal authorities considering their capabilities. The nationwide

restructuring of health service institutions should not be implemented in a short-term range without gaining consensus of various levels of health service providers and users. In addition, a coordination system among MSP, IHSS, other governmental agencies concerned, NGOs, and donors will needs more emphasis and strength, both at central and local levels.

These structural improvements covering these health-related institutions mentioned above will be conducted through the implementation of the projects proposed by NMHP and the health model programs as follows:

1) Short-term (target year 2000):

- Political dialogue among the health-related institutions;
- Policy making and programming for decentralization within MSP;
- Improvement of management abilities of each institution with small-scale physical expansion;
- Development and implementation of model projects included in the health model programs.

2) Medium-term (target year 2005):

- Monitoring and evaluation on the projects of improving management abilities of each institution within the scope of the NMHP fifteen strategies;
- Monitoring and evaluation on the cost-effectiveness of model projects provided by the model programs;
- Expansion of the target areas of model programs based on the feedback.

3) Long-term (target year 2010):

- Accomplishment of MHP

7.2 Human and financial resource allocation

Followings are the plans for human and financial resource allocation proposed with the implementation of the NMHP and the model programs. According to the decentralization concept, which is incorporated into the NMHP and the model programs, part of the human and financial resources will be re-allocated to the local institutions. Human and financial resources of MSP will be more allocated for policy making, programming, budgeting, and monitoring functions at central level and be more decentralized to hospitals, regional offices, municipal governments and community organizations for health service implementation.

MSP financial resources and expenditure for achieving stagewise implementation programs will be estimated as shown in the Figure 17.

According to the past experiences, major portion of cost has been spent for operational expenditure including salary and wages, and supply of medicines and the other consumable goods, while a capital cost of MSP budget excluding SANAA portion is very small.

It is important to consider that there is a serious shortage of national budget including external source of fund for physical expansion and operational expenditure for non-personal items, and that physical expansion would require a large amount of operational expenditure after construction of facilities and installation of equipment. Therefore, decentralization to local institutions is expected to cover the permanent shortage in operational cost in MSP as well as capital cost, by joint efforts of model development with MSP and local institutional authorities.

Major points of resource allocation are shown as follows for the different health service providers.

7.2.1 NMHP

(A) national hospital and emergency clinics

Quality of the national hospital services will be upgraded through strengthening of problem solving abilities and referral function of primary and secondary health services, which contribute to improving accessibility to institutional health services.

(B) regional and area health office levels

Decentralization will be promoted by institutional strengthening of municipal government and community participation, through managerial and technical support by the MSP health region and area offices. In order to strengthen problem solving capabilities of CESAMOs and CESARes, mobile consultation services by CESAMO staff to neighboring CESARes will be maintained and double-staffing in CESARes will contribute to improving quality of the services and removing cultural barriers for potential users.

(C) warehouses

Computerization for drug control will be strengthened in each level of the central, regional and area warehouses and be developed as nationwide drug control network system in the long run.

(D) physical expansion (PRONASSA)

PRONASSA will have its planning, programming, and monitoring capacity strengthened and effective use of private sectors and FHIS will be promoted. PRONASSA will also develop designing building and equipment for private bidders.

(E) operation and maintenance of facilities/equipment (CENAMA)

Operation and maintenance of training activities be decentralized to regional and area health offices. Simple daily operation and maintenance will be implemented at each CESAMO/ CESAR level. CENAMA will function as planning, programming, and monitoring body for operation and management of facilities and medical equipment.

(F) water and sanitation (SANAA)

SANAA function for management of water supply systems will be transferred from their direct intervention to municipal or community participation method while research and water development function should remain at SANAA. Decentralization will be much more accelerated through strengthening of managerial and technical capacity of these local management bodies.

7.2.2 Area model programs

(A) Regional center for maintenance, training and information (facilities and equipment)

Key staff of O&M will be trained at various levels. The private sectors will also be provided with technical services. Target groups of training will be staff from CENAMA, hospitals and health regions, municipal governments, CESAMO/CESAR and communities.

(B) Upgrading of CESAMO (quality of services)

Accessibility to health services will be improved by expansion of CESAMO's function along with training of health staff and community. Training will be effective for strengthening of referral system through close linkage with hospital management and existing NGO activities.

(C) Health education/training/information promotion center

The function of this center is to support establishment of "healthy city" and "healthy village" by providing education, training and information to the following target groups.

- **Urban center**: for health service providers, municipal governments, inhabitants, and donors in SPS
- **Rural center**: for inhabitants, health service providers, municipal governments and donors in marginal areas in Tegucigalpa and poverty area of Intibucá department)

7.3 External cooperation for technology transfer and financial assistance

7.3.1 National level

Technical cooperation for restructuring of MSP institution will be required in the form of dispatching of experts / consultants, training in the donor and the third countries. Further study will be implemented for urgent implementation needs such as data base development, area master plan, feasibility study and/or basic design on the proposed model programs.

7.3.2 NMHP

External assistance for the completion of NMHP will be provided to the respective organizations such as hospitals, emergency clinics, regional and area offices, drug warehouses and PRONASSA/CENAMA.

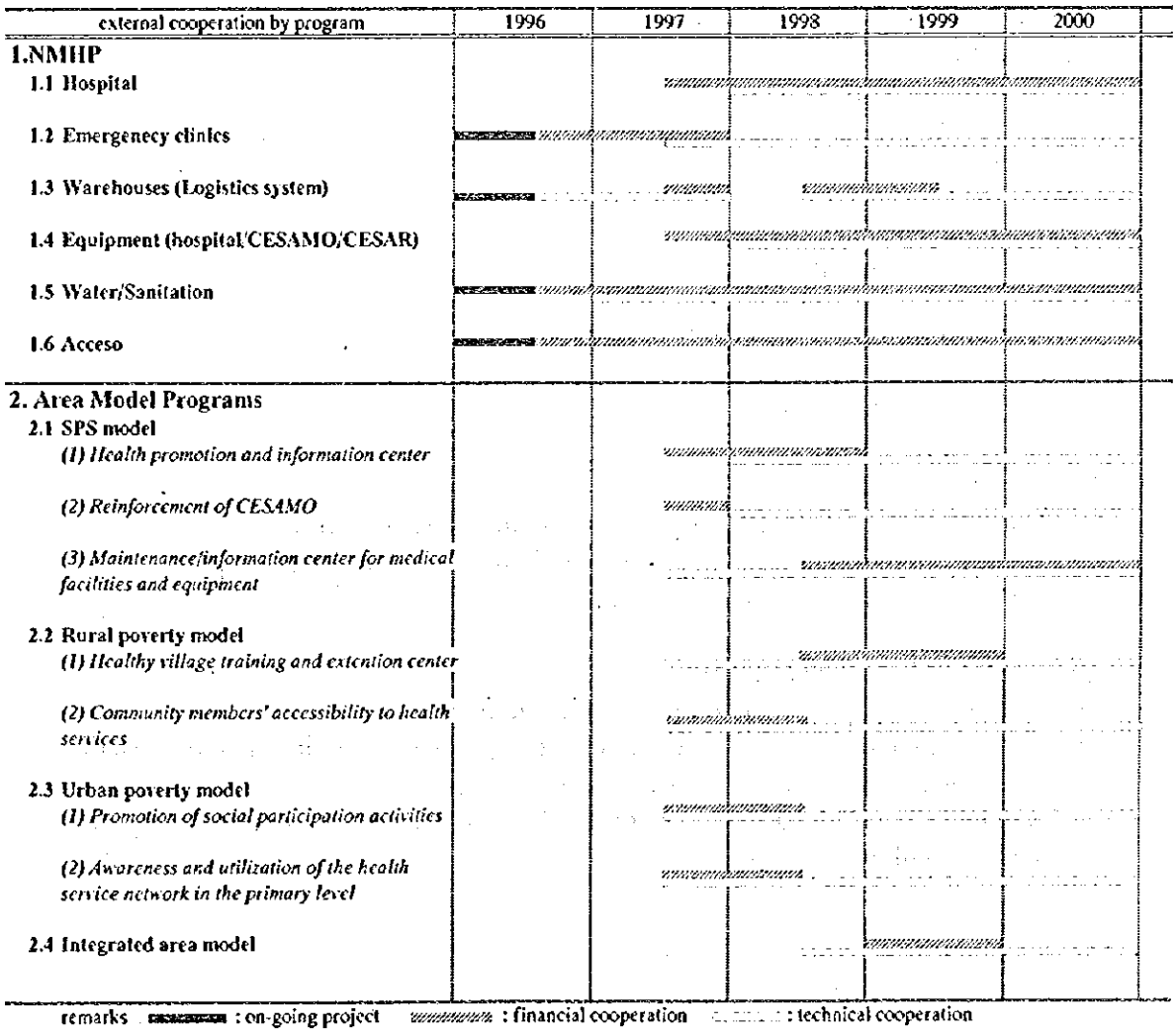
7.3.3 Area model programs

External assistance for area model programs will be implemented in coordination with ACCESO project which has been assisted by Sweden and USAID and integrated with projects of UNDP, AIDSCAP, various NGOs, etc. These aid projects will be proceeded in connection with the aforementioned projects of NMHP.

7.4 Implementing schedule for urgent needs of external cooperation

Implementation of MHP will include NMHP promotion at central government level; mainly related to hospitals, emergency clinics, warehouses of drug, equipment supply and water/sanitation, while area model programs are for the urban area model, poverty area models, and integrated development area model.

Restructuring of MSP will strengthen the functions of policy making, budgeting, and coordination. It will promote decentralization of health and health-related activities to the health region, municipal governments, and communities, also. Consultants group will be required for the institutional building including data base development. The figure in the next page shows the outline of external cooperation for the implementation of MHP and the area model programs. More detailed schedule for each of the items listed in the figure are introduced as follows.



8. CONCLUSION AND RECOMMENDATION

Eleven priority health problems were identified through the workshops and the discussions with Coordination Committee for the Study during the Phase I Study. The fifteen strategies, which are the components of National Master Health Plan (NMHP), were selected and authorized through the workshops and Coordination Committee during the Phase II Study. In Phase III, model areas for the NMHP were selected to prove the reliability of the plan and to propose area-wise master plans developed for implementing NMHP. The implementation program for MHP and external cooperation is proposed by the Study.

8.1 Priority problems

1) Infant Mortality Rate (IMR)
2) Maternal Mortality Rate (MMR)
3) Malnutrition
4) Access to water and sanitation
5) HIV/AIDS
6) Vector-borne diseases
7) Accidents
8) Violence
9) Chronic degenerative diseases
10) Environmental health
11) Occupational health

8.2 National Master Health Plan

8.2.1 Strategies related to context

(A) Alleviation of poverty

- Institutional strengthening for promoting community activities
- Coordination of municipal development plans and municipal health plans
- Provision of training and information services

(B) Access to food/food security

- Institutional strengthening for promoting community activities
- Improvement of production, marketing, transportation, and information system
- Strengthening of health and nutrition education system
- Strengthening of linkage with NGOs for development and management of small-scale agricultural projects

(C) Access to water and basic sanitation

- Rationalization of control and management of water resources among institutions concerned
- Reinforcement of protection and control of water resources
- Support of regional and municipal development plans that anticipate water and sanitation needs
- Transfer of technical and managerial capabilities to the municipalities
- Maintenance of water/sanitation network through implementation of cost-recovery mechanisms
- Education on environmental and health impact of water and sanitation
- Support for development and functions of local water boards

(D) Legal and institutional context

- Reinforcement of relevant regulations and strengthening of local government management capability through sustainable development of ACCESO project
- Follow-up of procedures to ensure full transfer of national funds to municipalities
- Strengthening of inter-sectoral coordination with municipalities and agencies concerned for health improvement

8.2.2 Strategies related to household and community behaviors

(A) Reduction of illiteracy

- Incorporation of "transversal axes", including health and hygiene
- Improvement of living and working conditions for teachers
- Implementation of National Education Plan for Vocational Development of Youths and Adults
- Promotion of contacts with teachers for joint activities in health-related education and training
- Inclusion of health, nutrition and income generation related contents in community-level
- Promotion of adult education activities, especially for women's group

(B) Improvement in health education interventions

- Inter-sectoral cooperation and effective use of multi-communication system
- Increase of regional or local capacity to elaborate, produce and evaluate educational material
- Training of staff in use of educational material and interpersonal communication
- Implementation of health education campaigns
- Promotion of contacts with teachers for joint activities in health-related education and training
- Promotion of working with women groups and other community organizations in development of community projects and education activities

(C) Improvement in social participation

- Improvement of the formal process and systems for social participation

- Improvement of the environment to foster social participation
- Development of community participation in elaboration of municipal health plans
- Education, training and information provision for institutional strengthening of community development committees

(D) Reduction of fertility rate

- Periodic revision of existing population policy and integration within other important aspects of human development
- Provision of family planning information and services to persons and couples willing to delay, space or reduce their pregnancies

8.2.3 Strategies related to health services delivery

(A) Access to health services

- Improvement of cultural and physical accessibility linked with ACCESO project
- Physical expansion of facility network : community-based support facilities, CESARes, CESAMOs, CMIs, area/regional hospitals, low-risk maternity services
- Improvement in current problem-solving capacity: Community management, assigning two health persons per CESAR, delivery of Basic Health Package and movement of personnel, improvement in problem-solving capacity of CESAMOs, emergency care and area hospitals
- Improvement of transport and transport financing mechanisms

(B) Management of facilities and organizations

- Implementation of decentralization of management of health services
- Establishment of streamline administrative procedures
- Strengthening of management capability and quality control mechanisms in hospitals
- Effective inclusion of hospitals within network of health services and reinforcement of integration with their surrounding communities
- Strengthening municipality-based Health Information System

(C) Improvement of referral system

- Strengthening of social participation
- Improvement of problem-solving capacity at primary care level
- Appropriate management of referred patient through priority attention and use of counter reference mechanisms
- Improvement in secondary and tertiary levels of care
- expansion of low-risk maternity facilities and reinforcement of area hospitals
- Proper use of the referral system of maternal and emergency care providers
- Coordination with MSP and IHSS

(D) Improvement of drug logistics system

- Implementation of essential drug policy
- Assessment of national pharmaceutical industry

- Improvement of procurement system
- Sustainable development of the POSSS
- Improvement of distribution and delivery system
- Improvement of rational use of drugs
- Encouragement of community involvement in drug management

(E) Maintenance of facilities and equipment

- Restructuring of PRONASSA and CENAMA
- Standardization of facility design and equipment specifications
- Establishment of the regional maintenance center
- Establishment of training center for facility and equipment maintenance
- Outside service contracting for maintenance

(F) Human resource development

- Definition of new role for normative divisions
- Manpower training plan elaborated at regional and area level, based upon epidemiological and organizational assessment
- Selection of public health managers
- Promotion of preventive concept of health services and preparation of appropriate human resources in response to the demands
- Facilitating working conditions of technically competent personnel working at the peripheral levels of the health system
- Strengthening community participation in elaboration of training needs for health personnel through improved development of municipal health plans
- Identification of suitable persons for training in public health management

(G) Health financing

- Expansion of cost-recovery activities of Hospital, or public health service providers
- Implementation of raises in IHSS salary limits together with administrative reforms and plan for improvement or expansion of services
- Development of IHSS coverage outside of Tegucigalpa and SPS under special agreements with existing providers

8.3 Model Health Programs

8.3.1 Program for urban area

(1) Goals and targets

The goals of model health program is to promote the concept of "healthy city". The citizens' participation and commitment on the issues relating to their life, health and well being is essential for both planning and implementation. Active social participation in health activities is also needed.

(2) Model projects

1) Model project 1 : Health Promotion and Information Center

The Health Promotion and Information Center's functions are to reinforce and to coordinate the efforts in health promotion and disease prevention activities including HIV/AIDS problems in SPS City and surroundings. The Center will be controlled by a Board of Directors made up of representatives of the municipality and Health Region 3. A Coordination Committee will be organized with IHSS, NGOs, donors, etc.

2) Model project 2 : Reinforcement of CESAMOs' Functions

The major functions are to improve access to primary health care services and to improve quality of services in birth delivery and emergency care at the national hospital by reducing its overload. The Metropolitan Area Office, Health Region 3, and the municipality will be responsible for the operation of CESAMOs with systematic coordination.

3) Model project 3 : Maintenance and Information Center for Medical Facilities and Equipment

The major function is to develop a model for maintenance system in Health Region 3 linked with the national center of PRONASSA and CENAMA.

8.3.2 Program for poverty area

(A) Program for rural poverty area

(1) Goals and targets

The goal of the model health program is to promote preventive health awareness and to develop a "healthy village" model for the entire population living in the catchment area of the La Esperanza Hospital.

(2) Model project

The model program is composed of the following two model projects. These two model projects are to be integrated to function as the core projects for developing the "healthy village" model. These core projects can be managed through technical cooperation utilizing the existing facilities following the implementation program proposed by the Study. In order to extend the "healthy village" model to the entire area of the Dept. of

Intibucá, the Feasibility Study on the improvement of health and health-related infrastructure, hospital management, income generation projects as well as the core projects are to be implemented before the main project implementation.

1) Model project 1 : Establishment of "Healthy Village Training and Extension Center"

The major functions are to promote community activities by establishing basic facilities and institution building for community development organizations, to improve community members' cultural accessibility to health services, and to improve nutrition conditions and income generation opportunities. Implementation organization will be MSP Health Region 2 with coordination among the Dept. of Intibucá, Municipal governments, AMHON, Sec. RRNN, SEP, SANAA, FHIS, PRAF, BANADESA and ACCESO project.

2) Model project 2 : Improvement of community members' accessibility to health services

The major functions are to promote preventive health awareness among the communities and to improve accessibility to health services. Implementation organization will be Health Region 2 with coordination among the Dept. of Intibucá, Municipal governments, AMHON, SEP, FHIS, PRAF, ACCESO project.

(B) Program for urban poverty area

(1) Goals and targets

The goals of the model health program are to improve the access to preventive and emergency care at the primary level, and to contribute to organization and unification of communities in the marginal areas by strengthening social participation in the urban marginal area in Tegucigalpa.

(2) Model projects

1) Model project 1 : Improved actions to promote social participation activities

The major function is to create a receptive environment for promoting social participation activities in the communities by institutional strengthening of the Metropolitan Health Region office. Implementation organization will be the Metropolitan Health Region with coordination among municipality, AMHON, SEP, FHIS, PRAF and ACCESO project.

2) Model project 2 : Improvement of awareness and utilization of the health service network in the primary level

The major function is to support the proper and effective use of the planned emergency clinics and the renovated maternal ward in San Felipe Hospital. Implementation organization will be the Metropolitan Health Region with coordination among municipality, AMHON, SEP, FHIS, PRAF and ACCESO project.

8.3.3 Program for Integrated Development Area

(1) Objectives

The objectives are to develop the theoretical model for problems prioritization and to conduct programs selection by cost-effectiveness in Health Region 7, and this model will provide basic information for policy making, coordination and budgeting.

(2) Prioritization of health problems

Disability-Adjusted Life Years lost (DALYs), has been developed to measure the impact of premature mortality and morbidity caused by different health problems in a particular setting.

Program priorities for the region would be targeted at communicable disease, maternal & perinatal causes with special emphasis on reducing infant mortality, and injury of working age males, followed by non-communicable disease mainly for reproductive age of women .

Available mortality data shows large differences between male and female reported mortality. For the age group 12 to 49, reported male mortality is almost 2 ½ times that of females. This implies considerable under-reporting for women which may reflect mortality causes which are difficult to record, such as unsafe pregnancy or abortions.

(3) Strategies for health improvement

1) Programming

For each cause, the most cost-effective interventions have been identified together with an estimate of the range of cost per year of reduced mortality.

2) Health Financing

Two major lines of action have been identified for improvement of the financial structure and service mix of IHSS and expansion of revenue generation through cost-recovery in the MSP.

(4) Application of the developed model

1) Data collection for problem identification

Further survey will be required to develop accurate model in estimating specific YLL and YLD. It should be regularly updated.

2) Programming

The eleven priority problems and the fifteen strategies should be carefully considered into area-specific program for efficient resource allocation.

3) Planning system

Programming and budgeting system will be established based upon the theoretical base of health problems and cost-effectiveness proposed in this model. Social participation should be also considered in system building.

8.4 Implementation Program

8.4.1 Stage-wise restructuring of health-related institutions

MSP central level will focus on policy making, programming, budgeting, standard setting, supervising, and monitoring. The current MSP's functions of managing and operating individual programs and projects will be decentralized step by step to the health regions and to municipal authorities considering their capabilities. The nationwide restructuring of health service institutions should not be implemented in a short-term range without gaining consensus of various levels of health service providers and users. In addition, a coordination system among MSP, IHSS, other governmental agencies concerned, NGOs, and donors will need to be more emphasized and strengthened both at central and local levels.

(1) Short-term (target year 2000) :

- Political dialogue among the health-related institutions;

- Policy making and programming for decentralization within MSP;
- Improvement of management abilities of each institution with small-scale physical expansion;
- Development and implementation of model projects included in the health model programs.

(2) Medium-term (target year 2005) :

- Monitoring and evaluation on the projects of improving management abilities of each institution within the scope of the NMHP fifteen strategies;
- Monitoring and evaluation on the cost-effectiveness of model projects which will be provided by the model programs;
- Expansion of the target areas based on the feedback.

(3) Long-term (target year 2010) :

- Accomplishment of MHP

8.4.2 Human and financial resource allocation

Basic principles for human and financial resource allocation will be summarized for the respective health services as follows.

(1) NMHP

1) national hospital and emergency clinics

Quality of the national hospital services will be upgraded through strengthening of referral function of primary and secondary health services, which contribute to improve accessibility to institutional health services.

2) regional and area health office

Decentralization will be promoted by institutional strengthening of municipal government and community participation through managerial and technical support by the MSP health region and area offices. In order to improve the service quality and accessibility, mobile outreach services by CESAMO staff, double-staffing in CESAR will improve service quality at PHC level.

3) warehouses

Computerization for drug control systems will be strengthened in central and regional warehouses, and be developed as nationwide drug control network system in the long run.

4) physical expansion (PRONASSA)

PRONASSA will strengthen its planning/programming and monitoring capacity. Effective utilization of private sectors will be promoted. PRONASSA will also develop procedures for designing building and equipment for private bidders.

5) Management of facilities / equipment (CENAMA)

Operation and management of training activities will be decentralized to regional/area health offices. Simple daily operation and maintenance will be implemented at each CESAMO or CESAR level. CENAMA will function as planning, programming and monitoring body for operation and maintenance of facilities and medical equipment.

6) water/sanitation (SANAA)

SANAA functions for management of water supply systems will be transferred from direct intervention to municipal or community participation method. Decentralization will be much more accelerated through strengthening of managerial and technical capacity of these local management bodies.

(2) Model programs

1) Health promotion center for education, training and information

Poverty area : for inhabitants, health service providers, municipal governments and donors in the urban marginal areas in Tegucigalpa and the poverty area in the Dept. of Intibucá.

The priority projects are to be integrated for more effective project implementation.

2) Upgrading of CESAMO (quality of services)

Accessibility to health services will be improved by training of health staff and community members. Training will be effective for strengthening of problem solving capacity and referral system through close linkage with hospital management and existing NGO activities.

3) regional center for facilities/equipment maintenance, training and information

Key staff of O&M will be trained through training courses of this program at various levels. Employers of private sectors will be also provided with technical services. Target groups of training will be staff from CENAMA, hospitals and health regions, municipal

governments, CESAMO / CESAR and communities. For the privatization of O&M, technicians of private sectors will be future target groups.

8.4.3 External cooperation

(1) MSP restructuring

Consultants group for institutional buildings will be required through external technical cooperation. Data base development of the health and health-related information also contributes to the institutional restructuring through application of the survey method developed by the Study.

(2) NMHP

1) Hospital

Physical expansion and upgrading of management capabilities will be promoted to achieve effective use of the limited human and financial resources. Rehabilitation of the regional and area hospitals needs to be funded by donors and technical cooperation. Hospital management will be the most prioritized issue for improvement of hospital services. Construction of new hospitals will be feasible in the medium and long-term basis through encouragement of IHSS restructuring, MSP cost recovery and referral function improvement.

2) Emergency clinics

Establishment of the emergency clinics is the new idea for MSP hospital restructuring. The first trial will be promoted by the project with Japanese grant aid for construction which is now being designed in Tegucigalpa. Technical cooperation will be required for effective operation of the facilities. Major points of technology transfer are to secure and to train the qualified health staff on the new clinic management system.

3) Drug supply

Drug procurement will be centralized because of economy of scales and efficient drug stock control and distribution system. Drug warehouses have been established and computerization of logistics has been implemented under the cooperation by USAID as POSSS project. Technical assistance will be contribute to completion of this system.

4) Equipment

Medical and non-medical equipment will be supplied to MSP health providers for upgrading of their health service quality. Technical cooperation for operation and management of these equipment will be provided in close linkage with SPS model project. In the long-term plan, operation and maintenance services will be privatized.

5) Water/sanitation

- **Urban area**

Water supply system has been being established by donors and technical cooperation provided by UNICEF in the Metropolitan areas in Tegucigalpa. Management system developed by SANAA and UNICEF will be transferred to municipal governments or communities. This system has significantly contributed to health improvement of marginal areas in Tegucigalpa. Financial cooperation is expected to cover all of the marginal areas in Tegucigalpa.

- **Rural area**

External cooperation for the establishment of water supply system in the rural areas should be implemented as a part of the integrated "healthy village" model program proposed by the Study.

(3) Model programs

1) SPS model program

a) *Health promotion and information center*

Agreement for international technical and financial cooperation among agencies concerned will be indispensable for sustainable development of this center.

b) *Reinforcement of CESAMO*

Major source of fund will be FHIS and SPS municipal government with a small scale technical/financial assistance from foreign countries.

c) *Maintenance/information center for medical facilities and equipment*

Technical and financial cooperation will be required to establish the regional center for operation and maintenance in SPS and other areas of health region 3. In the long run,

this center will function as national training center to support human resource development for operation and maintenance of medical equipment.

2) Poverty model program

Technical cooperation will be intensively implemented through the following two types of cooperation.

a) *Healthy village training and extension center and community members' accessibility to health services*

Volunteers' team will be dispatched for the operation of the core projects and the Feasibility Study will be proposed to establish an integrated and comprehensive "healthy village" model in the Dept. of Intibucá. The model program is composed of the following two model projects. These two model projects are to be integrated as the core projects to realize the "healthy village" concept and extend it to the entire area of the Dept. of Intibucá.

b) *Promotion of social participation activities and awareness and utilization of the health service network in the primary level*

Technical cooperation will be proposed to support emergency clinics and Hospital San Felipe.

3) Integrated area model program

Technical cooperation will be required to implement further study including data collection, data base development, and model programming.

8.5 Follow-up Action

The purpose of the Study is to formulate "Long-term Master Health Plan (1996-2010) and to transfer the developed planning methodology to the Honduras Government.

The Honduras Government is expected to take the following actions for further implementation of the Master Health Plan (MHP)

8.5.1 To organize the Committees for implementation of the MHP

(1) National Committee

Function : Coordination at the central level

Members : MSP, IHSS, SANAA, RRNN, SEP, SEDA, SECPLAN, private sectors (NGOs, associations etc.)

(2) Regional Committee

Function : Coordination at the local level

Members : Health Region, Department Government, Municipal Government, private sector (NGOs etc.) and communities

(3) Coordination Committee with donors

Function : Coordination of external cooperation

Members : MSP and donors

8.5.2 To identify the long-term and the urgent needs

Long-term needs : Restructuring of institution and management in the health and health-related sectors

Short-term needs : Sustainable development of the on-going programs/projects and model development

8.5.3 To execute the short-term programs/projects to meet urgent needs

(1) NMHP

- Upgrading of hospital management and physical rehabilitation
- Sustainable development of drug control system
- Equipment supply to hospitals and health centers
- Sustainable development of water supply and sanitation control

(2) Model programs

- Designing of the Health Promotion and Information Center in San Pedro Sula
- Feasibility Study of the "healthy village" development for the rural poverty area in the Dept. Intibucá
- Data base development based upon the integrated area model in Health Region 7

8.5.4 Follow-up study in vertical approach

Specific measures for the vertical line, such as vector-borne diseases, dental health, tuberculosis, laboratory testing and disaster control etc., are not assessed in detail in this comprehensive master plan. A detailed plan to follow this master plan on these matters is expected to be conducted by agencies concerned.

Figures and Tables

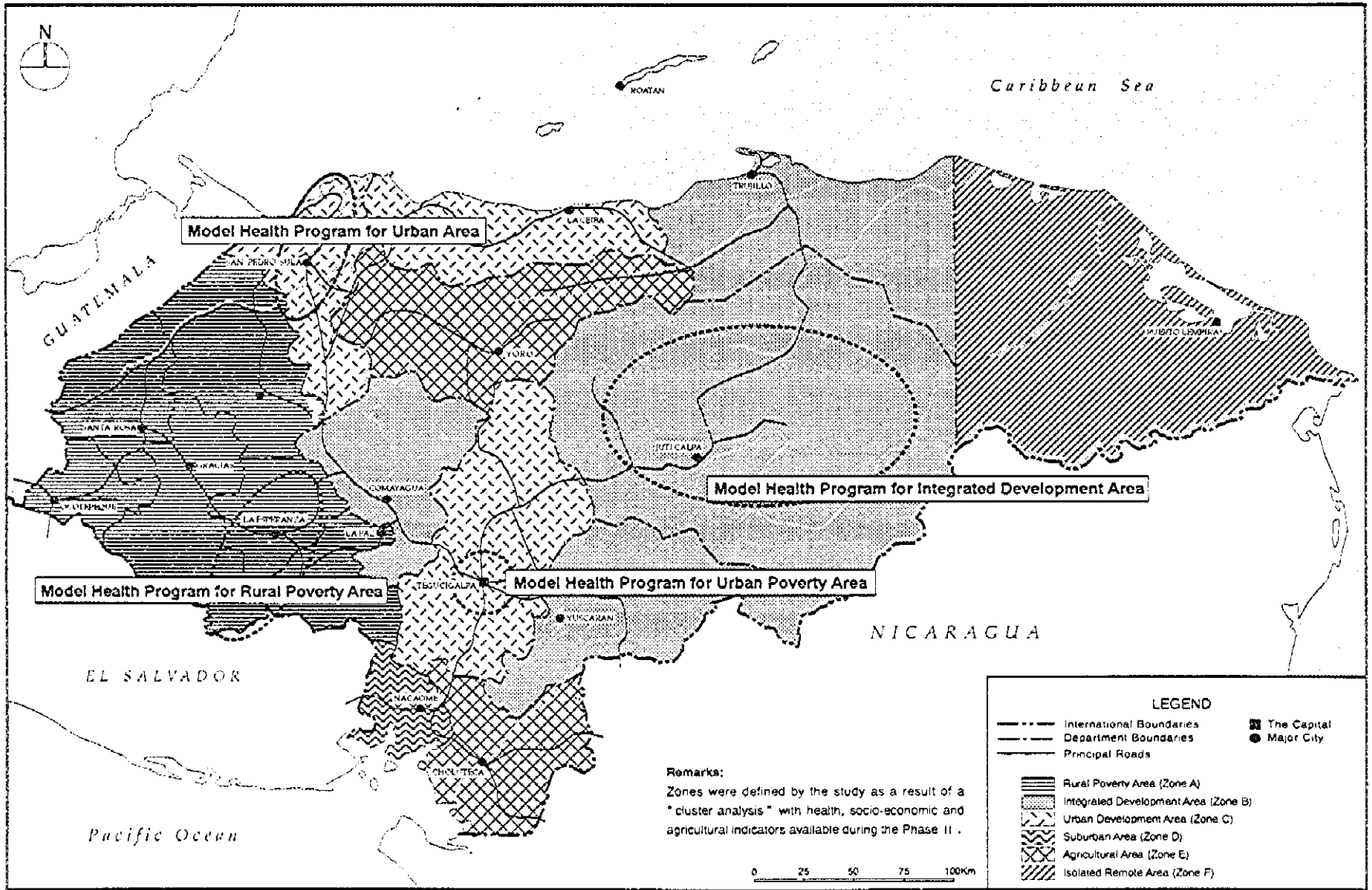
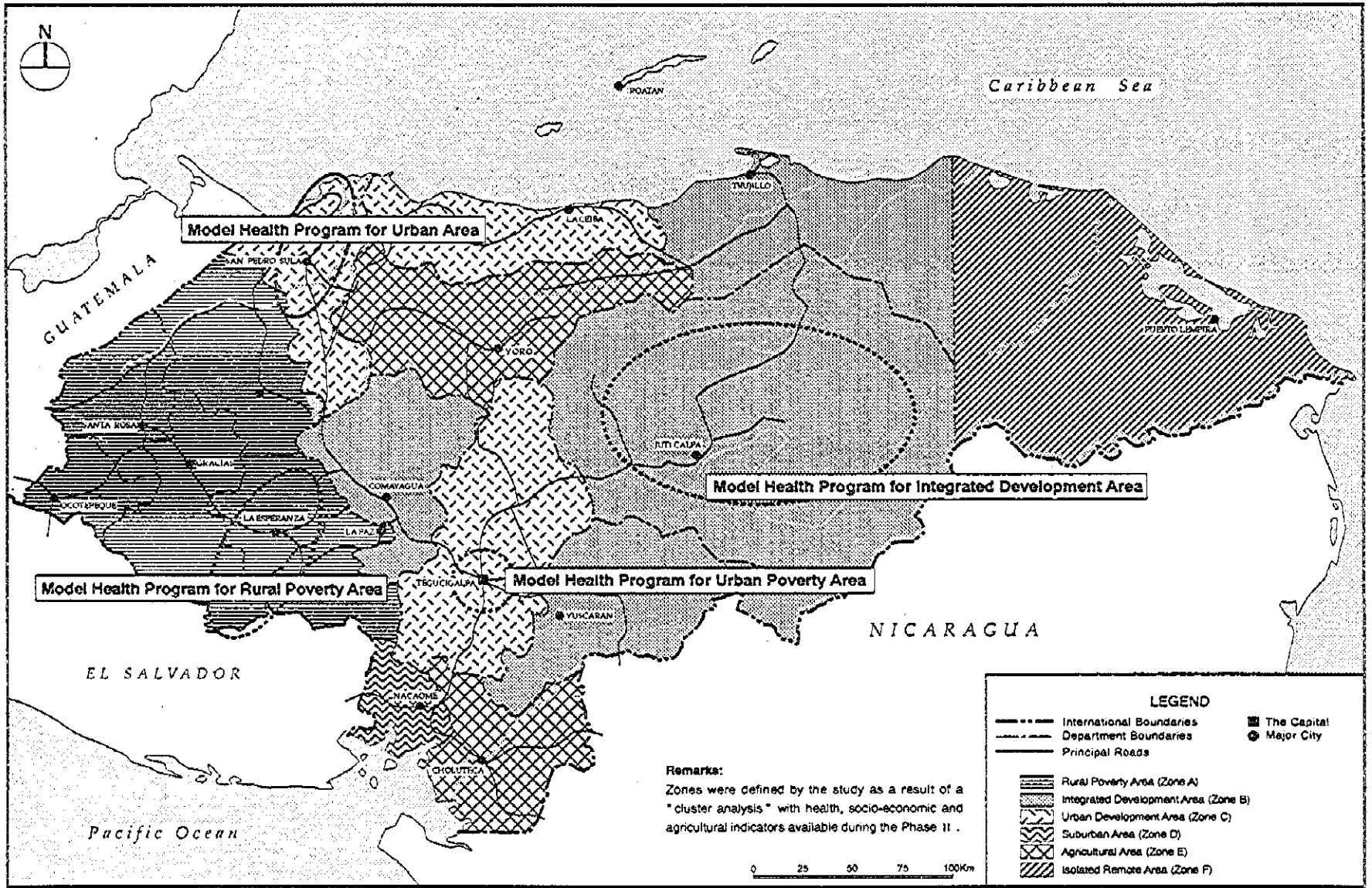


Figure 1 Zoning and Area Model Health Program

GOVERNMENT OF THE REPUBLIC OF HONDURAS
THE STUDY ON THE STRATEGIES AND PLANS FOR
THE UPGRADING OF HEALTH STATUS IN THE REPUBLIC OF HONDURAS
JAPAN INTERNATIONAL COOPERATION AGENCY



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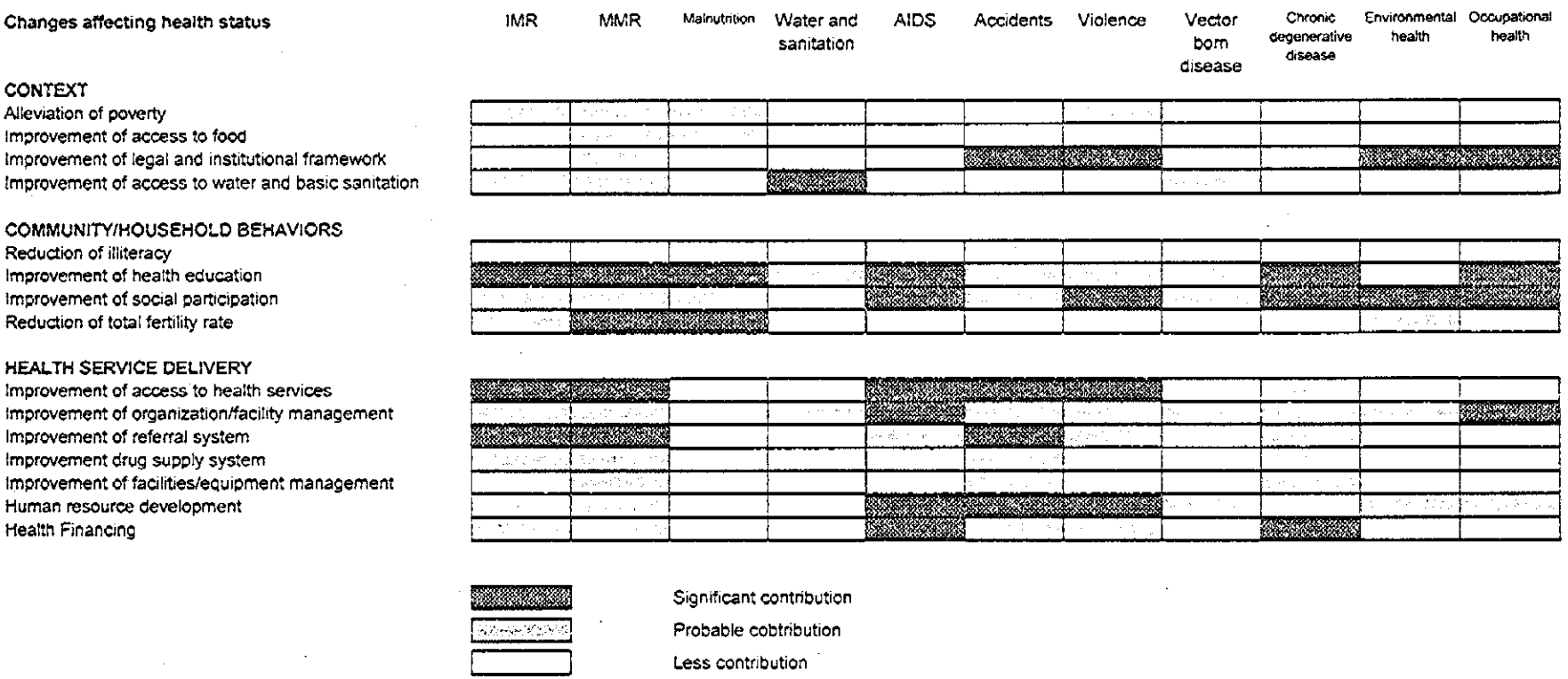


Figure 2 Contribution of 15 strategies to priority health problems in urban area

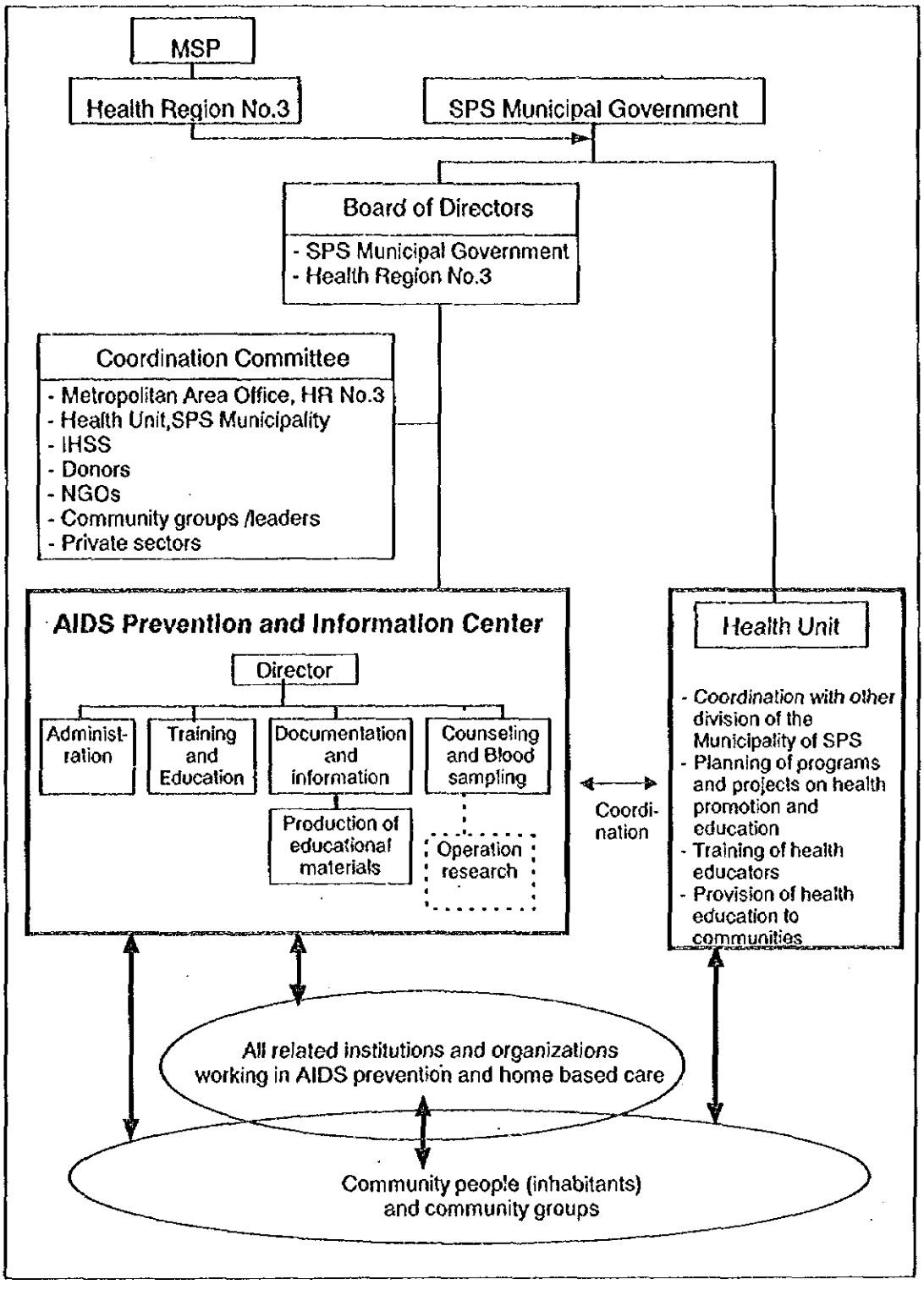


Figure 3. Model project 1, option1 in urban area: "AIDS prevention and information center" and "Strengthening of the Health Unit of the Municipality of SPS in health promotion and education" (two sub-projects)

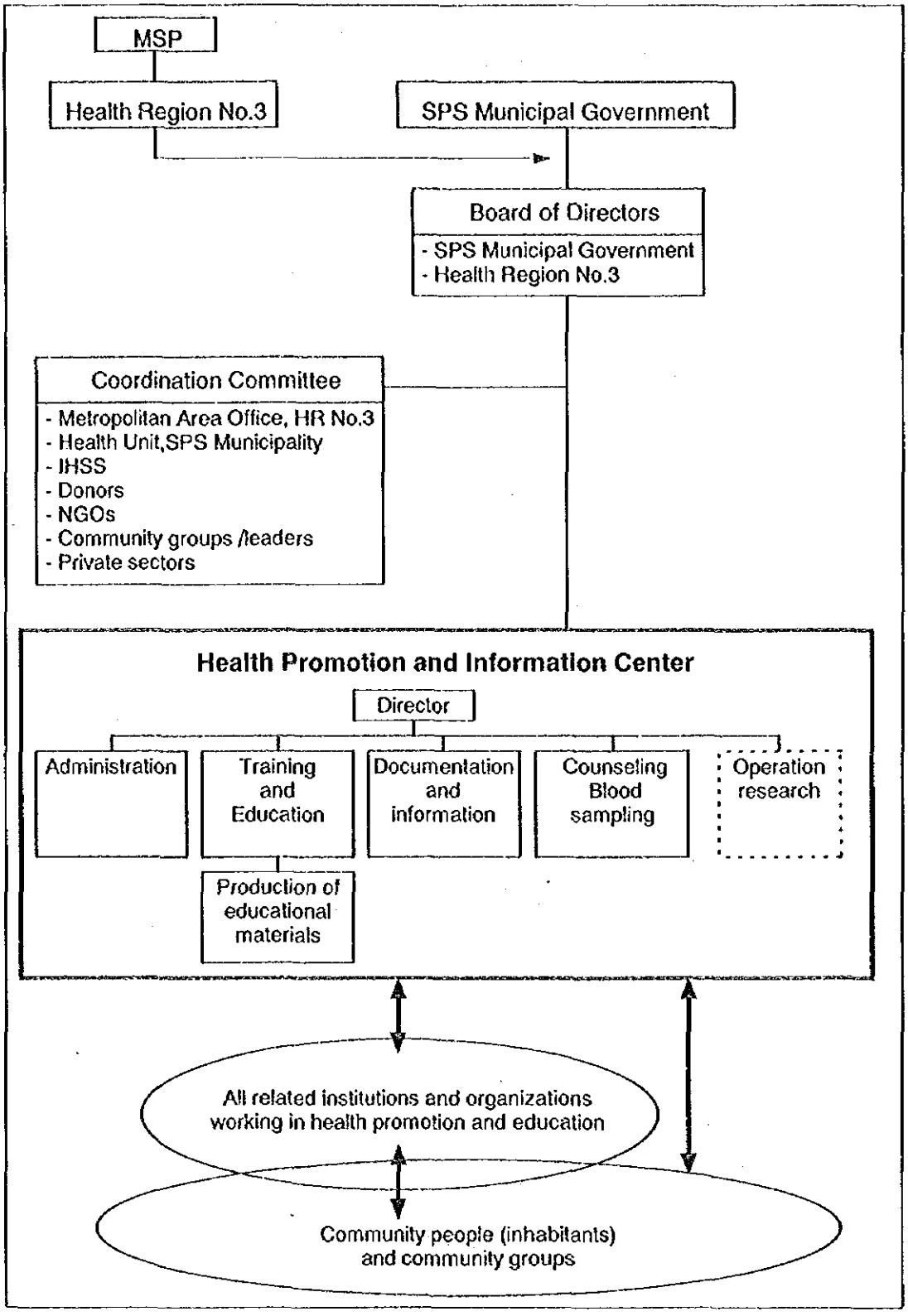


Figure 4. Model project 1, option 2 in urban area: "Health Promotion and Information Center" (integrated project)

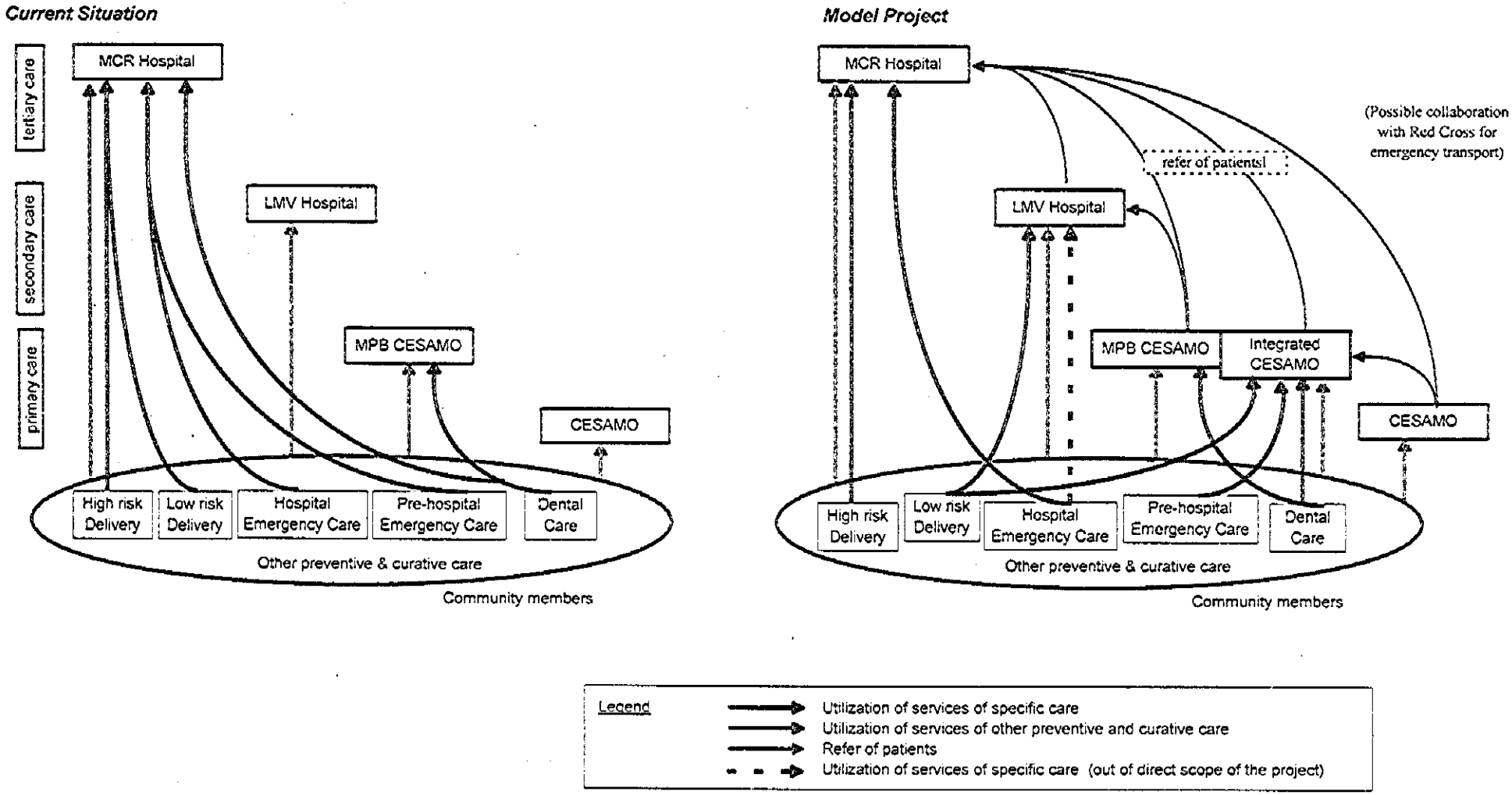


Figure 5 Current situation and Model project 2 for urban area: "Reinforcement of CESAMO's Function"

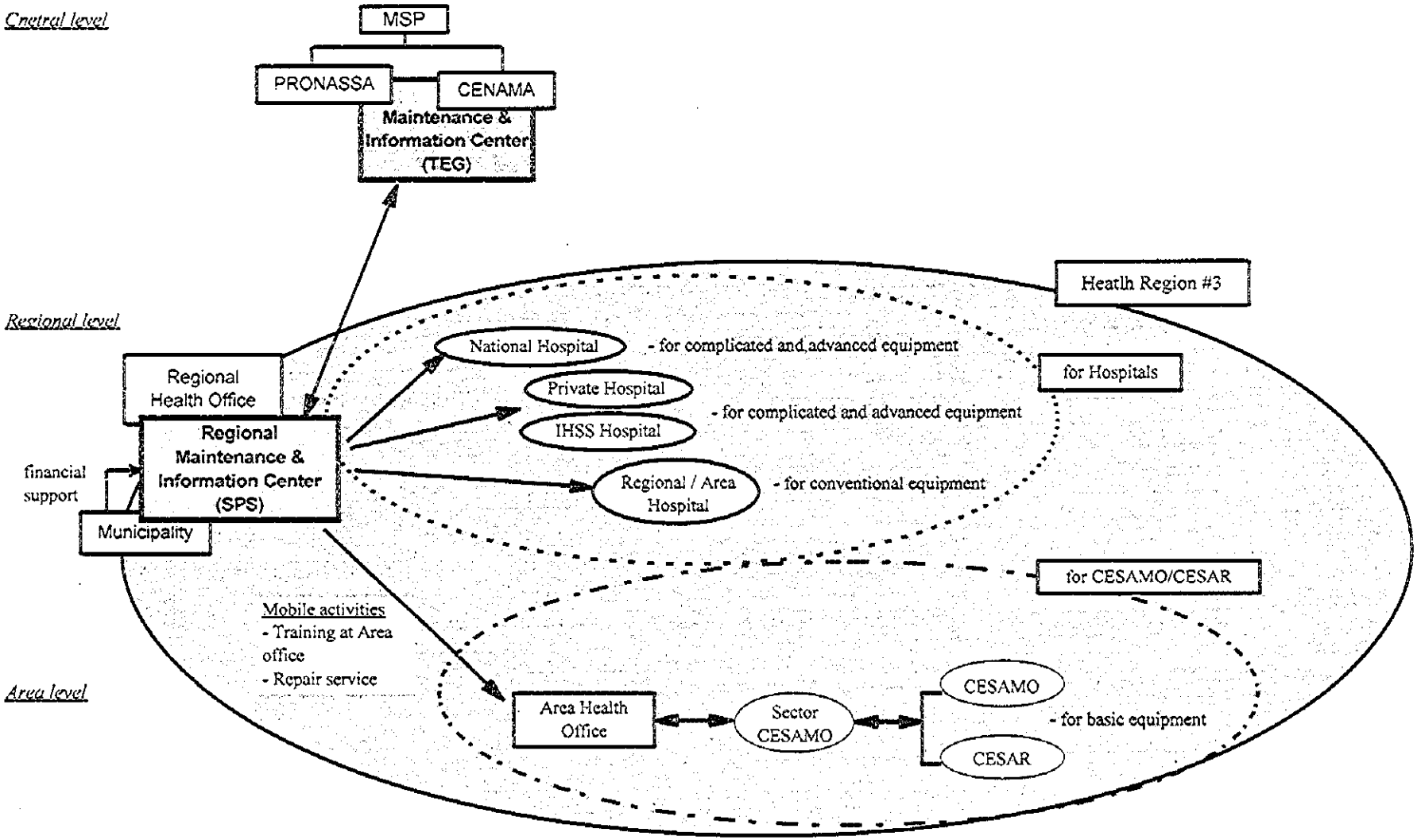


Figure 6 Model project 3 for urban area: "Maintenance and Information Center for Medical Facilities and Equipment"

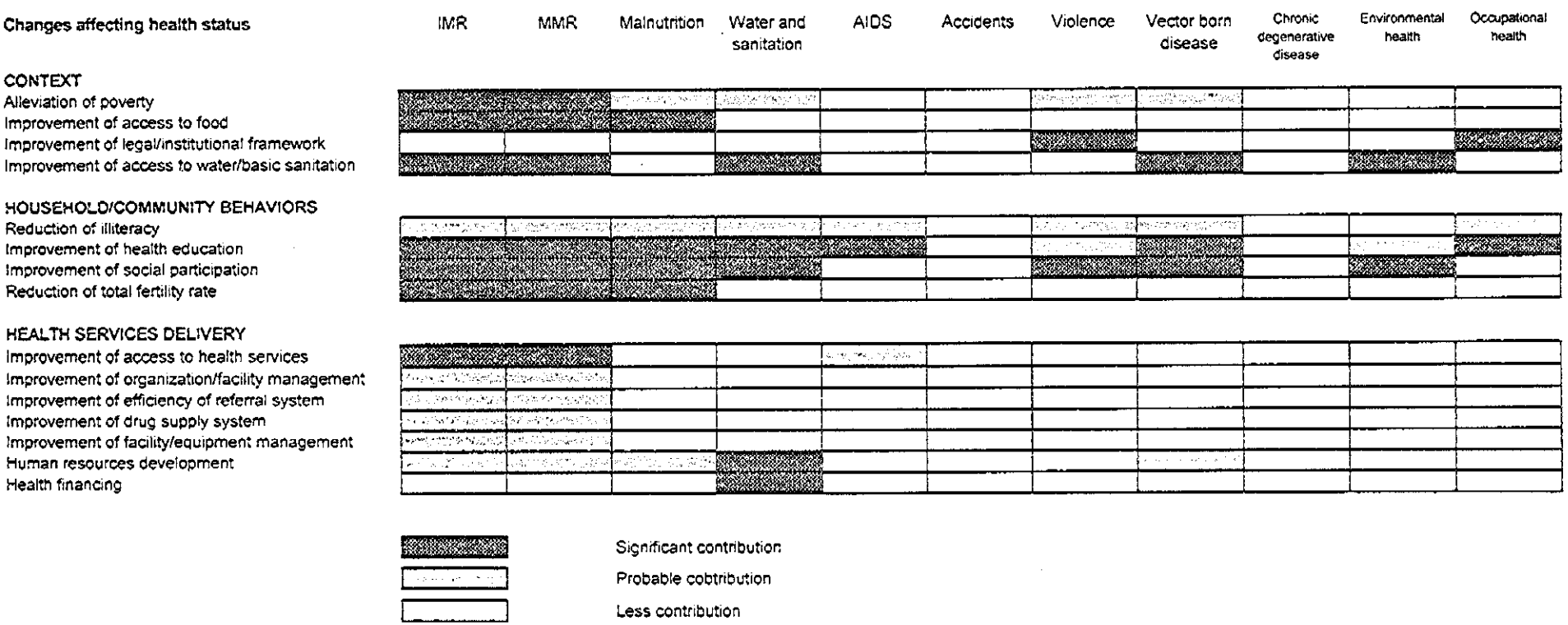


Figure 7 Contribution of 15 strategies to priority health problems in the rural poverty area

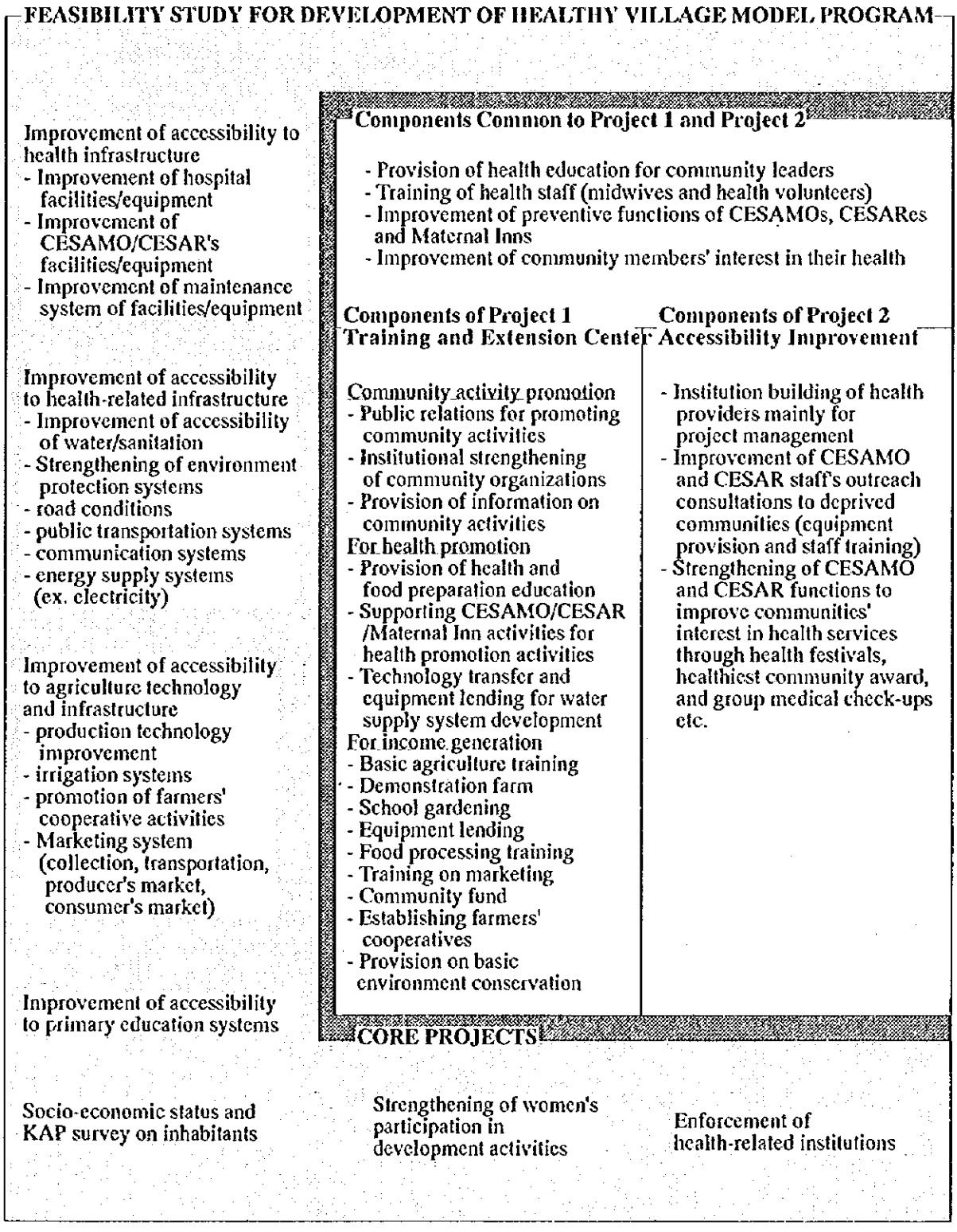


Figure 8 Scope of the two priority model projects and the Feasibility Study for development of "Healthy Village Model Program"

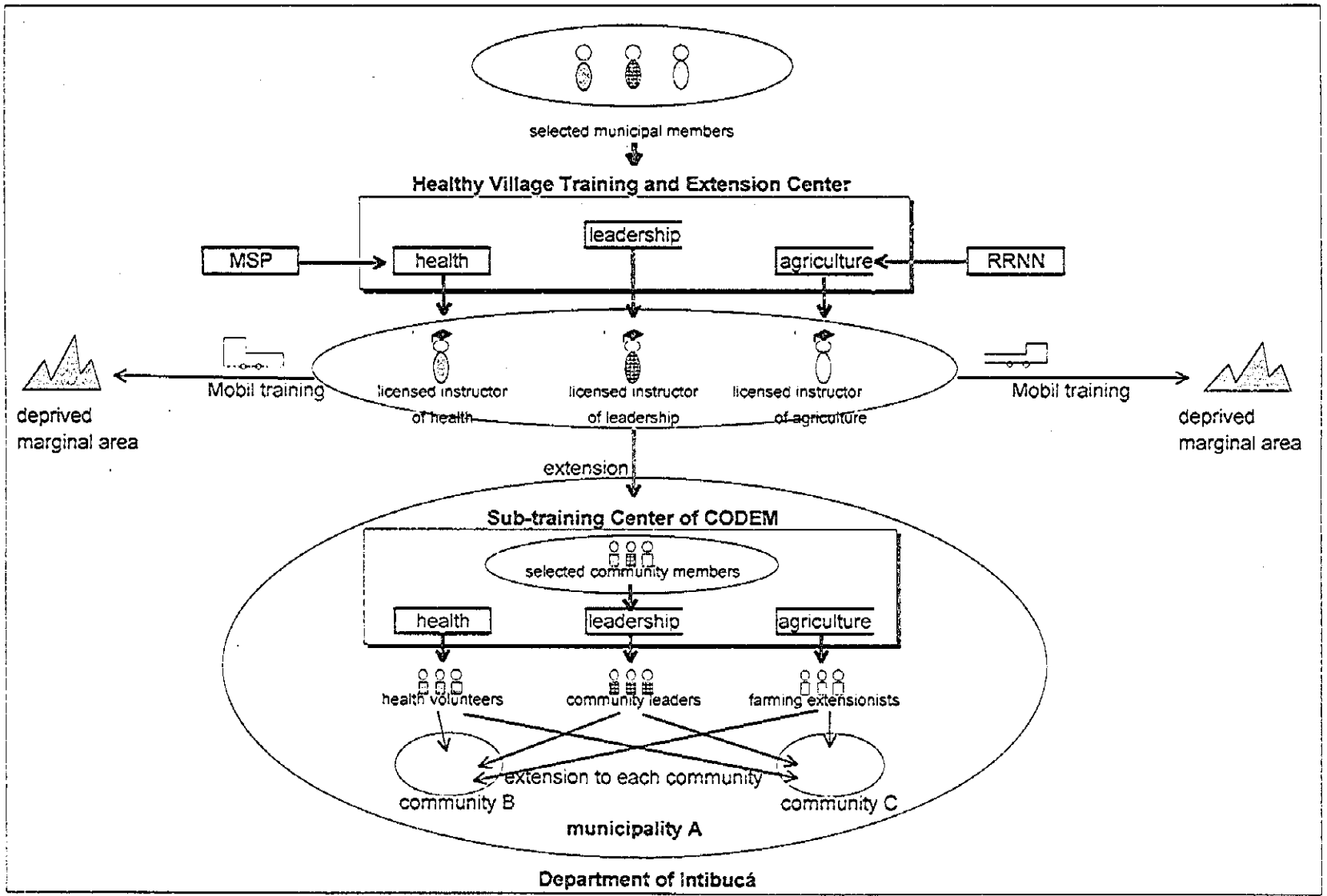


Figure 9 Model project 1: Establishment of "Healthy Village Training and Extension Center" in the rural poverty area, Department of Intibucá

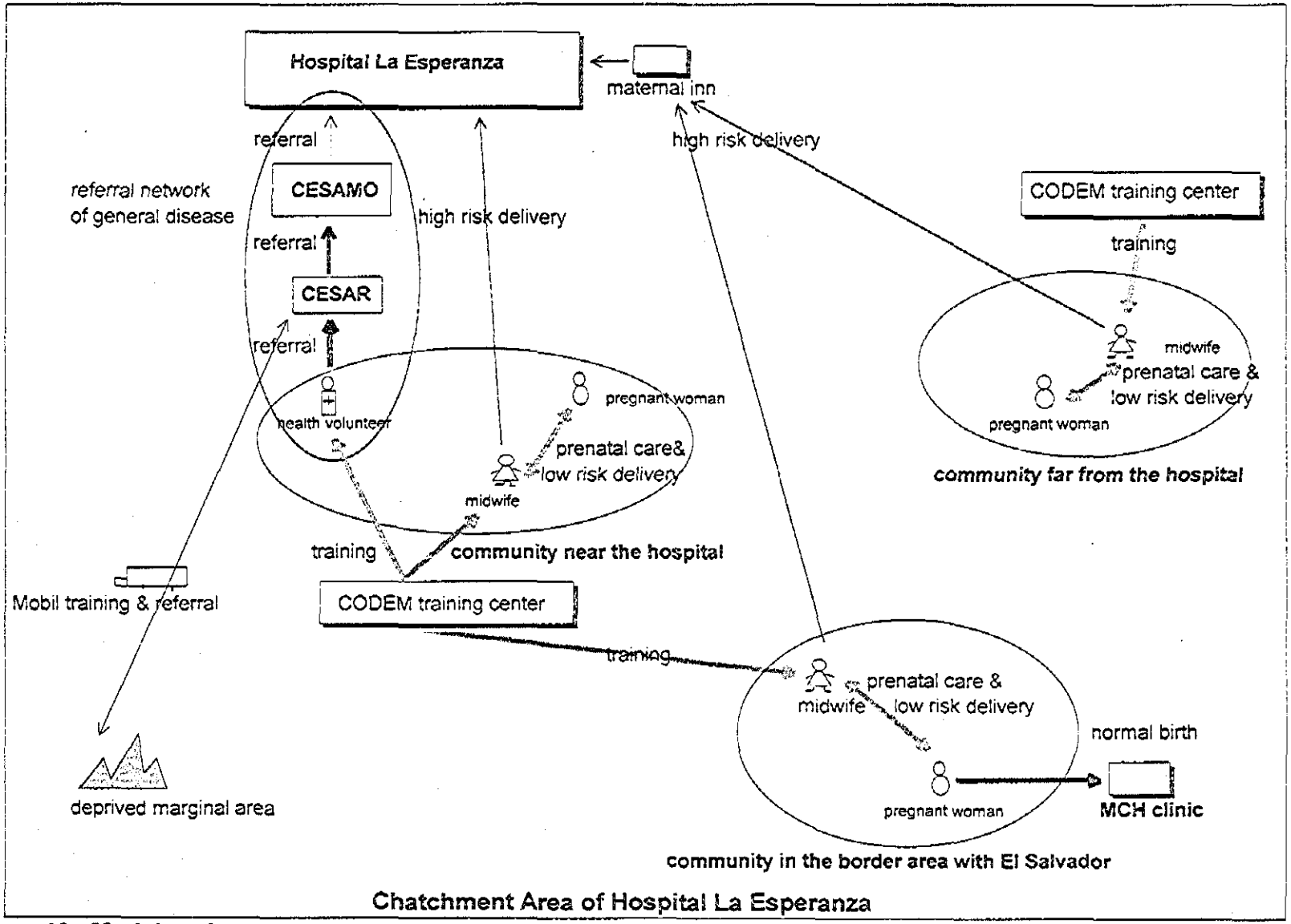


Figure 10 Model project 2: "Improvement of community members' accessibility to health services" in the rural poverty area, Department of Intibucá

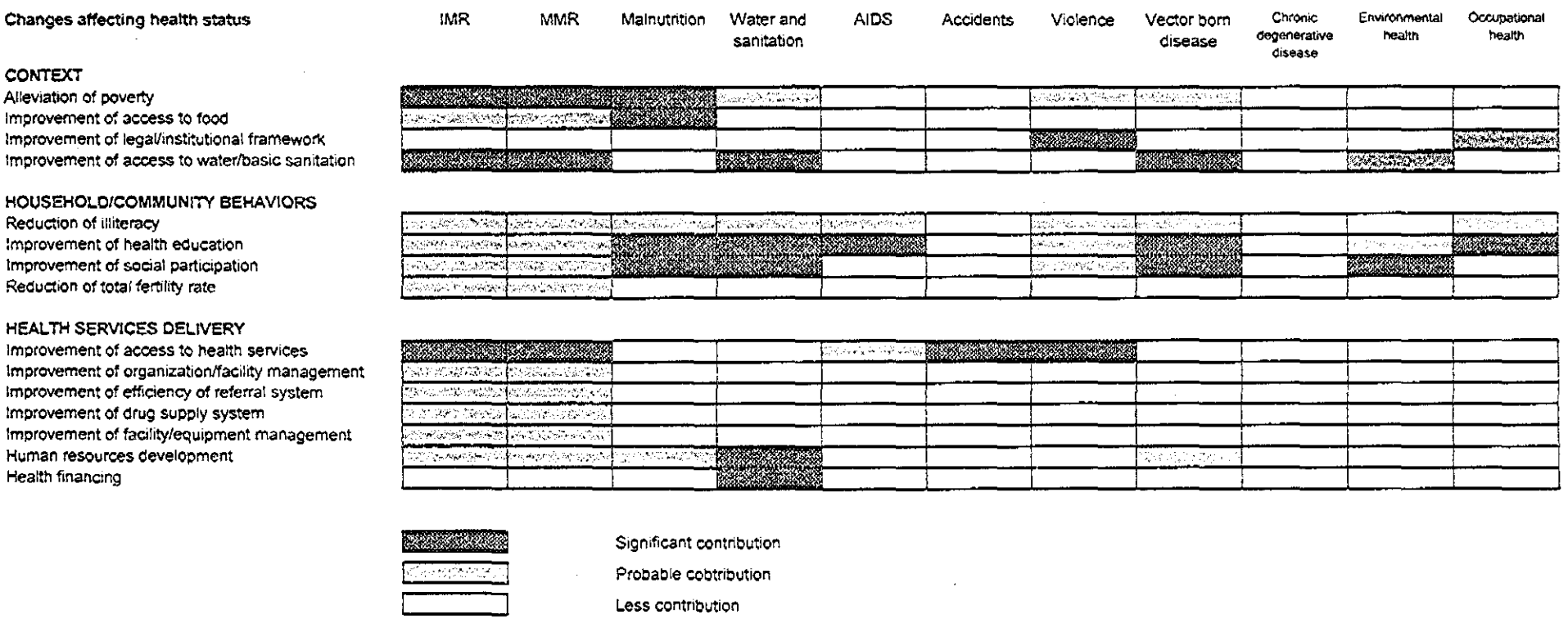


Figure 11 Contribution of 15 strategies to priority health problems in the urban poverty area

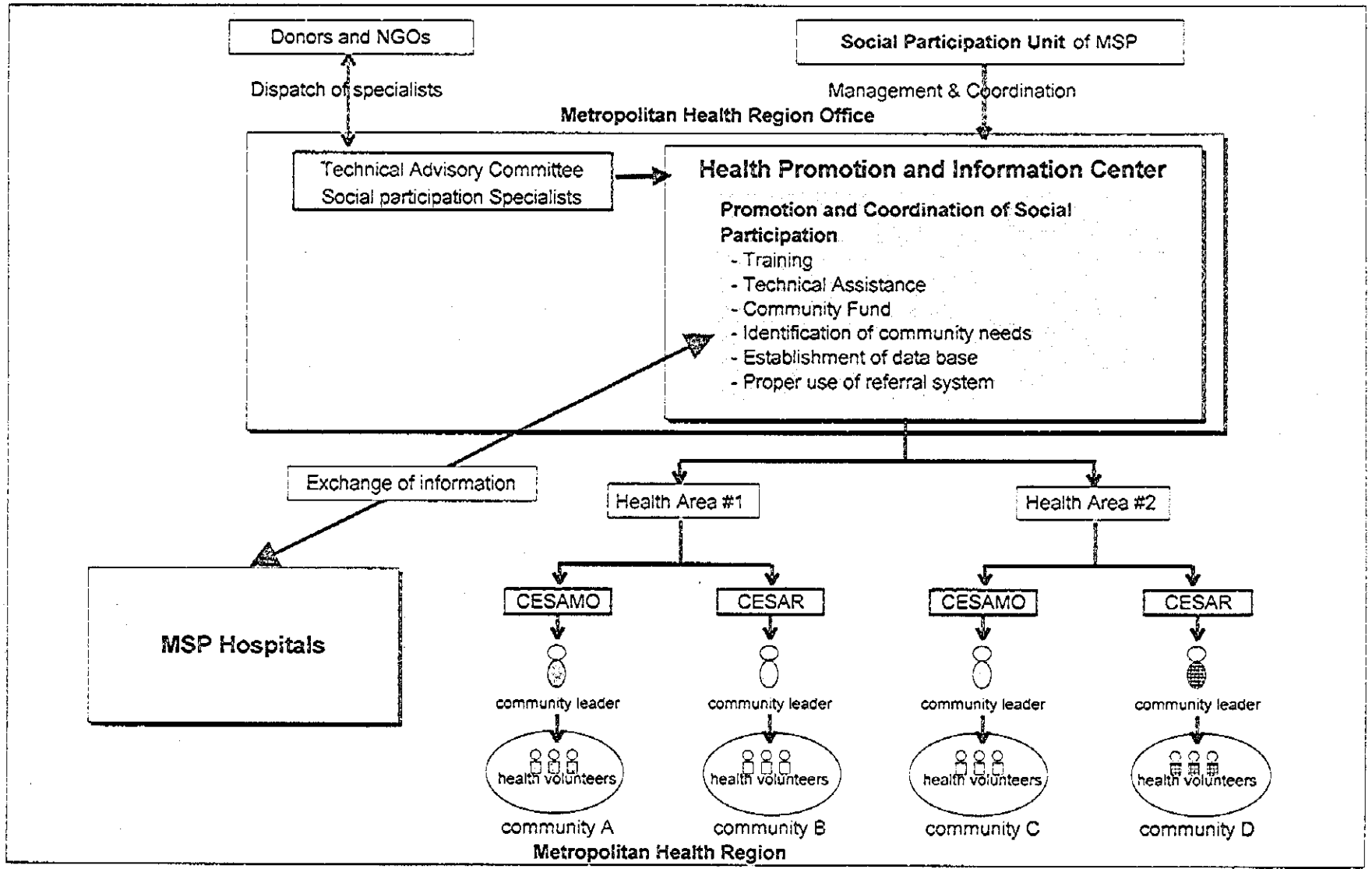


Figure 12 Model project 1: " Improved actions to promote social participation activities" in the urban poverty area, Tegucigalpa

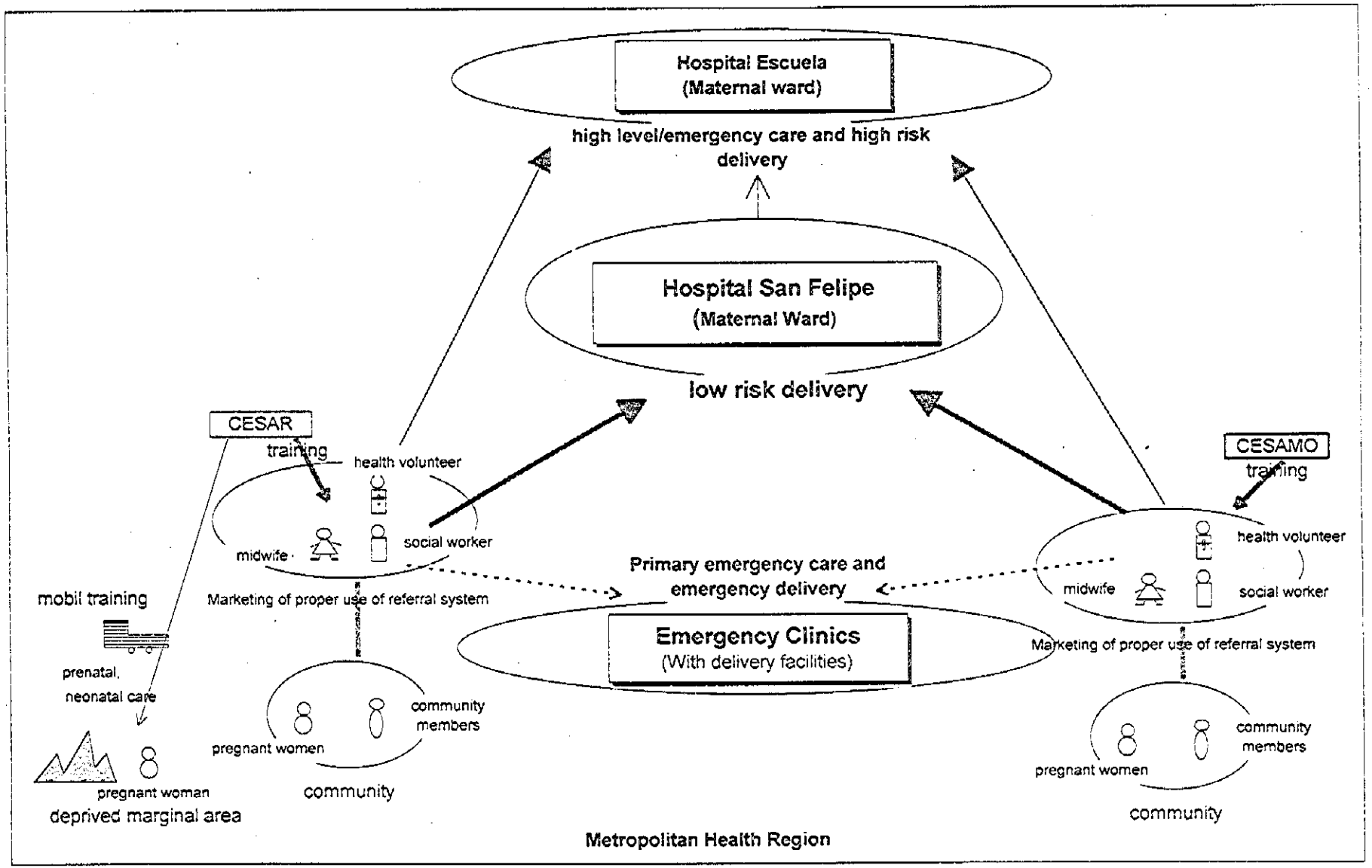


Figure 13 Model project 2: "Improvement of awareness and utilization of the health service network in the primary level" in the urban poverty area, Tegucigalpa

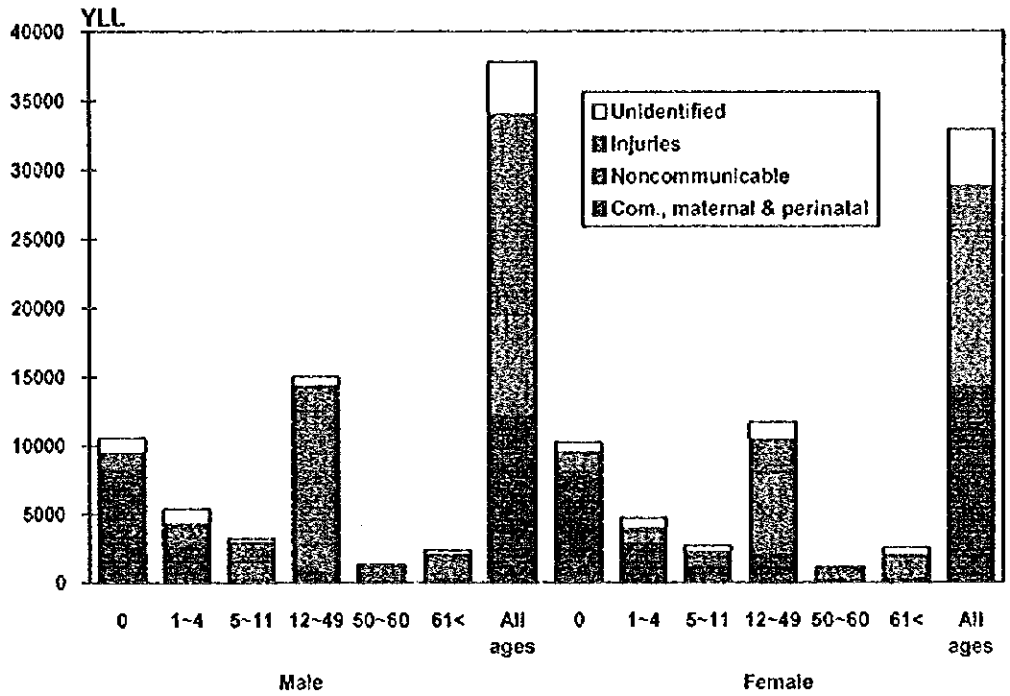
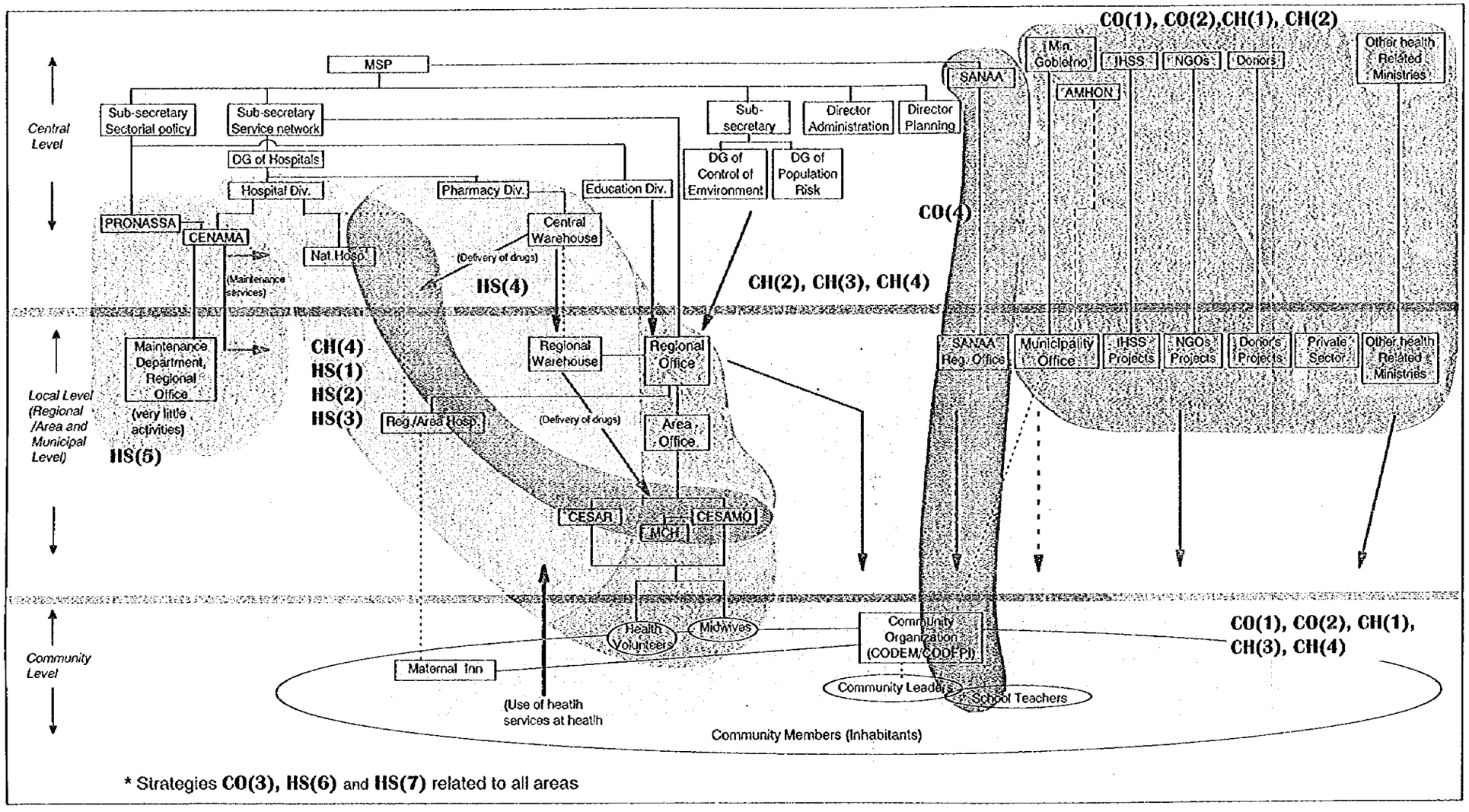


Figure 14 Burden of disease in Health Region No. 7 by sex, age and cause group - 1995



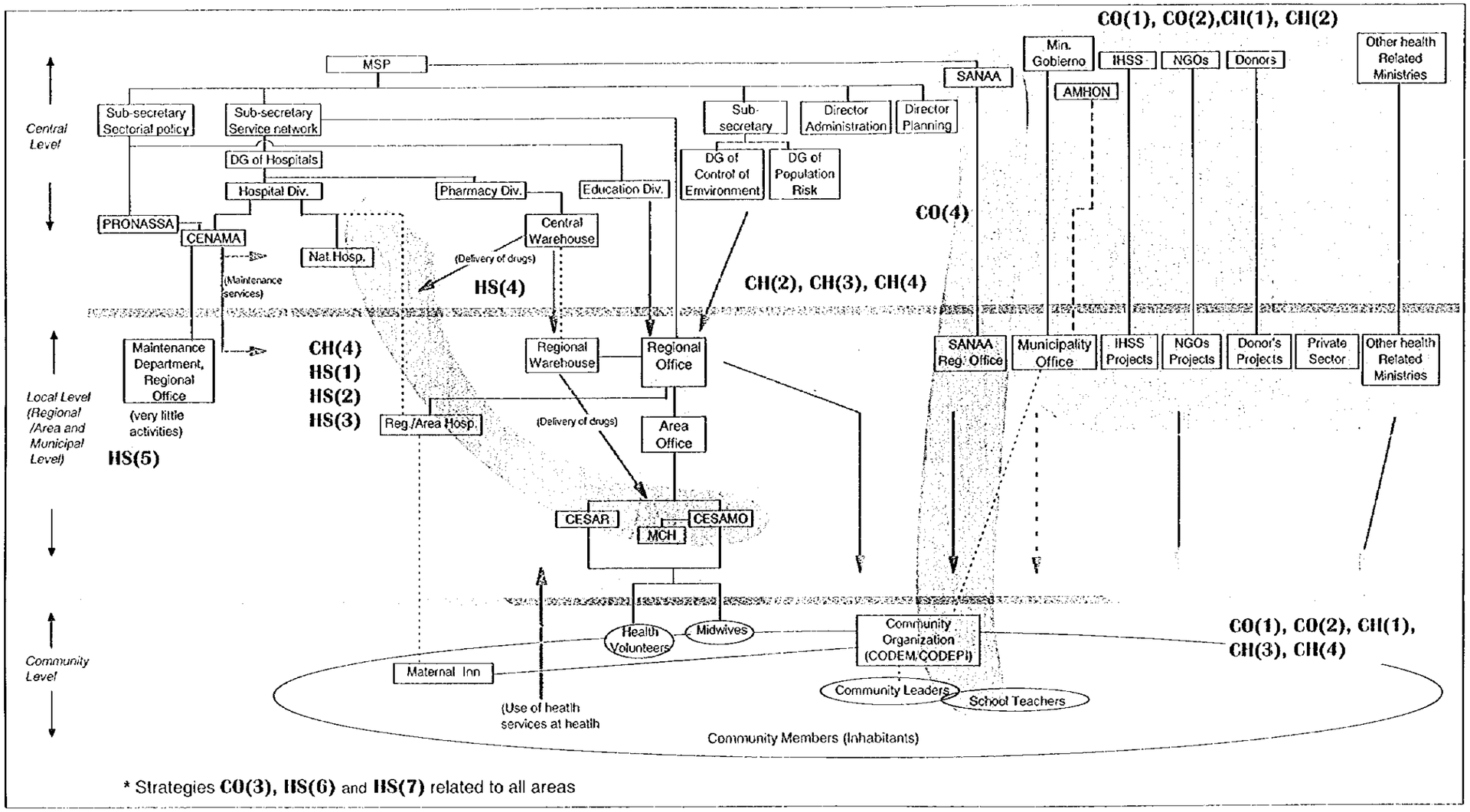
NMHP: National Master Health Plan (15 Strategies)

CONTEXT
CO(1): Alleviation of poverty
CO(2): Improvement of access to food
CO(3): Improvement of legal and institutional framework
CO(4): Improvement of access to water and basic sanitation

COMMUNITY/HOUSEHOLD BEHAVIORS
CH(1): Reduction of illiteracy
CH(2): Improvement of health education
CH(3): Improvement of social participation
CH(4): Reduction of total fertility rate

HEALTH SERVICE DELIVERY
HS(1): Improvement of access to health services
HS(2): Improvement of organization/facility management
HS(3): Improvement of referral system
HS(4): Improvement drug supply system
HS(5): Improvement of facilities/equipment management
HS(6): Human resource development
HS(7): Health Financing

Figure 15 Institutional structure without programs/projects proposed by NMHP and Area Model Health Programs



* Strategies **CO(3), HS(6)** and **HS(7)** related to all areas

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CH(2): Improvement of health education
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HS(1): Improvement of access to health services
HS(2): Improvement of organization/facility management
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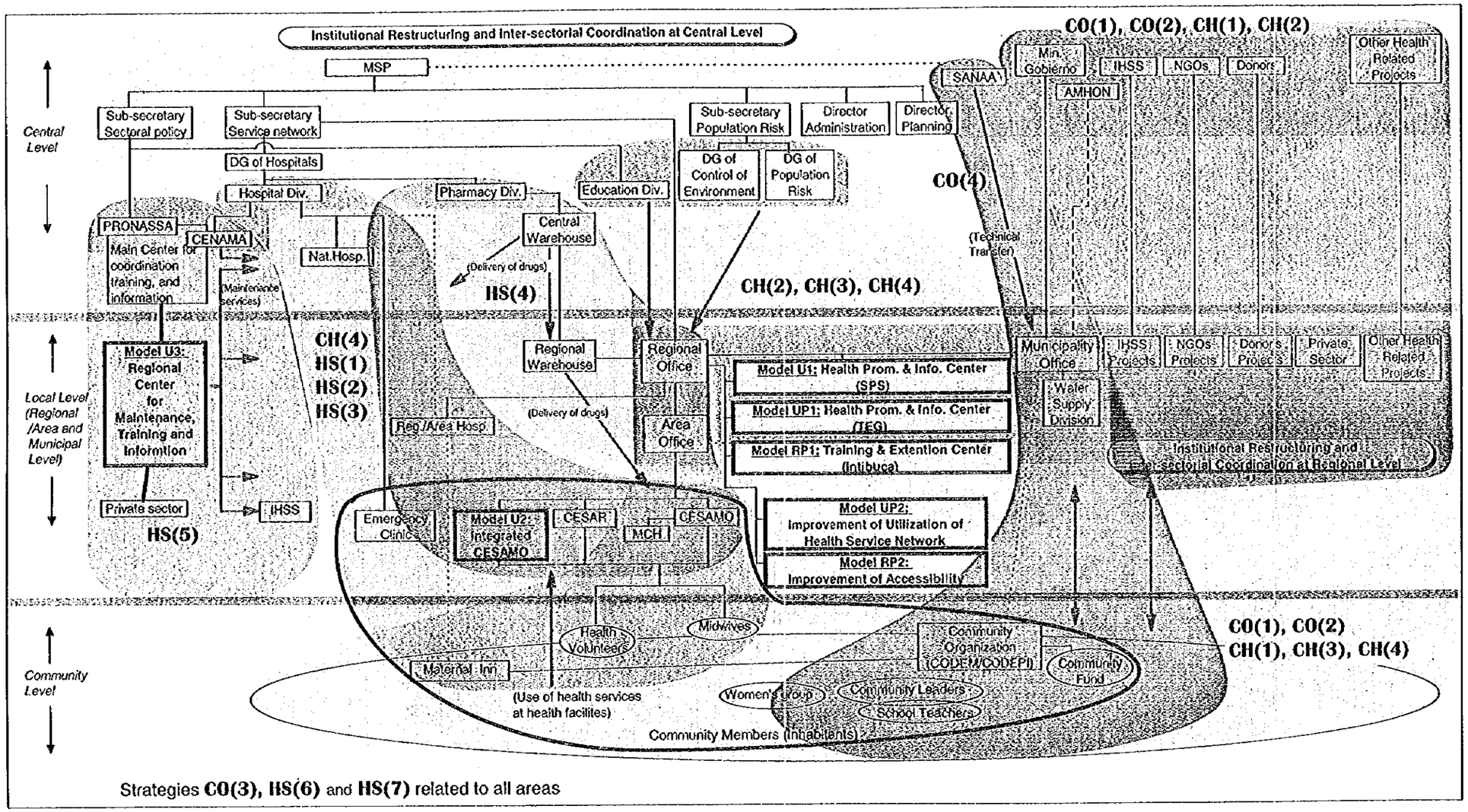

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- **HS(5):** Improvement of facilities/equipment management
- **HS(6):** Human resource development
- **HS(7):** Health Financing

Area Model Health Programs (Model Projects)

MODEL ROJECTS FOR URBAN AREA (in SPS)
- **Model U1:** Health Promotion and Information (AIDS Prevention and Information) Center
- **Model U2:** Reinforcement of CESAMOs' Function
- **Model U3:** Regional Center for Maintenance and Information of Medical Facilities and Equipment

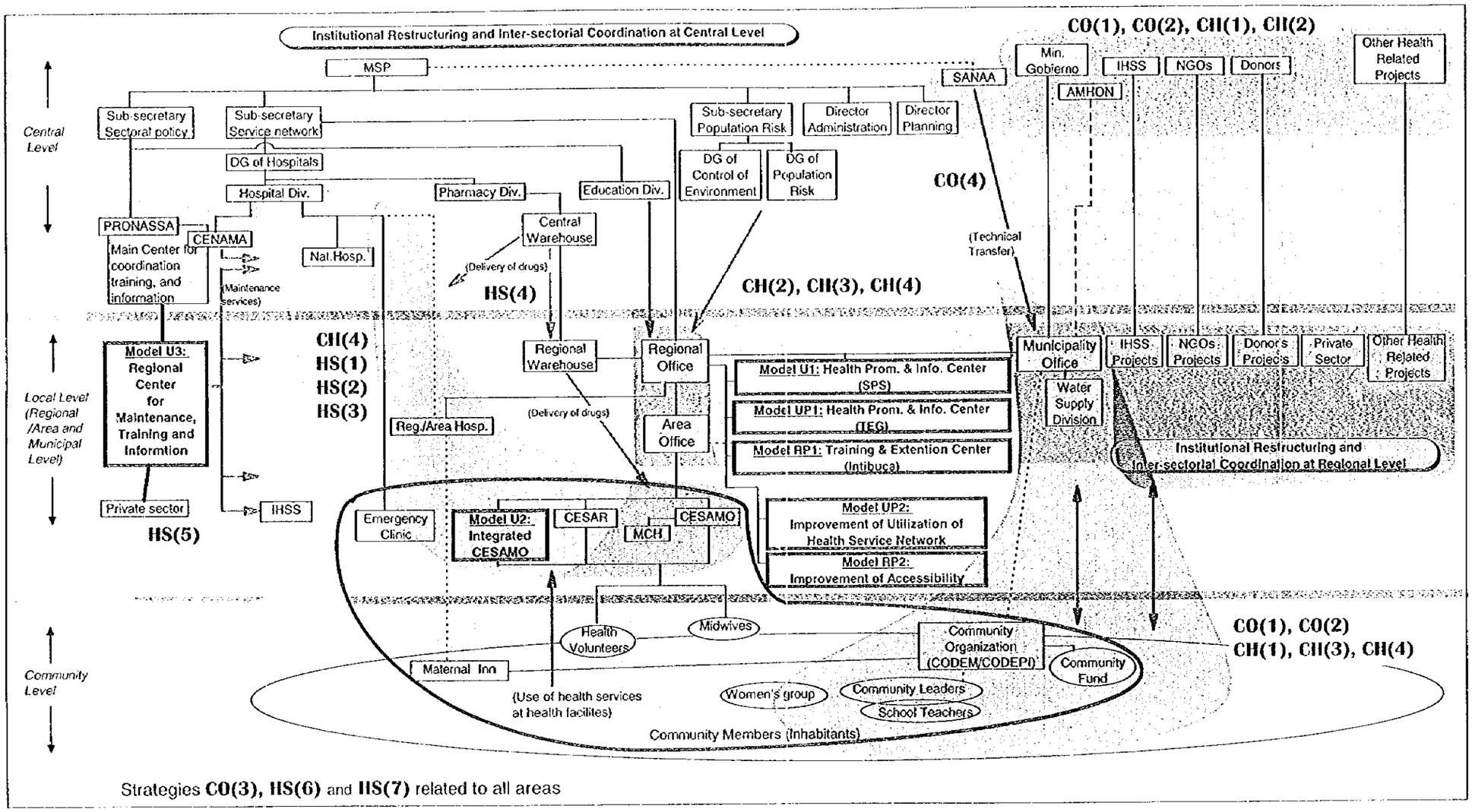
MODEL PROJECTS FOR RURAL POVERTY AREA (in Inatibuca)
- **Model RP1:** Healthy Village Training and Extention Center
- **Model RP2:** Improvement of Community Members' Accessibility to Health

MODEL PROJECTS FOR URBAN POVERTY AREA (in Tegucigalpa)
- **Model UP1:** Improved Actions to Promote Social Participation Acitivites
- **Model UP2:** Improvement of Awareness and Utilization of the Health Service Network

Institutions strengthened and facilites renovated /established in the model projects

Accessiblity to and utilization of health service network will be improved

Figure 16 Institutional structure with programs/project proposed by NMHP and Area Model Health Programs



NMHP: National Master Health Plan (15 Strategies)

CONTEXT
- **CO(1):** Alleviation of poverty
- **CO(2):** Improvement of access to food
- **CO(3):** Improvement of legal and institutional framework
- **CO(4):** Improvement of access to water and basic sanitation

COMMUNITY/HOUSEHOLD BEHAVIORS
- **CH(1):** Reduction of illiteracy
- **CH(2):** Improvement of health education
- **CH(3):** Improvement of social participation
- **CH(4):** Reduction of total fertility rate

HEALTH SERVICE DELIVERY
- **HS(1):** Improvement of access to health services
- **HS(2):** Improvement of organization/facility management
- **HS(3):** Improvement of referral system
- **HS(4):** Improvement drug supply system
- **HS(5):** Improvement of facilities/equipment management
- **HS(6):** Human resource development
- **HS(7):** Health Financing

Area Model Health Programs (Model Projects)

MODEL ROJECTS FOR URBAN AREA (in SPS)
- **Model U1:** Health Promotion and Information (AIDS Prevention and Information) Center
- **Model U2:** Reinforcement of CESAMOs' Function
- **Model U3:** Regional Center for Maintenance and Information of Medical Facilities and Equipment

MODEL PROJECTS FOR RURAL POVERTY AREA (in Inatibuca)
- **Model RP1:** Healthy Village Training and Extention Center
- **Model RP2:** Improvement of Community Members' Accessibility to Health

MODEL PROJECTS FOR URBAN POVERTY AREA (in Tegucigalpa)
- **Model UP1:** Improved Actions to Promote Social Participation Acitivites
- **Model UP2:** Improvement of Awareness and Utilization of the Health Service Network

Institutions strengthened and facilites renovated /established in the model projects

Accessiblity to and utilization of health service network will be improved

Figure 16 Institutional structure with programs/project proposed by NMHP and Area Model Health Programs

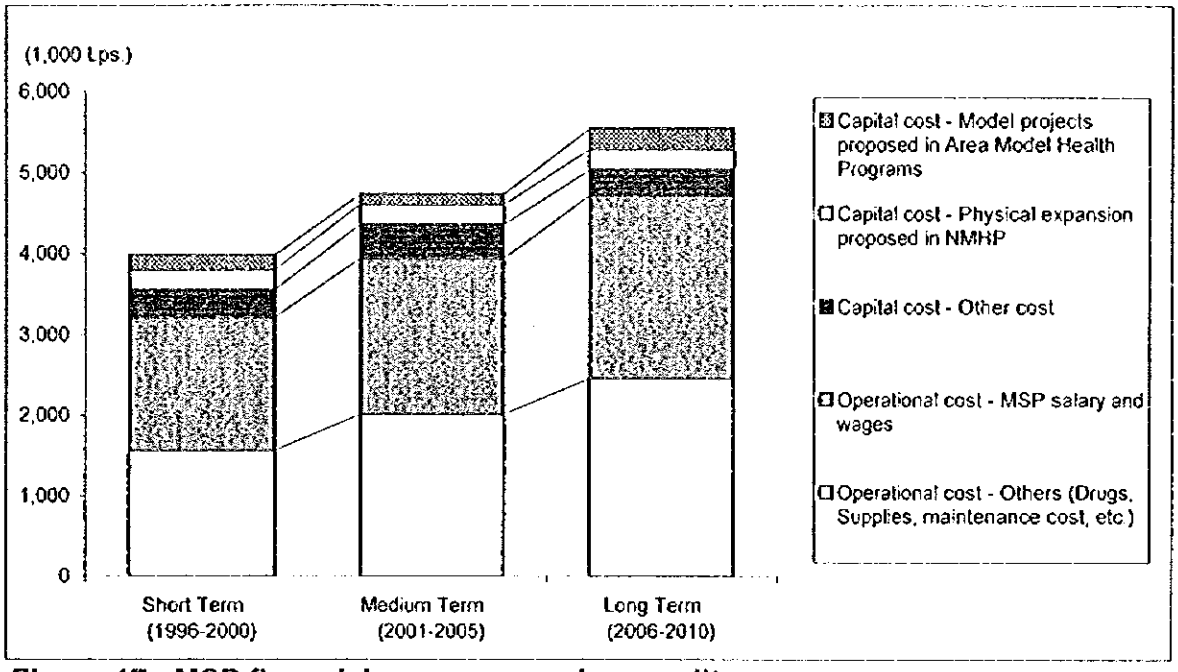


Figure 17 MSP financial resources and expenditure

Table 1 Main cause of disease burden in Health Region No. 7 in 1995 and the cost-effectiveness of the interventions available for their control

				Cost-effectiveness
Disease and injuries	YLLs lost		Main intervention	($ per DALY)**
Motor vehicle accidents, homicide and violence	17,669	25.0%	Alcohol control programme	35~55
Perinatal morbidity and mortality	8,249	11.7%	(a) Prenatal and delivery care	30~100
			(b) Family Planning	20~150
Diarrhoeal disease	7,524	10.6%	IMSC*	30~100
Respiratory infections	7,113	10.1%	IMSC*	30~100
Ischaemic heart disease	2,368	3.4%	Tobacco control programme	35~55
Protein-energy malnutrition, Vit.A, Iodine deficiency	2,269	3.2%	(a) IMSC*	30~100
			(b) EPI-plus (PAI)	12~30
			© Iodine supplementation	19~37
Congenital malformation	1,581	2.2%	Surgical operations	High (unknown)
Depressive disorders	1,414	2.0%	Case management	500~800
Cerebrovascular disease	1,209	1.7%	Case management	High (unknown)
Maternal morbidity and mortality	1,136	1.6%	Prenatal and delivery care	30~110
Chronic obstructive pulmonary disease	857	1.2%	Tobacco control programme	35~55
AIDS/STDs	853	1.2%	Condom subsidy plus IEC	3~18
Childhood cluster	243	0.3%	EPI-plus (PAI)	12~30
Tuberculosis	177	0.3%	Short-course chemotherapy	3~7
Malaria			IMSC*	30~100
Intestinal helminths			School health programme	20~34
Subtotal	52,662	74.5%		
Total YLLs lost	70,651	100.0%		

IMSC*; Integrated management of the sick child
**, cost required to gain 1 DALY

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