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Micro-regional planning in the Mexican state of Guerrero

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EVIDENCE-BASED PLANNING AND LOCAL GOVERNANCE

Micro-Regional Planning in the Mexican State of Guerrero

Interim Report by
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SUMMARY

The municipality is the most peripheral local administrative and political unit in many countries. In five of these units in Mexico, chosen as the most impoverished of the five regions in Guerrero State, the mechanisms and early impact of Microregional Planning were studied in a population of 77,000 people in 700 communities.

As developed in this project, Microregional Planning implies that local epidemiological research results were translated through participatory analysis into information suitable for communication to the local population and, consequently, into local action planning. The outcomes were assessed a year later and the results used to reinforce confidence of the communities and municipal planners. Local personnel were trained in the use of data in planning; the process can continue after external financing is withdrawn. The project is now in its third year.

A variety of communication strategies was used to promote participation, based on local consultation about the channels most likely to be effective. In one municipality, health committees were formed and trained in the control of water quality. In another, previously voluntary health promoters trained in the project were hired by the municipal authorities to communicate the results beyond their own communities; oral rehydration was promoted through a song taught to school children and chlorinating water through house-to-house interpersonal discussions between promoters and householders. In the poorest and most mountainous municipality, "radio casera" (home-made radio) soap operas were broadcast to each of the communities, using local "stars". This was supplemented by broadcasts from the state-run regional radio station. In the largest and most disparate municipality, a child-to-family communication scheme was initiated by training teachers from primary and secondary schools.

The impact of the various communication strategies•each informed by the locally specific results of the research•was measured in terms of changing knowledge, household practices and uptake of services. There was a strong link between specific contents of the communication package and the changing knowledge or practices: what is pushed is what will change. The implication is that local measurement can identify inexpensively what will work in a particular setting; specific content of communication strategies based on this measurement can be the starting point for focused participation.

The actual health impact of the initiative will be measured at the end of the third and fifth years, comparing the five municipalities with the rest of the state. The interview record permits identification of every household and will be used for longitudinal follow-up; it will be possible to analyse differentiating characteristics of households that migrate and those that do not. This follow-up instrument, now covering 34,000 person years and nearly 100,000 person years after five years, will also permit detailed analysis of survival and disability associated with differential access to specific health care interventions.

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Since its inception in 1985, the Centre for Tropical Disease Research (CIET) has been developing an evidence-based planning scheme in the Mexico•s Guerrero State[18]. Now known as Sentinel Community Surveillance (SCS) and implemented throughout Central America[19] and in 37 countries worldwide, this process involved many of the poorest municipalities in Guerrero State between 1986 and 1991[20]. The municipality is the most peripheral administrative and political entity in Mexico. As the municipal authorities gained familiarity with the methods and the hard data produced for planning, several municipal presidents requested that the method be adapted for the needs of local planning. In 1992, CIET entered into an agreement with local governments in the poorest five municipalities in Guerrero State to develop an evidence-based local planning system, with support from IDRC, Canada. This report describes progress and problems of this process, called Microregional Planning.

Although the five municipalities in the project are quite different from one another culturally and topographically, they have in common the fact that each is the most underdeveloped of its region (see Annex 1). They are all geographically, culturally, economically and politically remote from the main centres of Guerrero State, one of the three poorest states in Mexico.

Health conditions in the five municipalities are comparable to the worst in other developing countries. Infant mortality is in the region of 100 per 1000 live births; more than one half of adult women is illiterate; and less than one household in ten has ready access to drinking water. Health services in these forgotten corners follow Tudor-Hart's "inverse care law"[21]: people who most require medical attention are those who least receive it. Only 27 of the 700 distinct communities have a health centre.

Other characteristics of the project area are indicated in Table 1 and Annex 1. The people, as many others worldwide where generation after generation has had to face an apparently insurmountable economic burden, show a passive attitude to resolution of their health problems. It has become “normal” for children to die of preventable causes and for women to die in childbirth. They have become accustomed to poor access to the health services and to their inefficiency and lack of effectiveness.

The objective of this local measurement-based planning process is to promote increasing community participation in planning through local research on immediate health problems in the municipalities, leading to very specific, affordable, remedial actions. The idea is to precipitate action most likely to have a short-term impact and, by measuring that impact, to build the confidence of municipal and household decision makers in basing decisions on hard local data. A supplementary aim is to train local personnel in evidence-based planning so that the process initiated can continue after the externally financed project is completed.

METHODS

Translated into practice, Microregional Planning means a set of local research activities repeated at intervals that progressively include the local authorities and key decision takers, while sustaining scientific rigor. Each cycle begins with the identification of a cluster of "actionable" problems, like diarrhoea, water supplies, hygienic practices in the household and oral rehydration. Analysis of existing data on this cluster of problems identifies information gaps that will be the basis of the cycle design. Design is a collaborative and participatory process, involving local civic leaders, health workers and, frequently, the school teacher.

A cyclical compilation of data on one health problem and its solutions per cycle was carried out in a panel of communities representing each of the municipalities. These data were used, through participatory analysis in the municipality, to identify components of morbidity and mortality on impact could be made with low cost interventions.

These measures are applied in all communities of each municipality, not just the sites of measurement.

The practical challenge of the project is thus to disseminate and to discuss these results in other communities in the municipality, attempting to provoke decisions and action based on measured need and impact. The process of site selection has been described in detail elsewhere[22 23].

Table 1
General characteristics of the municipalities

Municipality Communities	Population Group	Productive Activity	Migratory Destination	Health Centres
Zirándaro 400 communities	21,300 Mestizo	Farming Baking Fisheries	USA	7
Copalillo 12 communities	11,122	Farming Náhual	Nayarit Handicrafts Morelos	5 Sinaloa
Alcozauca 25 communities	15,089	Farming Mixteco	Sinaloa Handicrafts	5 USA
Coahuayutla 167 communities	13,461 Mestizo	Farming Livestock Fisheries	USA	5
Xochistlahuaca 132 communities	16,226 Amuzga	Farming Handicrafts	Acapulco	5

Table 2
Number of households and people surveyed

	Cycle 1	Cycle 2	Cycle 3	Cycle 4
Zirándaro				
households	722	632	8	573
people	4027	3239	groups	3002
Copalillo				
households	976	732	12	936
people	6380	4085	groups	6411
Alcozauca				
households	730	670	7	568
people	5052	5094	groups	4544
Coahuayutla				
households	539	503	8	433
people	2874	2837	groups	2332
Xochistlahuaca				
households	784	399	9	610
people	4382	2263	groups	3424

Field work usually involved three complementary research methods in the same panel of communities: (i) household questionnaires, (ii) an institutional review of the nearest school or health centre and (iii) rapid assessment procedures to obtain qualitative data on the site.

A household survey to obtain quantifiable occurrence data followed most of the normal practices in surveys of this type, with a few modifications. The questionnaire was short, usually 20 to 30 questions, focusing on a cluster of related health problems. The data gathering instrument was the Bhopal booklet, a school exercise book with pages cut or folded in half vertically[24 25]. The questionnaire pasted on the inner cover is read and the answers written on a page identified for each household, one household per page. Contiguous households were contacted, to permit statistical handling as a sort of mini-universe and to reduce wasted time between households. The sites were mapped and households identified for follow-up in consecutive cycles, thus permitting a longitudinal perspective.

The most important difference from other cross-sectional surveys is that these household data were linked with, or analysed in the context of, data from two other sources in the same site: the institutional review and rapid assessment, including focus groups.

A systematic and focused institutional review of health or education facilities covered existing data, personnel issues, times of operation, cost implications and relations with the community. This institutional review provided the interface between the community and the health service. Preliminary analysis of the household data formed the basis for the third method, a participatory rapid assessment (PRA)[26]•usually following one of the focus group methods•to tie in the qualitative perspective, particularly the views of the community on what can and should be done about the problems.

Thus, data on occurrence, such as diarrhoea rates, household opinions, costs and so forth, are aggregated from the household survey. At the same time and from the same sites, qualitative data are collected on what should be done about these occurrences. The linking of these coterminous quantitative and qualitative data on a panel of sites representing the municipality, called "meso-analysis" in Sentinel Community Surveillance, is one of the distinguishing features of the SCS methodology[27].

In the first two years of the project's life, the five municipalities carried out four research cycles in five to eight sentinel sites per municipality. Problems examined and local initiatives developed were quite different from municipality to municipality, despite the input into each municipality of the same epidemiological measurement skills.

In the five municipalities, some 3,000 households were surveyed each cycle, totaling more than 17,000 people; an overall sample of around 20 percent of the entire population of the municipalities (Table 2). In successive research cycles, the number of households contacted during the survey was reduced in some municipalities. One reason was the migration of families as a result of the economic crisis; in two of the mountain communities in the sample, virtually the entire village left. As a consequence of the local participation in its design, the questionnaire in the second cycle was longer than the first, resulting in a lower number of households contacted.

During the four cycles over a period of two years, each household in the sites was contacted nine times (each contact lasting from 3 to 15 minutes). After each data gathering and analysis exercise, preliminary results were returned to each household.

As only 27 of the 700 localities in the five municipalities have a health centre, it was decided at the beginning to provide free medical consultation at the time of the interviewing. Most of these health units have no physician and people are seen by a health auxiliary, generally a person from the community acting as a nurse. Though for poor people in a remote community two days of access to medical consultation per year is unlikely to change morbidity and mortality patterns, it does represent an intervention, in the sense that other, non-sentinel communities do not have even this minimal service. During these early stages of the project, it was considered that, in exchange for cooperation with the communities and in order to comply with ethical imperatives, the bias introduced by these medical consultations was acceptably small.

Table 3
Associations used in community feedback
First research cycle

Municipality	Relative Risk	Risk diffs	Aetiological fraction
Zirándaro			
Diarrhoea and water	2.0	0.11	42%
Copalillo			
Diarrhoea/chlorination	2.1	0.10	45%
Short-duration diarrh and early use of ORT	2.5	0.22	40%
Alcozauca			
Diarrhoea and water	1.5	0.10	27%
Diarrhoea/field toilet	2.5	0.26	59%
Short-duration diarrh and early use of ORT	3.2	0.15	16%
Coahuayutla			
Diarrhoea and water	1.8	0.10	34%
Short-duration diarrh and early use of ORT	2.5	0.16	68%
Xochistlahuaca			
Diarrhoea and water	3.2	0.12	42%

Table 4
Associations used in community feedback
Second research cycle

Municipality	risk	Relative diffs	Risk fraction	Aetiological
Zirándaro				
Scorpion sting & in-house corn storage		1.45	0.02	22%
Scorpion sting & storage of seldom used items	1.6	0.001	33%	
Scorpion sting & glove use during the harvest	0.64		-0.07	-32%
Copalillo				
Scorpion sting & covered bed		0.04	-0.02	-66%
Scorpion sting & ducks on the patio		0.05	-0.01	-50%
Scorpion sting & glove use during the harvest	0.04		-0.03	60%
Alcozauca				
ARIs & smoking indoors	1.35		0.07	13%
Shorter duration ARIs & greater liquid intake	2.2	0.18	27%	
Coahuayutla				
Scorpion sting & home storage of fodder	2.0	0.07	47%	
Scorpion sting & glove use during the harvest	0.67		-0.05	40%
Xochistlahuaca				
IRAs & vaccination against measles	0.64	-0.11	18%	

ANALYSIS: THE PLATFORM FOR COMMUNICATION

One of the unusual aspects of microregional planning is the link between analysis and communication. An explicit aim of the project was to identify and test communication techniques to promote participation in the resolution of problems identified. The epidemiological analysis of household data provided feedback and application of results throughout the municipalities, not just in the sentinel sites.

This analysis starts by establishing the frequency of the phenomena in the community; for example, one child in three has diarrhoea, two out of three households do not use latrines. Subsequently, the analysis identifies occurrence relationships susceptible to change, using stratification to identify and take into account epidemiological confounders and effect modifiers[28 29]. Information generated by the analysis, including data on the costs of the disease and the cost of solutions•in money or in working days lost•was packaged for feedback to the communities after each cycle.

Results varied in different municipalities (Tables 3 and 4), even though the initial problem studied, diarrhoea, was common to all. During the first cycle, a robust association was found between diarrhoea and water treatment in some places, while in others there was an association between diarrhoea and method of excreta elimination. For example, based on the risk difference for diarrhoea with and without latrines, latrine installation was chosen in Alcozauca for maximum impact (risk difference 26 percent).

The content of the second cycle was influenced by the results of the first and by opinions of community leaders and members who took part in the discussions. To some extent, the desire for new data exceeded the need to consolidate community opinion, its action and the impact this may have on health.

A mid-course adjustment to the work plan was made because of the abundance of data produced by the first two cycles before action could be taken to resolve problems identified. A cycle of focus group discussions in each site was done to increase the "digestion" of data from the first two cycles.

The diversity of problems across different municipalities, during the first steps of the implementation, distracted from the anticipated

multiplication of knowledge through exchange between municipalities. The concept of "micro-region" was taken to heart and several municipalities identified additional local problems to be tackled during the second cycle. Thus, three of the five municipalities decided to study scorpion sting, for them an important and unresolved health problem not addressed adequately by traditional or Occidental health care systems.

A central theme in analysis at municipal level is the reported cost to the community and to the service of each intervention a*nd the reported cost of failure to implement*[30]. Household costs of health care were measured in several ways. For all preventive activities, like latrines or boiling water, costs were estimated from the household interview. For each case of diarrhoea, for example, the mother was asked how much had been spent in cash and how much time had been spent caring for the sick child. Costs of frequently used drugs were ascertained from local merchants. Reported costs of diseases were summarised in terms of working days lost as a result of illness or looking after a sick person. These costs were then presented to the communities as potential savings, in relation to different strategies that might be chosen. Although probably not accurate enough to use as exact costs of each illness, these data, when correctly communicated, provide an added stimulus to do something about the situation. Households and planners alike are able to see what they spend on prevention and what they would spend on treatment.

Table 5 illustrates the range of costs for the average case of childhood diarrhoea in the municipalities, amounting to a salary of one or two days (at the official minimum wage).

Communication and mobilisation

A broad variety of channels has been used to convey results and feedback (see Table 5). Community meetings were used frequently, as were brief reports (a single page, 50 to 60 words, very large type) containing written preliminary results, generally referred to as "summary report".

After the first cycle, the communication strategies most suited to each municipality were defined on the basis of the results and acceptance among the people.

In Xochistlahuaca, the best communication mechanism was through community meetings, at which street theatre (known locally as sociodrama) prepared by the voluntary promoters was presented to each of the communities (sentinel and otherwise) each cycle. In Zirándaro, results were conveyed to the communities through street theatre, on some occasions through groups of children using home-made puppets. In Copalillo, results and feedback about a water cost study were coordinated by a local municipal official; this also included the preparation of a booklet.

Radio messages and hand drawn cartoon "comics" were preferred in the more remote mountain areas. In Alcozauca in La Montaña region, *Radio Casera* (literally, "Home-made Radio") was started; these tape-recorded soap operas feature voices of people from the local community, presenting the results or the argument being proposed, overlaid with humour and pathos. It is transmitted at different times of the day over the local community loudspeaker system.

PROJECT IMPACT

The final aim of the Microregional Planning project, its reason for existing, is to examine whether data about impact, coverage and cost, when communicated adequately at community level, work as a catalyst for the betterment of health[31] [32]. Unlike many other epidemiological studies concerned with avoiding the Hawthorn effect (where the "subjects" of the study change as they are exposed to the study), the success of Microregional Planning is related to the extent to which it can create this effect. Dialogue around the results aims to change levels of knowledge, attitudes and opinions as a consequence of the research process, even before any health impacts resulting from specific interventions can be felt.

Based on the first two years• experience, the research has contributed in several ways to health improvement in Guerrero State•s poorest and more remote communities.

Table 5
Results and feedback mechanisms

	Main feedback theme	Means employed
Coahuayutla		
First cycle:	Diarrhoea risk factors preparation/use of OR	Meetings (7 localities) Booklets to 40 communities Seminar for teachers (16) Lectures to students (180)
Second cycle:	Risk and prevention of scorpion sting	Summary report (33 communities) Community meetings (5)
Municipality of Zirándaro		
First cycle:	Diarrhoea, risk factors, prevention and treatment, use of salts	Community meetings (20) Booklets in 40 communities Sociodramas (3 communities) Puppet theatre (3 communities) Lectures to school (1079) Radio: broadcast song
Second cycle:	risk factors and prevention of scorpion stings	Summary report (15 comm.) Community meetings (7) Lectures to schools (333)
Alcozauca		
First cycle:	Diarrhoea, risk factors and prevention, preparation and use of salts	Community meetings (25) Booklets (25 communities) "Home Radio" (25 communities) Video (21 communities)
	Construction, use and maintenance of a latrine	Community meetings (17) Manuals (7 communities) Regional radio Demonstration (17 communities)
Second cycle:	ARIs: risk factors, prevention and treatment	Community meetings (25) Flipcharts Regional radio messages
Xochistlahuaca		
First cycle:	Diarrhoea: risk factors and prevention	Community meetings (3) Social dramas (2 communities) Flipcharts (32 communities) Murals (drawings)
Second cycle:	IRAs -risk factors and preventive measures	Community meetings (32) Flipcharts (32 communities)
Copalillo		
First cycle:	Diarrhoea, risk factors and prevention	Community meetings (12) Booklet to all households Theatre (Copalillo)
Second cycle:	Scorpion sting: risk factors and prevention	Community meetings (32) Flipcharts (12 communities) Booklet to all households

Improvement of knowledge

Tables 6 and 7 show the changes that have occurred, two years into the project, in the health practices of the population. In most of the communities, water treatment was increased, either by boiling or chlorination. Knowledge of how to prepare home-made oral rehydration solutions for use in cases of diarrhoea also increased dramatically.

Table 6
Knowledge of preparation of oral rehydration salts

	First cycle	Second cycle
Zirándaro	33%	42%
Alcozauca	12%	17%
Xochistlahuaca	10%	28%
Copalillo	17%	14%
Coahuayutla	20%	45%

Table 7
Knowledge of boiling drinking water

	First cycle	Second cycle
Zirándaro	14%	21%
Alcozauca	12%	41%
Xochistlahuaca	11%	27%
Copalillo	29%	28%
Coahuayutla	38%	43%

What was remarkable about these results is the heterogeneity among municipalities, not only in original knowledge levels•a consequence of differential exposure to the state-wide health education campaigns•but also in the change from one cycle to the next, despite those campaigns.

In the case of one municipality, Copalillo, the CIET Epidemiology Resident left the project when the cycle began. His tasks were taken over by a small group formed at short notice. As a result, the cycle was executed in a fairly mechanical way, without full discussion of the data or participation in the search for solutions. Despite the state-wide campaign about cholera risks, intended to reach the entire population, in addition to the full research cycle on the same subject, Copalillo did not show improvement in knowledge of preparation of oral rehydration salts. A similar trend is illustrated in Table 7, showing the habits of treating water before drinking. The improvement in the other municipalities is notably greater than in Copalillo.

For example, in the Alcozauca municipality, there was very active community participation in the analysis, communication and mobilisation. Results indicate the consequent importance given in this municipality to latrine installation and water treatment. No particular emphasis was put on oral rehydration salts and, as a result, there was no major improvement concerning the salts (Table 6). However, based on first cycle data from this municipality, a chlorination campaign was started. All wells in the municipality were chlorinated with volunteers from the communities walking many miles over tough terrain to collect free supplies of chlorine.

Community voice

Increasing confidence of the communities has had some surprising secondary effects. The growing demand for physicians to staff previously abandoned health centres resulted, by the second year of the project, in the assignment of physicians to four of the five centres in two municipalities. People have begun to complain with greater energy and to use local data to underline their case. In both Xochistlahuaca and Alcozauca, for example, the failure of the health alderman to chlorinate the water was formally denounced.

Other effects of the empowerment process are indirect. For instance, in Copalillo, the results of the scorpion cycle was used by the municipal authorities to justify the introduction of electric power in three communities. The study had shown a higher incidence of scorpion sting during the night in communities without electric power.

While providing hard data about diarrhoea incidence, its cost and risk factors, the project used different techniques for bringing the community's voice to the planning process. In addition to considering the protective effect of latrines, focus groups reported other advantages of the latrine, such as privacy and the safety factor for their children, especially for female relatives, when using the facility during the night. These opinions came to the planning table and gave context for the quantitative data.

Following a meeting of Alcozauca's municipal council that focused on data regarding the possible protective effect of latrines, several communities presented requests for latrines. Coincidentally, members of the council participated as homeowners in dialogue on study results, contributing with data from their own homes, a few weeks earlier. The meeting generated a proposal for a latrine-building micro-project, later presented successfully to UNDP for funding. The

experience of latrine construction in Alcozauca offers a marked contrast with the history of latrine building in Guerrero state generally. Wide dissemination of the data and the ensuing discussion mobilised the people of this municipality to demand materials for building latrines, something without precedent in the region.

The latrine micro-project was negotiated by the municipal authorities with the Instituto Nacional Indigenista (INI), which channeled UNDP funds to finance purchase of cement while the remaining part (stone, sand, gravel and manpower) was provided by each community. The CIET Epidemiology Resident in charge of the project, with the Municipal Planner (previously the municipal policeman, retrained as a planner in the course of the project), built one demonstration latrine in each of the 16 communities and supervised construction of the remainder. Handmade booklets and posters explaining the construction were supplemented with radio messages with information about maintenance. In less than four months, nearly 1,000 latrines were installed in 16 of the municipality's 20 communities.

The health impact of the latrines•reduction of diarrhoea risk•will be evaluated in the third year of the project and the population informed of the results, thus strengthening the use of data at the household level. The latrine programme gave rise to other action in Alcozauca municipality, with spin-off for development: three communities repaired the road to transport materials for the programme.

An important caveat in the interpretation of effects of Microregional Planning is the coincidence with the widespread dissent and organisation of indigenous groups, the most publicised being the Zapatista Army in Chiapas (discussed below). This has produced a virtual flood of government resources to previously forgotten corners of the mountains, in addition to a changing consciousness of the people themselves. Interpretation of Microregional Planning, in this context, must draw on (i) the contrast between indigenous and non-indigenous municipalities among the five participating in this project, (ii) the contrast between the three indigenous municipalities in the project receiving additional state resources, but with differences in implementation of Microregional Planning and (iii) in later stages, the contrast between indigenous municipalities in the project and those not involved that also receive additional resources.

Knowledge transfer and a growing evaluation culture

Communities have been able to assimilate the concept of a causal relationship between several factors and disease. For example, the role in diarrhoea of consumption of untreated water or the presence of pigs (free-range pigs are the garbage and sewage disposal "system" of these areas) is now widely accepted. Many communities were convinced about the water contamination mechanism and of the need for its treatment. The concept of relative risk was easily communicated (“a child in a house using free-range pigs as their sanitation system has three times the risk of diarrhoea”). This proved a useful mobilising format at household level, expressing the relative advantage for a household opting for the intervention. For planners wanting to choose between options, risk difference proved the key parameter. Thus, in Alcozauca, a latrine programme might be expected to reduce the diarrhoea rates by some 16 percent, after the effects of water treatment and water source are taken into account.

One temporary result of the micro-project was that many communities formed water chlorination monitoring committees, noting the shared risk from a contaminated well. Others preferred chlorinating the water in their own homes. In Xochistlahuaca, where tethering free-range pigs was proposed, the population accepted this measure for the first time; empirical local measurement was able to demonstrate that pigs eating human excrement can contaminate human food stuffs or areas where food is prepared. The success of this programme is without precedent among many that tried conventional health education techniques in this part of Mexico to convince the population of the necessity to tether free-range pigs.

Some of these methods are finding their way into the formal education processes. The Copalillo costs study, for example, was supported by local students who took part in the entire process.

The project also sensitised communities to the value of research as a tool for increasing their voice. The municipality of Xochistlahuaca provides a specific example. At the beginning, one of the communities from which a promoter had been recruited had not been considered as a sentinel site in the original sample. When the population insisted on being surveyed, the promoter applied the questionnaire, analysed the data and left the results with the community.

Consciousness about costs

Another result of the project is the consciousness about cost of diseases; the approach of quantifying all household costs was applied in each municipality. This aspect is rapidly being incorporated into the culture of the communities. In their discussions about diarrhoea, mothers talked about the reported costs involved in obtaining more wood to boil water. Table 8 illustrates the cost of the average case of diarrhoea in each municipality. The wide discrepancy is mostly a function of the development of the private medical sector. With regard to scorpion sting, lengthy discussions weighed up costs and losses involved in storing corn outside, compared with the risk of scorpion sting. And during the skin diseases cycle, the detailed analysis of costs of unnecessary or useless pharmaceutical preparations formed the basis for the training modules of the voluntary health promoters.

Table 8
Average reported cost of diarrhoea case

Municipality	Cost /case (N$)	Working days lost per case
Zirándaro	28	1.6 days
Copalillo	33	2.3 days
Alcozauca	12	1.0 days
Xochistlahuaca	14	3.4 days
Coahuayutla	21	0.6 days

During the implementation of the third cycle in the main area of the Copalillo municipality, the population and the authorities reflected on the cost of supplying households with piped water. A secondary study of costs of collecting water was undertaken, confirming that it would be cheaper to provide a water outlet to each household than to continue with each household carrying water from the sources. Children questioned their parents about family expenditures in water chlorination, as well as how many people and how much time are invested in supplying the home with water. After the results were made known, it became difficult to avoid discussing costs of a wide range of phenomena outside of health. With these data, an agreement was reached with the State Government that a pipe network be built. An important facet of this second study was that resources were provided by the municipal authorities and not by the Microregional Planning project.

This project was never conceived as a service activity to strengthen primary health care. Inadvertently, however, the work did draw attention to some deficiencies of health care at the periphery. In these remote communities, giving a patient a medical prescription means nothing. There are few places to buy the drugs and people seldom have resources to do so anyway. A partial solution arising from this project are the "popular pharmacies". This is a *Bamako initiative*[33]-style solution involving rotating funds for purchasing a limited range of essential drugs. Preliminary steps have been taken, in collaboration with one of the major government-sponsored health and development foundations, to extend this throughout the mountain region.

Promoters and local health care capacity

One aim of the Microregional Planning project was to clarify practical issues in the decentralisation of essential health research and in sustainability of decision making based on the results of this research at the municipal level. Consequently, capacity building is central to the concept of Microregional Planning at the municipal and community levels. As a direct consequence of the project, three of the five municipalities have supported the in-service training of a "microregional planner" in the municipal administration, paid by the municipality. This person has been trained in research planning, questionnaire design, survey execution, data analysis, communication techniques and resource management. The other two municipalities have opted to incorporate community health promoters into their planning process. In one case, Xochistlahuaca, the municipal authorities now pay these promoters in order to continue having their services.

In these municipalities where social underdevelopment is so prominent, one of the first demands of the community was for medical assistance. For decades, the population had to do without qualified health personnel. From the initiation of the project, it was considered unacceptable that medical researchers only take data from the community, without including medical care activities. Thus, without considering it an objective of the project, attention was drawn to some of the deficiencies of the medical care services.

Communities began to demand that their health centres be staffed with physicians. At the time of this report, only two municipalities had been successful in having doctors assigned to their health centres. The demands continued, however, with several of the municipalities looking to the

Microregional Planning initiative to suggest a solution.

As a partial response to these demands, a programme was developed for training community health promoters, their education to cover curative and preventive aspects. A considerable number of communities (48) appointed a total of 96 promoters. As a rule, these have been people connected with health care activities in the community: traditional healer, midwife, health auxiliary, etc. Some of these have been trained in water chlorination, treatment of scorpion stings and in construction and maintenance of latrines. In Xochistlahuaca, five promoters "graduated" into the role of microregional planners. They come mainly from two communities, though in their work they cover the entire municipality.

All training provided to the promoters and local medical personnel has been connected with the research cycles, the topic researched being the cornerstone of the training. Promoters participate in data collection, preliminary analysis and dissemination of results; among indigenous Indian communities, promoters are the linguistic connection in meetings and focus group discussions. They are also trained to counsel people in the community. Repetition of clinical questions, treatment and recommendations in the course of household surveys simplifies assimilating these aspects.

MICRO-PROJECTS

In addition to the successful latrine-building initiative in Alcozauca, several micro-projects emerged. The full health impact of these will take several years to become apparent, but their occurrence might be considered a positive outcome of the project.

Scorpion sting

Despite preventive measures taken against scorpion sting, this is still a frequent and sometimes deadly, event. From the moment the communities showed interest in studying this problem, they also requested that therapeutic measures be researched, as they have limited access to those used in other places. Anti-scorpion serum with steroids is the officially recommended treatment, although the communities do not have refrigerators to store it. Also, it is extremely expensive and, being prepared from horse serum, there are certain risks involved in its use. As an alternative, a research project was proposed investigating the effectiveness of the electrical discharge, a technique that has proven successful in other parts of the State with greater incidence of scorpion sting[34].

Water cost and benefit

Water supply was a problem needing a solution in Copalillo municipality. In December, 1993, the municipality decided to investigate the costs to the community of not having a water system. Local college students (15 to 18 years of age) cooperated in the study and the data collected showed a clear benefit from piped water. As described above, the community soon thereafter received piped water. However, this has led to an additional need to continue monitoring progress. A follow-up study must be done to research water quality and treatment costs (in economic as well as in health terms), cost of a water treatment plant and so on. The presence of unused pipes will be monitored in communities close to local rivers; this illustrates how the cost focus has led municipal authorities to ask also about potential waste of each new investment.

Impact of health promoters on three dermatoses

Nearly one quarter of all household health expenditure in Guerrero has been attributed to inappropriate and mostly ineffective, skin care[35 36]. The fourth cycle about skin diseases resulted from discussions with the communities. This focused on treatment of the 10 most frequent skin problems including pyoderma, scabies and ringworm. An intervention study was established to measure the impact of health promoters in the management of these dermatosis. This study is being undertaken in a group of communities, including two sentinel sites and several non-sentinel communities. Health promoters were supplied with medicines, their training including how to differentiate curable skin diseases from others for which no treatment is available at the community level. The changing practices and cost implications will be evaluated within one year.

CONCLUSIONS AND CHALLENGES

The first two years of the project clearly show that Microregional Planning can be effective in achieving actions likely to benefit the health of communities. Local administrations can be brought into community-based research and the results can be socialized throughout the municipality to precipitate problem-specific decisions. Being able to monitor the implementation of their decisions and the impact this has at community level, reinforces the entire process. Only two years into the project, it is unrealistic to expect measurable changes in mortality or morbidity.

A perhaps predictable but still useful result is the

extent to which specific, locally-relevant data do actually change knowledge, attitudes and practices. A more surprising and encouraging result is the way these changes empower communities.

Notwithstanding the gains to date, several lessons from the first two years may be relevant for others working in similar initiatives. In the early stages, the project generated and disseminated too much data. The population did not have the capacity to assimilate and to act upon them. By the end of the second year, a more steady rhythm had been established, possibly permitting fuller discussion and more effective action.

A useful step in assessing impact has been to analyse heterogeneity in knowledge and practices across the municipalities, despite exactly the same intervention, that is, the presence of a CIET Epidemiology Resident, in each. The response of the communities to the disseminated results varied greatly with different communication channels and in different local contexts. Some absorbed the implications with almost disconcerting speed, participated actively in the search for solutions and implemented these with their own resources or sought external resources to do the job. Others were much slower to act. This cannot easily be explained by ethnic differences. Alcozauca, the municipality that mobilised most rapidly, has little tradition of participation whereas Xochistlahuaca has the most.

The political situation could contribute to the heterogeneity between municipalities. Since the project covers municipalities run by the ruling party (PRI), the opposition (PRD) and a smaller left-wing party (PRT), there are always some communities that find themselves out of favour with the political current of the local administration. In some of these, outright rejection of all local government initiatives, a prominent feature of the predominantly Indian municipalities, has meant underachievement by the microregional planning initiative. Yet in at least one municipality with marked political polarization, Coahuayutla, this phenomenon does not seem to exist at all. Microregional planning was successfully identified as a non-party activity. Political tensions are thus an incomplete explanation for the heterogeneity of impact.

The armed insurgency in Chiapas could be another part of the explanation of the heterogeneity. This has had profound repercussions in Guerrero State. The federal government has channeled massive economic resources to indigenous populations, including three of the municipalities in this project. For example, the Xochistlahuaca administration is now willing and able to support each health promoter trained in this project with a monthly stipend of N$200. Several new water and electricity initiatives were supported in Copalillo.

But this is at most a partial explanation of the heterogeneity between municipalities. The advances in the latrine programme in Alcozauca, also a predominantly Indian municipality, occurred before the Chiapas uprising. It also overshadows the advances in Xochistlahuaca and tiny Copalillo, which also received generous state support. At the anecdotal level, there is a striking difference between the municipalities involved in this project and others that received the additional financial support. This comparison will be a centerpiece of later evaluations.

Exposure to earlier health education initiatives is another difference between municipalities: people here are accustomed to receiving information in the form of messages or even commands about what must and must not be done. (“Vaccinate your child!” “Wash your hands!” “Breast feed!”). By the same token, they are also accustomed to ignoring these messages that compete for their attention with equally succinct imperatives about the use of detergent, alcohol, tobacco, or condoms. Microregional Planning tried a different approach to health education. It attempted to share data about risks or costs with everyone in the municipality, thus making available the information necessary for informed household decisions (“a child in a home with a latrine has one half the risk of diarrhoea”), or decisions on the allocation of municipal resources (“if all households had effective latrines, the rate of childhood diarrhoea could drop by 25 percent”). The idea was to encourage intelligent choice. The fact that householders and authorities alike have the same data, though summarised differently for their respective purposes, helps build up the pressure, eventually precipitating change.

With some specific messages, for example, about preparation of oral rehydration salts or the construction of a latrine, the technical information must be repeated several times. It will be necessary to find a balance between the two types of communication: one that appeals to the intelligence and thereby empowers the listener and another that provides instructions about what is to be done and how it must be done.

Migratory trends in these formerly worst-off municipalities present a potential measurement problem, distorting apparently positive results; migration of the worst off may cause an under-estimation of mortality and morbidity rates. However, to the extent that this migration is constant and documented household by household, data generated by the successive cycles can continue to be interpreted correctly. The interview records permit identification of every household; it will be possible, therefore, to analyse differentiating characteristics of households that migrate and those that do not. This follow-up instrument, now covering 34,000 person years, also will permit detailed analysis of survival and disability associated with differential access to specific health care interventions. A supplementary proposal emerging from this experience is to use these data to calculate disability adjusted life years (DALYs), a summary parameter suggested for monitoring the impact of a package of selected health interventions[37 38].

Key to assessing the impact of Microregional Planning is the *Hawthorn effect*; the concern here is that the study itself makes these sentinel communities different from non-sentinel communities, which receive only the information that comes out of the consultation or dialogue in the sites of measurement. Another difference might be the free medical consultations given in the sites at the time of the surveys. It is theoretically possible that these one-day contacts twice a year had a health impact in themselves. More likely is that the enquiry and discussion were so focused (diarrhoea, its causes, its management) as to be heuristic.

In theory, the interactive data gathering and the medical consultations should produce a gradient between sentinel sites and non-sentinel communities, thus overestimating impact of Microregional Planning. In practice, two days of free consultation per year probably does little to hold back the tide of disease and disability in these impoverished communities. If the product of the measurement and dialogue about the results in the sites and with the municipal authorities can be socialized through the communication strategy, this clearly will reduce the gradient between sentinel sites and non-sentinel sites.

This is the rub of Microregional Planning. It attempts to draw people and politicians into a common research process, a dialogue on priorities and results changing their perspectives by doing so. Insofar as this succeeds, Microregional Planning is a success. Since the dialogue is not limited to the sites where the data are gathered, but quite pointedly communicated to all other households in the municipality, the sites do not add up being so different from other communities. We also have the possibility to compare coverage, knowledge, attitudes, practices and health status among the 700 or so communities involved in this project, with quite different intervention constellations in the five municipalities.

There is much to be settled in the remaining years of this project regarding its replicability and costs of implementation. The existence of CIET in Guerrero State, as a post-graduate, academic institution dedicated to community-based research, is not incidental nor can it be "controlled", as one might control a confounding factor in a laboratory experiment. CIET Epidemiology Residents might have an unusual dedication to community-level development, a characteristic that cannot be presumed of all civil servants who might be involved in replication of similar initiatives in other settings. These factors must be considered next to the feasibility and costs of local epidemiological research, the techniques developed for generation of dialogue around the results and the lessons from communication of data to mobilise communities beyond those which participated in the actual measurement.

Annex 1
Description of the Municipalities

Zirándaro
Located in the Tierra Caliente region in Guerrero State, its tough terrain is crossed by the southern part of the Sierra Madre mountain range. It includes 400 communities, with a dispersed population of 21,300 (1990 census). The economy is based on farming and livestock; irrigated farm lands yield corn and sesame seed. Other communities fish (in rivers) for their own consumption. A large part of the young population migrates seasonally to the United States seeking employment. Only seven of the 400 communities have a health centre: of these, five are staffed by a physician, the other two by a nurse. In the three largest towns, there are private physicians.

Copalillo
With its predominantly Nahuatl population, the municipality is made up of 10 communities and 20 settlements with a population of 12,000. Most live alongside rivers, their main activities being farming for their own consumption. Some weave hammocks, sold usually through merchants. There are five health centres, three without a physician and two private physicians in the municipal capital.

Alcozauca
Located in the Mountain Region, in the highest area of the southern Sierra Madre, 15,089 Mixteco Indians live in 20 communities that are outstanding for their social underdevelopment. Dry land corn farming for self-consumption and weaving straw hats provide the means for survival. Few employment opportunities exist and seasonal migration is common. After the harvest, up to 50 percent of families migrate to Sinaloa, where they are hired as agricultural labour, returning four months later to prepare for the new farming cycle. Many leave for the United States in search of work. There are five health centres, one staffed by a physician. There is another physician in private practice and a pharmacy. Almost all stores in the municipality sell medicines.

Coahuayutla
The municipality of Coahuayutla de José Mª Izazaga, in the Costa Grande region, has a very rough, hot and semi-desert climate. In 1990 its population was reported to be 13,461. The 167 rural communities do not have access to drinking water, drainage, electricity, communications and health services. Agriculture, livestock and fisheries provide employment for a very small segment of the population. The unemployed and underemployed migrate to the United States in search of better living conditions.

Xochistlahuaca
Located in the Costa Chica region, bordering with the State of Oaxaca, this municipality had a population in 1990 of 16,226. Its people, mainly Amuzga Indians, live through subsistence farming and embroidery of ladies clothes and deluxe tablecloths for a living. Unlike other indigenous groups, despite the generalised poverty that characterises the whole Amuzga area, this group is known for a high degree of social integration, solidarity, low migration and greater concern for cleanliness. In this municipality, there are 35 communities, with five health centres. Religious groups and the Instituto Nacional Indigenista (INI) have provided health care for the last few years.

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