Rural
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EVALUATION OF RURAL HEALTH PROJECT

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On June 16, 1978 an agreement was signed by the Government of Mali and the Harvard Institute for International Development (HIID) creating the Rural Health Project (RHP), whose objectives were: "1) the investigation, establishment, and evaluation of a demonstration rural-health project designed to insure health services at the village level (with particular attention to hygiene and preventive medicine), to allow integration with community-development and economic activities, and to function with an annual budget of $US 3 per capita ($US. 1 of which might be recuperated in the sale of medicines); and 2) the involvement of the Government of Mali in a demonstration project which might serve as a model for a national rural-health system, and assistance to the Ministry of Health in preparing the creation of such a system."[1]

The cercles of Yélimané (First Region) and Koro (Fifth Region) havin been chosen as demonstration sites, project activities began there in January and March 1979. In April 1980 a multidisciplinary team which included a public-health doctor, a training specialist, a midwife, and a sociologist undertook evaluation of the project, working between April 1 and 8 in the cercle of Yélimané and between April 15 and 22 in the cercle of Koro (with a twenty-four-hour stopover in Mopti where the team met with regional health officials and those of Operation Mils-Mopti). *On both of these missions the team benefited from the presence of Mr. Tom Park, public health officer, USAID, and Mr. Gerry Goodrich, acting project director.

I. OBJECTIVES OF THE EVALUATION

This preliminary report is limited to the sociological aspects of the evaluation, wherein the following objectives (in sociological terms of reference) were defined:

1) An examination of the project in terms of the needs of the population concerned, including: the degree of penetration of the activities of the village health worker the criteria employed in choosing these workers; the activities themselves; the degree, causes, and consequences of Village HW resignations; the degree of popular participation in project activities; and the collaboration of VHW with traditional doctors;

* Neither the midwife nor the public-health doctor were able to join the Koro Mission.

2) An evaluation of the degree of participation of Ministry of Health personnel in the activities of the project;

3) An evaluation of the project's collaboration with other institutions, among them USAID and the Peace Corps;

4) The identification of major problem areas and recommendations in their regard.

II. METHODOLOGY

In responding to these objectives, we interviewed a number of persons involved in each of the several levels of project activity. We spoke with VHW in their villages in both cercles. In the same villages we met, individually or collectively, with local officials (village chiefs, village councillors, and political-party officials). In the limited time available to us, we were unfortunately unable to visit all of the villages in which VHW are active.

In both Yélimané and Koro, we met with the head physicians and the health - services staff as well as with American technical-assistance personnel.

1. Yélimané

In the cercle of Yélimané we visited the villages of Diongaga, Diakadroumou, Dogopery, Diabougou, Kersignané, and Komodindé, or six of the eight villages in which there are VHWs.

We also travelled to Wologuéla, where two persons had just been chosen to participate in the next Village Health Worker training session, and where we held a general meeting with the village chief and his councillors joined by all of the adult population then in the village.

In Yélimané itself we met with the head physician, Dr. Pléah, and certain of his fellow workers, as well as with Mr. Sylla, the community-development worker, and Mr. Bakaga, the sanitation agent.

In Tambacara, capital of the arrondissement wherein lie all of the villages with rural-health workers, we spoke several times with Mr. Diallo, head nurse, and Mr. Diawara of the endemic-disease service. At Yélimané we also spoke with Dr. Dulaire and with Mrs. Dulaire, health planner, and met the CAC director, and in Tambacara we were able to meet the agricultural agent working at Kersignané. The information gathered in all of these semi-directed interviews was usefully completed by the off-the-cuff conversations we enjoyed throughout our stay.

We should note as well our meeting, at Tambacara, with Dr. J. Keita, regional health director for Kayes.

2. Koro

In the cercle of Koro we visited the villages of Anakaga, Birga-Dogo, Birga-Peulh, Déry, Yadianga, and Bono, or six of the twenty-seven villages in which there are VHWs.

As in Yélimané, we met several times with health-services personnel and with the American technical-assistance staff. Interviews were held with Dr. Sissoko, the head physician, with Mr. Y. Touré community-development agent, with Mr. Dolo, sanitation agent, and with Mr. , health auxiliary at the Toroli medical center.

Exchanges with the rest of the Koro health-center personnel were less formal, conversations rather than semi-directed interviews, and these for the entire length of our stay.

In Toroli, capital of the arrondissement containing most of the health-worker villages, we met officials of Opération Mils-Mopti, of the CAC, of OPAM, and of the functional-literacy service.

Among the American technical-assistance personnel, we were able to meet Dr. Kelly and his wife, who, although without official project status, participate in many project activities. The Peace Corps volunteers were unfortunately absent from Koro during our stay.

In Mopti we met and interviewed the assistant director responsible for extension services of Opération Mils-Mopti and the DNAFLA agent responsible for Opération Mils' functional-literacy work.

As is evident, we were unable in both Yélimané and Koro to meet individually with villagers; our village contacts were limited to health workers, village chiefs and councillors, and political-party officials. In some villages (Komodindé and Wologuéla in the cercle of Yélimané, Déry and Bono in Koro), however, collective interviews were possible, uniting village leaders with all of the adult population.

Information from health workers and village officials was thus, in the main, the material from which we tried to determine local health needs, local attitudes to the VHW and local opinion of the project. The time available to us allowed no statistical enquiry, even with a reduced sample.

Information gathered in interviews was augmented by that gained from project documents in Bamako (at project headquarters), in

Yêlimané, in Koro, and in Tambacara. Full research into these documents would allow an exhaustive study of health-project activities at the Koro and Yêlimané demonstration sites, but such research was not possible during the evaluation; fieldwork (travel, and interviews) can scarcely coexist with documentary research (compilation of reports and minutes of meeting, workshops, training sessions from the two years of project activity).

For such reasons, this report is a qualitative analysis of the overall situation viewed in the demonstration areas; it is neither a quantitative and statistical study of project activities nor the result of an extensive public opinion survey among the populations affected by those activities.

The final report will include statistical information on project and health-worker activities drawn from a more complete study of project documents in Bamako, Yêlimané, and Koro.

III. RESULTS

We present in the following pages a preliminary synthesis of information gathered on the Koro and Yêlimané missions, a synthesis which, as we have noted, is more analytical and qualitative than statistical. In addition, it treats particularly the sociological, psychological, and psycho-sociological aspects of the project. The final report, which will bring together all of the evaluation team's work, will integrate the information found here with that provided by other specialist, the midwife, and the managers.

The synthesis which follows adheres to the plan outlined below:

1. a profile of the VHW
2. the activities of the VHW
3. the attitude of the population to project activities
4. the participation of health-services personnel in project activities.
5. the role of technical assistance in the project
6. the relations between the project and other institutions (or, these lacking, development projects)
7. conclusions and recommendations.

1. A Profile of the Village-Health Worker

1.1 Selection Criteria

In both Yélimané and Koro, villagers themselves chose those to be trained as Village Health Workers. Our interviews with project personnel, with the health workers, and with village officials make evident the importance of stability (in residential terms) and personality (or public confidence) in the choice of VHW.

a) Health-project personnel, in their first contacts with the people of Yélimané and Koro, stressed the necessity of choosing permanent village residents, those unlikely to emigrate. This criterion has considerable importance in the viability of the project; health workers who leave their areas after their training session or after a month or two of work, requiring the constant recruitment and training of new workers, would render the project completely unworkable.

Residential stability is particularly pertinent in the cercle of Yélimané, where, as elsewhere in the First (Kayes) Region, emigration for several years to Europe or to such faraway countries as Libya and Gabon (as opposed to the seasonal migration which takes many young people to urban centers and neighboring countries - most often the Ivory Coast - during the dry season) is widespread.

The population generally took this criterion into consideration in its choice of health-worker recruits. In Koro only nine of the fifty-one health workers have left their posts (17.6%), and in Yélimané six of twenty-seven (16.2%).

In noting the importance of residential stability and in recommending that it remain a primary consideration, it must be mentioned that it raises the average age of the health workers. This is particularly true in Yélimané, where emigration is so common that there are very few men of twenty-five to thirty-five or even forty years. For other reasons as well, older persons are often chosen as health workers, and the average age is fifty-three in Yélimané, while in Koro it is only thirty-one. We shall return to this question of age.

Aside from age, nothing appears to allow one to predict the probability of a recently trained health worker's migrating. Below a certain age (thirty-five to forty years) the risk will always exist.

b) The second determinant in the choice of health-worker recruits seems to be what we might call their personality equation or, more simply, their personality. All of the health workers of whom the question was asked felt that their fellow citizens had chosen them because they had confidence in them. Village authorities asked to justify their choices invariably responded that they had chosen in whom they had confidence, those who were conscientious and devoted to the interests of the village

While this second criterion remains as difficult to predict as the first, it is, even in its subjectivity, pertinent: being chosen health worker by one's peers is a real honor, and the recruit spares no effort to merit the confidence placed in him. This sense of obligation, still strong in the traditional African milieu, seems especially noteworthy among Koro's health workers. The Koro workers, much more than those of Yélimané, are held to their rural-health activities; and in the absence of any remuneration, of any material advantage, only the urge to accomplish the task for which they have been chosen by their communities, to avoid betraying the trust placed in them, makes them persevere. "Doun gole sudu baaba," we heard frequently during our interviews; "it is work for the community, for the country." "We cannot lay it down without deceiving our own people," they say in explaining why they continue their difficult task with no personal gain.

We feel strongly that had the health workers not been chosen by their fellow citizens, did they not feel themselves tied by their selection, did they not feel a deception of their people in resigning, many more of them would have quit.

c) Neither age nor educational level was mentioned among the selection criteria. There are health workers of all ages; from under twenty-five to over sixty, with the average in Yélimané fifty-three years and in Koro, thirty-one. Educational level varies widely as well: we found non-literates who had never been to school working next to sixth-year leavers and even higher (some, such as Mr. Kebe of Kersignané, a retired civil servant, have an educational level comparable to or higher than secondary-school graduates).

While these two factors, age and educational level, do not appear to have explicitly guided the population in its choice of health workers, their implicit importance seems certain. Whenever possible, literate persons were chosen, and those relatively young. It is not by chance that % of the health workers are between twenty-five and forty-five.

The choice of young literates is more evident at Koro than at Yélimané: % of the workers trained at Koro read and write, while at Yélimané the percentage falls . Particularly heavy local constraints must be recognized in Yélimané; the strong tendency toward migration drains the area of its young and dynamic population, and the school-going ratio is much below the national average. These constraints have made frequent recourse to the old and the non-literate inevitable.

d) Other selection variables include sex and previous public work.

All of the health workers trained to date are men. In the absence of any explicit directive from project personnel, one can only think that the choice of men follows the wishes of the village populations. This fact is tied to the position of the woman in traditional society; with no specific pressure to select women, one might well expect that only men will be chosen to fill what appears to be an official function in an area where women are left out of all public activity.

Despite the existence of female traditional doctors the definition of health-worker activities and the method of their recruitment tends to eliminate women. Health-worker activities go well beyond the essentially curative function of the traditional doctor: workers may involve themselves in preventive medicine, in village sanitation, or in hygiene education, playing thus a public role in the village, constantly working with village authorities and officials from outside the area. None of this is compatible with the traditional status of women in rural areas. Too, the future management of a village pharmacy, an activity unknown in rural areas, may appear to involve responsibilities beyond the capacity of a woman. Finally, the training system's demands -- travel to the arrondissement capital or to another village, mixed groups of students, all-male teachers -- do not incite villagers to select women.

Health-worker activities and training make the project a men's affair, eliminating implicitly, if not explicitly, women.

One may ask to what extent the absence of women among the health workers explains the low number of female clients noted in all of the villages. Although such a hypothesis may have some value, we shall see in section 3 below that other factors may also limit the number of women seeking help from the health workers.

Very few of the health workers have other village functions. We made, it must be admitted, no exhaustive study, but found no more than two or three health workers in Yélimané who are also village councillors and a few in Koro who are also members of youth-group boards. In both Yélimané and Koro, however, health workers are often related to the villages' chiefly families.

In Yélimané several of the health workers were before their training traditional doctors. In Koro we found no evidence of this.

In Koro some of the health workers are also functional-literacy agents, particularly among the sixteen members of the third training session. We shall return to this point when examining the relations between the project and other institutions and development projects.

1.2 More rigid criteria

Should more rigid criteria be created? Having examined the existing criteria -- essentially stability and public confidence -- we may treat the question, thinking toward several points: Improved ability to assimilate the training offered; more extensive and better-quality services; and greater credibility of the recruits to the populations concerned. Would health-workers of a fixed age, of a predetermined educational level, boasting certain characteristics not yet determined, be easier to train, offer more extensive and better-quality services, be more acceptable to the population?

The question of whether literate health workers of an optimum age (not yet determined) would be easier to train, more competent to dispense primary health care and to fulfill other health-worker activities, can only be examined in the light of the data we have collected, that of the public-health doctor and the training specialist. The information that we ourselves have would seem to indicate that the most competent health workers, those who accomplish most happily their tasks, are those of between thirty-five and forty-five. This conclusion comes from our interviews with the supervisory teams in both Yélimané and Koro. In the same fashion, in talking with health workers of diverse educational backgrounds we felt very strongly that the most competent were undeniably those with a minimum of schooling.

In providing services, it would also appear that those between thirty-five and forty-five give better satisfaction. We must note, however, that many much younger health workers in the cercle of Koro seem very dynamic. As for educational level, it is clear that many of the activities incumbent upon the health worker are more easily accomplished by literates than by non-literates. Keeping a consultation register, managing a village pharmacy, or establishing an evacuation order to the nearest medical center is more simply done by a literate person than by a non-literate, even one working with a clear system of symbols. The most up-to-date consultation registers are those of the literate health workers of Koro. In neither Koro nor Yélimané did we see non-literate health workers using regularly and correctly their consultation registers, although Koro project personnel indicated that some do.

The general question of the acceptability of project activities to the populations involved will be examined in section 4 below. Here we examine only whether literate health workers filling certain criteria -- of thirty-five to forty-five years for example -- would be more acceptable to the population than others not responding to these criteria.

Only a public-opinion survey could give a sure answer to this question. The selections already made and the wishes expressed by village authorities during our interviews, however, show that whenever possible villagers chose people who could read and write. Everything else being equal, literate health workers would be more acceptable than others. In all of our villages reading and writing gives a certain credibility that non-literates do not have. It must be recognized that, in current circumstances, the health worker able to converse in French with visitors to the village is, in the eyes of the population, much closer to arrondissement and cercle medical personnel than the non-literate health worker.

It thus appears, at least at first sight, that health workers selected with attention to age, educational level and social position would be more efficient than others. To what extent, however, is it possible to find in each village candidates filling the determined criteria?

We have already seen that the possibility of recruitment of young people unlikely to emigrate is limited in certain areas, among them Yélimané. A decision to recruit none but the literate would also seriously limit village choice. In most villages, only a small minority knows how to read and write -- one must remember that more that ninety per cent of the Malian population is non-literate. A decision to recruit none but the literate would leave some villages without a single candidate, or candidates who, literate, lack the personal qualities necessary to a health worker,

A clear solution to the problem would be the training in functional literacy in local languages of all health workers, but such a solution is not within the scope of the health project. The DNAFLA, responsible for this work on the national level, works at this time only with major development projects, making training in the health project impossible. One might, however, consider the creation of a health center in an area in which the functional literacy program is already established.

In conclusion it must be said that, whatever the advantages of a more rigid selection process, the current system should be maintained. More rigid criteria would limit too severely the possibility of choosing their own health workers which villages now enjoy.

2. The activities of the Health Workers

The health worker's tasks, as defined in the project document and and as seen in the application of this document on the ground, fall into four categories:

a) primary health care and the management of a village pharmacy;

b) evacuation of the sick who cannot be treated locally to the arrondissement or cercle medical center;

c) preventive medicine;

d) the gathering of information about the health of the village population.

2.1 Primary health care and the village pharmacy

In interviews with health workers, village authorities, and medical personnel in Yélimané, Koro, and Tambacara, primary health care emerges as the currently essential activity of the health worker. This care consists of diagnosis and treatment of diseases allowing five prescriptions: chloroquine, aspirin, eyedrops, penicillin tablets. and ganidan, each available in the village pharmacy (we note, however, that ganidan is currently available only in the pharmacies of Yélimané, where alcohol may also be had).

Why not mention ORS and tetanus

Because only a few health workers, particularly the literate workers of Koro, keep regular consultation registers, it is impossible to quantify primary-health-care activities. From our interviews, however, it appears that the importance of these activities varies greatly from health worker to health worker: some prescribe regularly to ten patients a day and more, and others go weeks, a month, without a single client. These latter are most common in the cercle of Yélimané, where three to five health workers may live in one village, and only one of them has medicine. The sick go to this one, who can sell them medicines immediately after diagnosis· the others are more or less totally inactive, For this reason the health worker has become confused for many villagers with a seller of medicines. In the villages of Koro, smaller and with only one or two health workers per village, the workers share more equally the work and none go for very long without a patient.

Although an exhaustive list of consultations is impossible, the volume of medicines distributed in each village may give in the final report, an indirect indication of the extent of health-worker activity.

2.2 Evacuation of the sick

Health workers are also charged with evacuating those they are unable to treat to arrondissement and cercle medical centers. A quantitative evaluation of this would be difficult: Health workers do not always prepare evacuation papers for their patients, often merely suggesting that the client go to the dispensary of Tambacara or Yélimané, Koro, Toroli, or Pel. We can, however, determine the evacuation activity of the health workers by examining the work of

the medical centers. The impact of the health project should show itself in a reduction in the number of primary care cases and in a rising number of more serious cases.

To this end, we studied the consultation register of the Tambacara dispensary, comparing the number of residents of the three affected villages and their complaints in the first quarter of 1978 (pre-project) and in the first quarter of 1979 (after the creation of the project). No difference in the number of patients, nor in their complaints, can be determined.

If at first sight the installation of health workers in Yélimané's villages has not changed the work of the Tambacara medical center, the same is not the case in Koro, where the evacuation work of health workers is much more important and where the medical centers of Toroli, Pel (The Catholic mission dispensary), and Koro receive regularly patients sent by village health workers. The activity of these medical centers has thus increased, and permits, as Dr. Sissoko indicated to us, the medical staff to treat patients who before the arrival of the health workers were without medical care.

The difference in evacuation rates between Yélimané and Koro is explained by socio-economic differences between the two areas as well as by the activity of the health workers. The Koro health workers are in closer contact with both their populations and the members of the supervisory and control team. We shall examine the socio-economic factors involved ~~involved~~ in section 3 below, the attitudes of the population to the activities of the project.

2.3 Preventive Medicine

In both Yélimané and Koro, the health workers are involved in few if any preventive-medicine activities. Clean-up campaigns in certain villages -- street cleaning of the immediate neighborhood of the village -- are isolated examples undertaken in preparation for the arrival of distinguished visitors; this sort of activity cannot be attributed to the health workers, because it predates them but they do now sometimes provide the initiative.

In Koro, cleaning and treatment of wells in Bono, Goursindé, and Bondo-Téna has been successful because a sanitation agent working with the project organized the activity with the help of village authorities; the work was not left to the health workers alone.

The construction of modern latrines has not begun; the health workers, who should be the first to build them in order to give an example, have not done so. There has been no health education work. Hygiene, nutrition, and infant-care advice is given neither individually nor collectively in regularly organized public meetings. In the cercle of Koro, however, health workers returned from their training sessions hold general

meetings to explain what they have learned, and the public is at the same time advised to respect certain hygenic measures.

2.4 The gathering of information

Health workers are also responsible for the gathering of health information in their villages. Were this activity seriously undertaken, cercle health officials would be in rapid possession of the health problems of each village, and in particular, would be enabled to more rapidly detect the out break of epidemies.

The project's progress in this regard has been very uneven. Out breaks of measles and whooping cough took place, according to villagers in Yélimané (Tambacara) we interviewed, which were only rarely reported to the medical authorities by the VHWs.

In the cercle of Koro, this data gathering is done on a regular basis by the VHws in his birth and death register. This task is only being done by the literate VHWs at the present time. A system of registering births and deaths for iliterate VHWs has been developed and will soon be tested, however.

2.5. Conclusion

It's clearly evident that of all the tasks for which he is responsible, the VHW devotes most of his time to curative care.

Health Education, preventive medicine, vaccination programs, and environmental health activities are almost non existant.

This focus on curative medicine and drug dispensing is explained by several reasons:

1. In the VHW training curriculum, curative medicine takes precedence over preventive medicine, implicitly as well as explicitly. Thus, when a VHW is asked what he learned during his training, he answers in terms of curative medicine. Preventive medicine is mentioned either in secondary position or in specific responses to questions by the interviewed.

2. The VHWs tend to respond to the expectations of the villagers who perceive health only in curative terms. Medical people, either traditional or modern, are sought out when one is sick; rarely, if ever, to know what preventive measures to take for this or that illness. In this context, the VHWs are naturally lead to an attitude of "action in response to demand"

3. Although some of them may be members of village councils or political organizations and although they are generally close to village chief's family, it seems that the VHWs are not part of the village leadership. From this fact, their authority is relatively limited. Under these conditions, there are limits to which they can take initiatives that affect the village as a whole; instead they tend to wait untill their services are called upon.

4. Finally, the activity of the teams conducting supervision trips tends to reinforce the VHW's curative role at the expense of this preventive role. Very often these teams check only the sale of drugs and only rarely verify the level of diagnostic and treatment skills of the VHW.

To summary, we would point out that greater VHW efforts in preventive medicine can take place only if more time is devoted to it during the initial training and during the supervision visits. This will happen only if there is a change of attitude on the part of the training and supervision teams who themselves are more oriented towards curative than preventive care and health education. In this case as in others, a considerable amount of work needs to be done.

III. THE ATTITUDES OF THE POPULATION TOWARDS THE P.S.R.

In addition to the means available for its execution, the viabilit of the project depends primarily on its ability to meet the needs of the population it intends to serve. As well a fundamental question to ask is to what degree does the project responds to the population's health needs.

To respond to this question we have tried, first, to determine the extent to which the population uses the services offered by the project, and second, to what degree the population supports the activities of the project.

III.1 Use of Project Services

The two most notable services which the project makes available to the population are consultations provided by the VHWs and village pharmacies which allow villages to keep in stock a limited number of commonly used drugs.

To these two activities, one can add the role of evacuations from the village to MOH Health facilities at the cercle and the arrondissement.

III.1.1. CONSULTATIONS

As we stated above, very few VHWs regularly keep up to date their record book of consultations. Given this, it is very difficult to quantatively evaluate village demand for consultations. However, in Koro cercle, there are statistics for a limited number of villages for the period April 1979 - March 1980. From this data there is an average of 56 consultations per village, per month.

We have no data regarding the number of consultations from Yélimané cercle. However, one can say with some certainty that in the cercle of Yélimané the most active VHWs are regularly consulted. Certain among those VHWs we interviewed informed us that during certain periods of the year they have more than 10 consultations per day.

From all the data available, as imprecise as it is, one can state that the populations served make a significient demand for health services on the VHWs

With uaniminity VHWs in both Koro and Yélimané indicate that different categories of the served populations are very unequally served: Thus adult males constitute everywhere the majority of consultations, women make little demand on the VHW Services; even children are only minimally represented in the consultations as compared to adult males.

Several hypothesises can be offered to explain the reasons why the majority of consultations are adult males.

The first hypothesis concerns economic issues: as all drugs must be purchased, men will be the largest group seeking treatment from VHWs given that they have greater income than women. This was consistently one of the reasons offered by women, as an explanation of why they do not go as often as men to see the VHW in that they have no money to pay for the medication.

However, insufficient income to purchase drugs can explain only with great difficulty the fact that in relation to adult men, so few children are taken to see the VHWs: In fact in the opinion of the VHWs as well as village elders, it is the male family- head and not the mother who pays for the medication for the children. Unfortunately we were unable to gather the point of view of the women in this questions.

A second hypothesis that one can offer to explain the comparative difference in the rate of consultation between men and women is the fact that all VHWs are male: Women are hesitant to confide in men concerning their health problems.

This finding emerged particularly from the interviews of the training consultant and the mid-wife of the evaluation team had with village women in Yélimané.

In juxtaposition of this hypothesis, one can observe the fact the at the medical centers of the cercle and arrondissement women's consultations are just as numerous as for men. As Dr. Sissoko of Koro reported to us his consultations with women and children are about equal to his consultations with men.

It must be said that is is difficult to understand the reasons women are reluctant to see VHWs based on the fact that the VHWs are men, given the fact the health problems which they treat have nothing to do with feminity and have no realtionship with questions of modesty.

With certainty, one can conclude that few women go to consult VHWs , primarily because the VHW is a new factor in the village and women are always slower than men to adopt new village ways, to take up new habits: As village chiefs often explained to us, women are much more tied to tradition than men, slower to adopt new things, and to go and find a VHW each time they don't feel well has not yet entered into their habits.

In addition, one can ask oneself if men are not more subject than women to the ills which the VHW can treat: Fevers, tiredness, muscle pain and "rhumatismes", minor cuts susceptible to infections etc.

Or, more precisely, without being more subject to these ills than women, men attach greater importance to them or in a word men have a lower pain threshold ("plus douillets") than women and become alarmed more quickly than women who wait stoically for "it to pass".

This issue turns, for sure, on a simple hypothesis which only the practitioners, given their clinical experience, can confirm or deny.

III.1.2. THE VILLAGE PHARMACY

36 Village pharmacies have been opened under the auspicious of the project: 27 in Yélimané and 9 in Koro.

The opening of a village pharmacy is incontestably the most important action of the PSR; to be able to buy in one's village a limited number of drugs is the most important service the project has rendered to village populations. This fact emerges clearly from our interviews with the village elders with whom we visited.

This service is so important that for a number of villages it summarizes completely the work of the project. This is more so the case in certain villages in Yélimané where the VHWs are not particularly active. The only VHW known by everyone in a village is he who keeps the drug supply and this VHW is not as a "health worker" but more as a seller of drugs.

This state of mind, which explains itself primarily by the fact that in those villages where the VHW really works are the villages where the VHW keeps the drug supply, is reinforced by the fact that the populations concerned - those of Yélimané - are already familiar with the drugs offered (asperin and chloroquine as Nivaquine) and they have the habit of buying these drugs when they travel.

As well, one can say that there is truly in these villages what I shall call a "self medication process". The fact of going directly to purchase drugs without any consultation with a VHW.

Most assuredly, all the pharmacy managers whom we interviewed only admit this with reticence; still it is obvious that large numbers of people go directly to the village pharmacy to buy drugs without having seen a VHW.

In the opinion of VHWs and villagers, the sale price of drugs (100FM for 1 pill of pénicillin, 20FM for chloroquine 25FM for asperin and 450 FM for a bottle of eye drops) are not excessive and are within reach of the population, even given the minimum income in rural areas. Only penicillin is judged too expensive: one pill is 100 FM, a complete treatment 2000FM. As well significant numbers of patients purchase only partial treatments which frequently are inadequate to treat an abcess or infection.

The instructions given the VHWs by the training team to assure that patients purchase a full dosage for adequate treatment have had little effect to the degree that they confront certain economic realities about which the trainer can do very little. This is particularly the case in Koro, where the populations are much poorer than in Yélimané, where villagers have significant income sent to them by village family members on migration overseas. However, even in Yélimané, numbers of women claimed that they were frequently required to interrupt a treatment schedule because they were unable to purchase the medication.

It is very clear that the solution to this problem will be to reduce the sale price of penicillin and reduce the profit margin on this product.

III.1.3. EVACUATIONS

A third service which the PSR makes available to villagers is the evacuation of sick people to medical centers at the arrondissement and cercle. In practice, this activity consist of the VHW advising patients that they are unable to be treated in the village and should go for consultation in Yélimané, Tambacara, Koro, Toroli or Pel. In fact the PSR makes available no means of transport to assure such evacuations.

In the village of Koro this activity is the most developed and undertaken in the most thorough manner. Often Koro VHWs give to the patient a note to present to the medical personnel of the center to which they go.

At issue here is an act, the psycological significance of which is very important. In effect, the village with an evacuation slip provided by the VHW arrives at the arrondissement or cercle with much greater assurance and confidence, knowing that he has a sort of "safe-conduct pass" which will ease things and thanks to which he will be seen and treated rapidly.

On the other hand, these evacuation slips with which patients arrive constitute an important area of satisfaction for the trainer/MOH personnel: It is tangible evidence of the work of the VHWSs who they have trained and placed in the villages.

Again regarding Koro, it is not uncommon to see the VHW himself accompany certain patients to the nearest medical center for emergency cases such as snake bites; or, additionally, the VHW himself will go and seek the ambulance of the medical center if he is unable to otherwise transport the patient.

In contrast, in Yélimané, evacuations are far from taking on this character of direct relations between the VHW and the medical services at the cercle or arrondissement. Of course, just as in Koro, the VHWs advise patients to go to Yélimané or Tambacara. However, they recognize that such villagers will generally go directly to the medical center without passing through the VHW. According to some VHWs who we met, it is not uncommon for villagers to go directly to Kayes for treatment. In fact, for most villagers in the Tambacara arrondissement it is just as easy to go to Kayes as to go to Yélimané. During the dry season bush taxis move just as often in both directions.

This minimum activity of VHWs in the area of evacuations most likely explains why project activities in Yélimané have not contributed to an increase in patient visits to the A.M. at Yélimané or even to the Tambacara dispensary. Just the opposite was noted in Koro: As Dr. Sissoko explained to us, thanks to the existence of VHWs in certain villages and to their evacuation work, he now sees in his consultations certain categories of patients (notably the elderly) who would have never come for treatment of their own initiative.

This indicates clearly that the primary care offered by VHWs has as a consequence a effect on secondary care, a consequence which will increase the demands on cercle personnel and equipment.

It is critical that these new needs at the cercle level be met: It will serve no useful purpose to send patients to a health center if its available equipment and personnel do not permit adequate treatment of these patients.

III.2. VILLAGE SUPPORT OF PSR ACTIVITIES

If it appears, thus, that villagers effectively use the services of the project -- by being treated by VHWs , by purchasing drugs from village pharmacies and, to a lesser extent, by traveling to the cercle medical centers on the advice of VHWs -- one can now ask, at this time what do villagers do to support the activities of the project.

More precisly the issue is to know if the villagers are happy to benefit passively from the services which the project offers, or, if on the contrary, they actively participate to assure a sound operation of a rural health system, demonstrated by their willingness to find from their own resources a solution to their most immediate problems.

From this point of view we have analyzed two major questions regarding the viability of the PSR:

1) Remuneration of VHWs and

2) Participation in project activities.

III. 2.1. REMUNERATION OF VHWs

As we know, a fundamental principle of the project is humanitarianism: the VHW are volunteers who, after being trained, accept to give freely a little of their time to their fellow citizens.

From the discussions we had with VHWs, it emerges that being a volunteer is more and more difficult to accept.

In fact, the VHWs truly active give a good deal of their time to curative work and that at the expense of the professional activities. As they explained it, patients come to them at all times of the day and night, and often will come to their fields to be examinedd so they can buy medicine.

As well, even for the VHWs who did not want to discuss it, it is clear that the question of their remuneration is not being resolved adequately and that this risks comprising, whether in the short or long term, the viability of the project. VHWs , some more clearly than others, made it clear they will leave their health work little by little and one risks moving slowly towards a collapse of the system.

This is what one found in a number of villages in Yélimané at the end of only two years of the operation of the system. In these villages the only VHW who truly functions is the health worker who keeps the drug supply and by this fact alone is unable to refuse the demands of the villagers.

All the villagers and more precisely the village elders, with whom we discussed the problems of VHW remuneration have not at all realized its importance and do not realize that if they don't come up with a satisfactory solution, the operation of the project will be placed in jeopardy.

A priori, the villagers themselves do not raise the issue of remuneration in a general way: In paying for drugs to those who just prescribed them, the patient senses that he has relieved himself of all obligations vis à vis the VHW. In this transaction the patient he is only responding in his relationship with the VHW as he has done with traditional practitioners and with medical personnel at the medical centers at the cercle or arrondissement.

In fact, what the patient gives to the traditional practitioner when he consults him respresents both the consultation fee and the price of the remedies -- plants or whatever -- being provided or simply what he is being told to obtain. In the same way, the village going to an MOH medical center, pays only for the medicines he is prescribed and nothing else.

Additionally, and inspite of the statements made during the preparations phases of the training work that the VHW is in no way remunerated and that the village should compensate him for services

rendered, neither villagers nor elders seem truely conscious that the VHW keeps nothing for himself from his health work.

Worse, in certain villages we visited, villagers seem convinced that the VHWs are paid sooner or later by the government:

"at the moment they have nothing; but we believe it will come," was told us by a village council in Koro. It should be said that it is difficult for villagers to imagine that people who have a relationship with " the authorities" like those the VHWs have with Government Civil Servants and with whites who come to see them regularly and who go to the cercle regularly, aren't getting some benefit from all these contacts, from all these meetings, For villagers, as goes a saying, "when one lives next to important people (wealthy?) there are always crumbs to be pick up."

It is especially in Koro cercle where the issue of VHW remuneration is most active: in fact, as we have already stated, it is in Koro where we found the most dynamic VHWs, not only do these VHWs give a considerable amount of time to treatment and drug sales, but as well they are frequently required by their village health work to make cash expenditures for which they are not reimbursed such as kerosene for lamps or batteries for when they are called during the night.

As well, we believe and this opinion is shared by MOH personnel, especially in Koro, that the voluntary nature of the project is not viable and that it is necessary to find some form of remuneration for the VHW.

According to the project, villages should take on VHW remuneration. Such payment could be in kind or in services that the village gives in exchange for his service. For example, the youth of a village could give several days of work in the fields of a VHW or could give the VHW a hand with his harvest or, as well, they could assist in the work of rebuilding his house.

This sort of compensation has already occured in Koro where the harvest of a VHW was transported freely to the village by a cart for which he would have normally had to pay.

This in-kind payment which fits exactly into the project designs, seems to be in agreement with the approach of the elders with whom we talked. However, some of the VHWs remained skeptical of this view when we presented it to them. In fact, such a promise of in-kind payments supposes a degree of village organization which is not always the case. In reality certain villagers did not hesitate to inform us that they saw no reason why all villagers should pay for

VHW services when not all villagers have access to the health workers. Among a number of possible formulas, we can mention one which requires each consultation to be paid for directly to the VHW or alternatively the project's taking the remuneration of the VHW.

To assure that VHWs are paid on the basis of each consultation is a viable solution if such an approach does not risk to lead to abuses and to a drop in the number of consultations: Already the purchase of drugs is a large expense and for many prevents them from consulting the VHW. To require payment for the consultation will only aggravate this situation for the poorest of the villagers.

In addition, it is particularly unjust to ask that villagers pay for VHW consultations when consultations at the MOH centers from arrondissement to city are free. This would be a penalty on village life that is truly difficult to imagine.

It should be noted, however, that several VHWs in the Koro cercle affirmed to us that occasionally it happens that patients who they treat will give them something, as a gesture, However, in all cases we heard of like this, the VHW in question was, before his training a traditional healer, and thus already villagers were used to paying these individuals for treatment. Yet even this payment can be considered as compensation for both drugs and treatment.

Finally, the third formula which we can envisage is the remuneration of VHWs by the project itself, which would guarantee an indemnity either in cash or kind, It should be noted the Opération Mils Mopti assumes for its agricultural extension personnel a similiar role as that of the MOH as regards VHWs. In addition such payments could justify themselves in as much as the VHW undertakes certain services for the MOH. In particular he keeps records of births and deaths and collect health data.

If cash remuneration is not possible, the project could grant them certain material benefits: food aid (oil, milk, céréales....) via the World Food Program, for example or kerosene or the like.....

It is clear that VHW remuneration, whether in cash or kind will translate itself into an increased cost for the PSR and the norm of $3 per year will be significantly passed. On the other hand, for the project to take on payment of VHWs will only reinforce among villagers a "welfare" mentality while the philosophy of various development efforts in health as well as production is to develop a practice of populations solving their own problems.

In conclusion, it is necessary to say that some form of remuneration for VHWs is necessary. The uanimous opinion of the MOH personnel who train and supervise them is that "volunteerism " is not viable in the long term.

This attitude is shared as well by a number of the VHWs and we ourselves have come to the same conclusion. Sooner or later, even the most dynamic of the VHWs will end up discouraged if they take no personal benefit from the roles as VHWs.

III. 2.2. PARTICIPATION IN ACTIVITIES OF THE PSR

If it seems for the moment that villagers provide no material support to the VHWs one can ask to what degree their passive attitude applies to other activities of the project.

According to the project, preventive activities are as important if not more important, than the provision of primary curative treatment. However, as we have already noted, the VHW as well as their trainers and supervisors, are only marginally directed towards prevention. This contradiction is reasonably striking to an observer of the project.

Preventive activities receive almost no support and virtually no participation on the part of villagers concurred. As such the campaigns envisaged for the construction of modern latrines have met with not even an echo of village support. In the same fashion, the treatment for potable water(filtered and boiled) is a practice far from being generalized in areas where, meanwhile, Guinea worm is widespread. And you can't say either that there are changes in nuitrion practices as a result of VHW advice, As we have said, there is too little contact with women for there to have been changes in their traditional practices.

In the same way, we can cite little in the way of village activities in support of project activities in their villages. Of the 12 villages we visited only one, Dingaga, has constructed a building to house the village pharmacy. In all other villages, the pharmacy is kept at the home of the VHW who sells drugs. Only a few actions seem to indicate true village participation in PSR activities. One such case is the construction of the dam in Yoro a village located outside Toroli arrondissement and which for the moment has no VHW. There seems to be some participation on the part of villagers in Bodo-Téna and Goursinde where wells are planned. The beginnings undertaken for a deep tube well with an important output and the installation of a pump in Dingaga in Yélimané cercle have yet to be realized.

In conclusion, one can say that the clearest benefits which the villagers have taken from the project as of to day are the village pharmacies and the treatment provided by the VHWs. The success provided by these two activities is such that a number of villages not yet covered by the project have requested to become part of the project's area of section. This is the case in Koro where these two activities have a greater impact than in Yélimané.

In two centers, the wish most commonly expressed by villagers and VHWs is an extension of the health services offered by the PSR. Thus most people interviewed -- VHW or villager -- requested a drug to treat coughs and colic. Specific requests are often made, as in Koro where a VHW requested a drug for treating schistosomiasis.

Even though making a significant demand for these two services -- drugs and health care -- which the project makes available, villagers provide little material support to the project's activities. Their attitude consists essentially of accepting what the project has to offer without their providing it any real active support.

After two years of operation, the fact of having been unable to resolve the question of VHW remuneration is an example which illustrates in a striking fashion the absence of active support for PSR activities,

In addition the activities in the area of prevention have little impact on villagers and one can conclude that considerably more time and effort will be needed before achieved tangible results in this area: A change in the attitudes of villagers, VHWs and MOH personnel will be required.

IV. PARTICIPATION OF MOH PERSONNEL IN THE PSR

In Yélimané as well as Koro one finds what I shall call the "classic" or "standard team" of a health center in Mali: a doctor, a state nurse, a nurse, a nurse for endemic diseases, a mid-wife, a matrone, and nearby a nurse and a health auxilliary in a medical post.

For the requirements of the project this team was reinforced in the two centers with a CD agent and a Sanitation agent To this Malian personal one adds an advisor physician provided by HIID and two P.C.V.s provided by USAID. In Yélimané one finds in addition Mrs. Dulaire a planning specialist.

The participation of these personnel differs somewhat from Yélimané to Koro: In contrast, in one as in the other the reinforcement of the team makes itself felt.

IV. 1. ORGANIZATION OF THE PARTICIPATION OF THE PERSONNEL OF THE PSR.

In Yélimané the organization of PSR activities is based at the arrondissement. Further, the agents resident in Tambacara are the only MOH personal involved in project activities on a full-time basis. They are: the nurse responsible for the dispensary; the nurse for endemic diseases and the CD agent. It is this group which is responsible for training and supervising the VHWs and the control of village pharmacies. The sanitation agent who was resident in Tambacara was recalled to Yélimané by the Medecin-Chef.

The local head of the project is the Medecin-Chef, even though his participation in project activities is episodic. In addition the nurse for endemic diseases, who lives in Yélimané, participates in the training of VHWs even though he plays no role in their permanent supervision.

In Koro, the distinction between the activities of the A.M. and those of the project is much less sharp. The cercle is the basic unit of project activities. However in Koro as well there is a project team composed of the Medecin-Chef, the Sanitation agent, the CD agent; the nurse and auxillary from Toroli are closely linked to training and supervision of VHWs.

Because of the cact that the project team lives in Koro, in buildings adjacent to the A.M., there is much greater participation than in Yélimané of the enterely of MOH personnel in Project activities. As such the Medecin-Chef himself is in constant contact with all aspects of the project.

Finally, it is necessary to note, that in Yélimané as in Koro, the mid-wife has never participated in project activities.

IV.2. PERSONNEL NEEDS

In the opinion of both Dr. Pléah and Dr. Sissoko, it would be desirable for the sound operation of the project for the health personnel to be increased. The two doctors are convinced that the PSR is unable to function with the classic personnel pattern assigned to an A.M.

Further, Dr. Pléah requested from the beginning of the project an increase in his staff. However, of the six people promised for his entire cercle, only two arrived.

In addition, in Koro as well as Yélimané, the need for a manager or if one prefers a secretary accountant, among the staff was noted by the doctors, In effect the activities of the project especially during the course of this demonstration phase, require significant management and secretarial roles: Management of project Funds, drug supplies, spare parts, etc....At the moment their management/ accounting work limits the Medecin-Chef in his medical work of which there is considerable.

Liason between the national level and the periphery requires considerable secretarial work as well.

In conclusion one can ask one self based on the experiences in Yélimané and Koro, what is the optimum personnel level on which to organize project activities.

It is undeniable that the kind of organization adopted in Koro, that is to say the creating of a cercle based project team. Directly and daily supervised by the Medecin-Chef himself, has resulted in

more involvement by all the health staff in project activities. It also has lead to better integration of project activities in those of the health centers as a whole.

One wonder, however, as the project expands its activities to other arrondissements, to what extent it will be possible to effectively organize at the cercle level the backstopping, supervision, and retraining of VHWs: in other words, logistical problems are going to become more and more difficult to resolve.

On the other hand, the organization of project activities that we saw in Yélimané was such that neither the Medecin-Chef nor his staff followed project activities very closely: The project seemed to be something artificially placed on the health service there and gave the impression it was the work of foreign technical assistance rather than anything else.

The most efficient formula would be perhaps found between these two types of organizations: at the same time maintaining at the cercle level such as in Koro, the leadership team in which the Medicin-Chef would participate heavily, and which would consist of the CD. agent, the environmental health agent, the routine back-up and supervision of which would be decentralized to the arrondissement level. Thus, each one of these agents would play a specific role in the project unless that would pose insoluble logistical problems in the long run.

Finally, it is clear enough that it would be extremely desirable that the nurse mid-wives, who up to now have not played a role in project activities, be much more closely associated in the future. This is certainly the only way to lead the project toward women-related activities.

V. TECHNICAL ASSISTANCE

In each of the two cercle health centers, the technical assistance team consists of a public health physician advisor and Peace Corps volunteers, In Yélimané, there is, in addition, a health planning specialist in the person of Mary Taylor, wife of the physician advisor. In Koro, Mrs. Kelly, although not an official member of the technical assistance team, participates in several project activities.

In Koro there is undeniably a very close collaboration between the Medecin-Chef and the physician advisor, who is perfectly integrated in the project team and who stimulates very dynamically project activities.

On the other hand, in Yélimané, it's not too much to say that at the time of our visit, the situation between Dr. Dulaire and the other members of the team and the medecin chef in particular was contentious. Not only had the physician advisor been unable to integrate with the present team, but he had alienated the other members by his style which was judged too directive. It should be pointed out however, that he had been there only two months at the time of our visit.

As to the viability of this project, essential problem is not so much to know the capacity of this or that technical assistant to integrate in the local teams but rather to know to what extent the project can function with the Malian staff alone.

From this point of view, the project can function with only Malian staff; and this is the opinion of Dr. Pléah, Dr, Sissoko, and Dr, Kelly. In fact, as all three of these have stated, there is not one task in the activities of project which Malian health personnel can't accomplish, not one which requires a higher level of skills than those which Malian personnel already have.

One can say as well that in the current stage of the project the technical assistance provides numerical reinforcement rather than technical expertise indespensable to the operation of the project.

It should be pointed out, nevertheless, that Dr. Dulaire doesn't share this point of view; he believes the operation of the project requires management and public health skills which the Malian physician trained at Malian medical school do not have. One wonders to what extent these sorts of skills could lead to unnecessary complications, a bureacratizitation of the project, which could make it difficult to proceed without being tied up in excessive detail, and which was the origin of the problems which sprung up between Dr. Dulaire and the other team members in Yélimané.

It should also be pointed out that the last VHW training program in Koro was organized and conducted entirely by the Malian health personnel alone.

VI. COOPERATION WITH OTHER SERVICES

In beginning its activities, the PSR was assured of the support and collaboration of all the services represented in the demonstrated area. In Yélimané or in Koro, however, the relation between the PSR and the other services need to be further developed, even if with some of them there has been good cooperation. This has been the case particularly with the Cooperative Service, Opération Mils, and Hydraulique Service.

VI.1 THE COOPERATIVE SERVICE (CAC)

The cooperative movement is underway in both cercles under the auspice of the CAC and the FGR(Féderation des Groupement Ruraux). In the two cercles, relationships have been developed such that the CAC and the FGR are closely associated with project activities. The extent to which committments have been honored varies. In Yélimané, according to the CAC director, who participated in the first project training workshop, his organization has not participated in the management and supervision of village pharmacies, nor has there been any collaboration with other project activities.

In Koro, the collaboration between the CAC and the PSR is demonstrated by the fact that CAC staff have participated in the project's sensitization and training activities. For its part, the PSR has trained rural matrones for the CAC.

VI.2. HYDRAULIQUE SERVICE (HS)

In Koro, the PSR makes contact with HS each time it becomes aware of village with a water-related problem. Thus, the HS staff have prepared, at the request of the PSR, cost estimates for wells in two villages.

In Yélimané, SONAREM has been contacted to conduct surveys and the feasability of installing a pump in a deep bore hole.

OPERATION MILS MOPTI (OMM)

In the Koro cercle, the cooperation between the PSR and OMM takes essentailly two forms:

- Direct collaboration in the field between the PSR team and OMM agricultural extension agents, the PSR team makes contact with these agents during the VHW back-up and supervisionvisits and uses their local language skills and their village-level relationship. These agents participate in all village level meetings organized by the PSR.

- The second form of collaboration takes place between PSR and the functional literacy program of OMM. In fact, one of the VHW training session was composed entirely of functional literacy trainees, trained under this program. In addition, OMM authorities have initiated the translative in dogon of VHW training subjects.

VII CONCLUSION AND RECOMMENDATION

A certain number of conclusions and recommendations can be drawn for a study of 2 years of PSR activities.

1. The PSR responds effectively to health needs as expressed by the population concerned. These needs can be better met by expanding the range of drugs available at the village pharmacies.

2. Beyond the resources currently available, the effectiveness of the PSR depends largely on:

a) the health personnel;
b) the villagers selected as VHWs;
c) the motivations of both groups.

This is why we recommend the following:

a) concerning the health personnel, that criteria be developed to evaluate their interest in PHC and in PSR activities and this evaluation be considered when deciding health personal assignments to project sites. In the context of expanding PHC activi-

ties, there should be more emphasis placed on public health problems and preventive medecine in the health school curriculum for all levels of health personnel.

b) Concerning the VHW: realizing that the extent to which the PSR activities are accepted by villagers depends on the qualities of the VHW, it is desirable to direct the selection criteria during the sensitization process towards those villagers relatively young (25-45 years), having a minimum cultural level, and thus more likely to assimilate the training content.

c) Concerning motivation: PSR activities constitute for the health personnel as well as for the VHW additional tasks and responsibilities. This extra work should be remunerated in one way or another if it's to be done effeciently.

3. The PSR could be made viable and its actions will have more impact to the extent that it is integrated into the existing health services. This means greater integration at the cercle and arrondissement level, and it implies more participation by MOH personnel in PSR activities. It also implies a greater role of the VHW as a health collaborator, an intermediary between the village populations and the health system.

This kind of dynamic will only take place if the cercle health centers responds to the back-up and referral needs of the VHW.

It is for this reason we recommend that the MOH strengthen the health personnel at the cercle level and that the PSR provide equipment and other support, so that the health center can effectively provide secondary health case.

4. Finally, if the PSR responds effectively to rural health needs, it should not lose sight of the fact that health needs are inseparable for other needs, such as better food, education, and water. If these needs aren't met, health problems will increase. This can only be done by emphasizing CD activities which enable villagers to better organize and better take care of themselves.

EVALUATION OF THE PROJET SANTE RURALE (PSR) - REPORT OF THE PUBLIC HEALTH PHYSICIAN OF THE EVALUATION TEAM: DR. MICHAEL K. WHITE

I. INTRODUCTION

A. Objective

This report will respond specifically to the various points in the Public Health Physician's terms of reference contained in Annex I. It will ultimately be integrated into a final evaluation document to be synthesized from individual reports by the various team members.

B. Methodology

All observations result from conversations with Village Health Workers (VHW), project personnel and other interested parties or study of project documents during the two evaluation visits to Mali by the Public Health Physician - 29 March to 12 April, 1980 and 6 May to 17 May 1980. See Annex II for a detailed review of my activities and list of persons interviewed.

C. Use of information in the report

The data cited in this report comes almost exclusively from internal documents prepared by various members of the PSR Team. Copies of these documents were not centralized in Bamako. Because my field time was brief, I chose to concentrate on interviews with the interested parties rather to than study reports. Hence, only a small portion of the great wealth of information available in Koro, or to a lesser degree contained in the report of Dr. Dulaire and Mrs. Taylor, is alluded to here. What data is cited however is intended only for the use of the Malian Ministry of Health (MOH) and the USAID Mission in Bamako. Decision as to how this data should be diffused to a larger audience rest primarily with the government of Mali and secondarily with the individuals involved with the collection and analysis of that data. I, therefore, request that none of the data cited in this report be quoted by any reader without the express permission of the Malian MOH.

II. ASSESSMENT OF THE CLINICAL KNOWLEDGE HEALTH, PROMOTIONAL ACTIVITIES, AND RECORD KEEPING ABILITY OF THE VHW.

A. Yélimané

1. Clinical Ability

I made no effort to quantitatively access the clinical ability of the VHW because Dr. Dulaire did this in January 1980. He graded each VHW on his knowledge of the etiology, diagnosis, drug of choice and treatment schedule of the following conditions: a) malaria, b) diarrhea, c) wound infections, d) conjunctivitis, e) otitis and f) pain. The VHW could score a maximum of 20 points by responding correctly to each question. Forty two percent of the twenty VHW tested scored more than 16 points and 26% scored fewer than 14 points. They responded

best to questions relative to conjunctivitis, otitis and pain. They knew less about malaria and diarrhea. If this knowledge can be translated into effective action in the Tambacara arrondissement, one would expect to see a decrease in visual impairment and hearing loss but little reduction in childhood mortality due to diarrhea and malaria.

At the time of Dr. Dulaire's study only 21% of the VHW had an adequate knowledge of how to constitute and administer the salt and sugar solution to a dehydrated infant. On the other hand, 90% remembered that they were taught to give a sulfa drug to children with diarrhea. The use of this drug was emphasized during the training of the VHW because of the perceived need to treat diarrhea with some kind of modern medecine. Unfortunately. sulfa drugs have no effect on the viruses that cause a large percent of childhood diarrheas. Thus, if the VHW treats children with viral diarrheas with sulfa and forgets to instruct the mother in the use of the oral rehydration fluids, the child may become dehydrated and die. Happily, I found that more than half of the VHW with whom I talked could describe the preparation of the oral rehydration fluid. This relative better performance may have been because I talked to an atypical subset of the entire group. This is more likely to be due to the fact that the Dr. Dulaire spent a considerable amount of time with each VHW discussing the value of the salt and sugar solution during his evaluation in January.

Dr. Dulaire was critical of the ability of the VHW based on their performance on his test. Although my impression after talking with 11 of 21 VHW still working leads me to doubt that they can have any impact what so ever given their current knowledge, I am not necessarily pessimistic about their future. We have no established standards for how well a VHW should perform on such an exam given their brief training program and completely inadequate supervision. Only 15% of the VHW had been visited more than 3 times and 60% has been visited only once or not at all at the time Dr. Dulaire tested them. Dr. Dulaire demonstrated a strong positive correlation between positive performance on his test and the number of supervision visits that the VHW had received. I believe, therefore, that if properly retrained and supervised, the majority of the VHW in the Tambacara arrondissement will perform well.

The VHW in the Tambacara arrondissement are performing essentially no health promotional activities nor was a single VHW maintaining his notebook at the time of my visit.

B. <u>Koro</u>

No systematic analysis of the knowledge of the VHW in the Koro cercle has been done. However, the supervision teams from Koro visit each VHW once a month and review their notebooks in detail. The book contains the age, sex diagnosis, and drugs prescribed for each patient.

From the reveiw of the notebook, the supervision team is able to determine if the VHW is making any obvious mistakes like prescribing penicillin for arthritis or diagnosing headaches in children under one year of age. The VHW are engaged in a socratic dialogue about the various target conditions and misunderstandings about etiology, diagnosis or treatment are corrected.

The notebooks are maintained meticulously and provide the data for the monthly report on each VHW by the supervision team. Because it is reviewed monthly by the supervision teams, the VHW recognizes the value of his notebook. This is in dramatic contrast to the situation in Yélimané where even the most impressive VHW stopped keeping records 1-2 months prior to my visit. They saw no value in this activity.

I was extremely impressed with the understanding of the etiology, diagnosis and treatment of the target conditions which was demonstrated by the VHW in the Koro cercle. If allowed to refer to their technical manual, the six VHW that I interviewed could respond correctly to all of the type of questions that Dr. Dulaire posed to the Yélimané VHW. Most could respond correctly from memory alone.

Much more impressive was the fact the VHW in Koro understand the concept of prophylactic chloroquinization and most, with whom I talked, intend to mount such a program during the upcoming rainy season.

They also understand the concept of malnutrition and know that they can use the bandlette developed by the Koro Team to measure arm circumference to identify the malnourished children. There is considerable confusion however about exactly how this should be done. They do not understand that the bandlette is valid only for children from 1-5 years of age.

Some VHW give almost textbook-like description of Kwhashiorker when asked about malnutrition. They seem to focus more on this relatively rare entity than on the more common situation - acutely malnourished children who are wasted. The preliminary medical surveys in the Koro cercle demonstrated that 10-15% of children 1-4 years of age were severely malnourished by Dr. David Morely's standards. The VHW understand that, if they identify one of these children, they must explain to the mother how to better nourish the child. They recognized that eggs and meat are good for malnourished children but don't easily remember to recommend legumes and green leafy vegetables. None of this should detract from the fact that they think about malnourished children and, with some further training during the supervision visits, will be able to use the arm circumference technique to identify these children.

The one consistent weakness I found among the small sample of VHW with whom I talked was that they are unsure how to correctly age children so as to give them the correct dose of medication. When the ear grabbing technique is mentioned most remember that the ability to grab one's ear denotes school age. The actual act of having the child go through

the process and making a decision seems to pose minor problems. Again their familiarity with the concept will result in their quickly mastering the technique if it is emphasized during the supervision sessions.

Five of the six VHW that I interviewed were literate in Dogon or French - many having recently been trained by DNAFLA, the functional literacy program. It is possible that some of the illiterate VHWs in the Koro cercle are less impressive than those whom I interviewed. However, in this regard I want to stress that the one illiterate VHW that I interviewed was particularly impressive. He had only recently returned from the Ivory Coast where he had gone "en exode" two months after finishing his training. Although he had no contact with the PSR for over 10 months, he exhibited a surprising recall of what he had been taught during his training and could interpret the meaning of entries he had made in the record keeping form used by the illiterate VHW.

In terms of health promotional activities, the sanitation agent is encouraging the VHW to set an example for the village by keeping his compound immaculately clean and by digging and using a pit latrine; The sanitation agent himself is encouraging villagers to disinfect their wells with a commercially available chlorine solution, l'Eau de Javel. He actually treats the well if the villagers buy the chlorine solution. This effort will progress more satisfactorily in the near future when the water testing kits now in Bamako arrive in Koro. These kits will allow identification of the most heavily contaminated wells and will allow measurements of residule chlorine in the wells at varying times after treatment.

If the chloriquinization campaigns are successfully undertaken and the VHW will take a more aggressive role using the bandlette to identify malnourished children, health promotional activities of the highest order will be underway in the Koro cercle.

C. Problems

1. Yélimané

a) in Yélimané, the VHW have inadequate clinical skills and they do not keep records,

b) In Yélimané, the VHW were not trained to identify malnourished children and if ever trained to do so have forgotten completely how to protect young children from malaria during the rainy seasons with prophylactic chloroquinization.

c) The VHW in Yélimané have not been trained or encouraged to engage in efforts to improve village sanitation like building latrines.

d) The VHW see their role as absolutely passive. If they see a child with conjunctivitis they will not take the initiative to suggest to the parents that the child needs treatment. Taking this type of initiative and its implied criticism of the child's parents might be poorly received by the VHW's peers in the village.

2. Koro

a) VHWs are unsure of process for determining age of the children

b) VHWs need more instruction in methods for identifying malnourished children.

D. Recommendations

1. Before any more new VHW are trained in Yélimané, those that have been trained should be systematically retrained, and supervised monthly until they achieve a predetermined level of clinical competence and understanding of prophylatic chloriquinization, identification of malnouriched children and counseling of mothers of malnourished children.

To standardize program content and to familiarize the team in Yélimané with the training and supervision techniques used in Koro, members of the Koro staff like Waraba Koné or Yaya Touré should work with the PSR staff in Yélimané or Tambacara for two to three weeks period of time.

2. Efforts should be made in both Koro and Yélimané to encourage the VHW to take a more activist role in his village, to identify sick or malnourished children and to treat them himself or to refer them.

3. Performance objectives should be established to monitor progress toward adequate performance of every task, or comprehension of every concept, taught the VHW during their training program. For instance, a goal of the VHW work is to lower the prevalence of visual impairment resulting from conjunctivitis caused by trachoma and other bacteria.

The behavioral objective on the part of the VHW necessary to attain that goal might be to treat at least 50% of all children under 5 years who have conjunctivitis with antibacterial eye drops. Surveys already completed allow estimates of how many children have purulent conjunctivitis at any given time. Therefore the performance objective would be to treat an increasing percent of the target population over time until 50% are under treatment.

If analysis of monthly reports demonstrate that a large number of health workers are treating less than the targeted number of children, the project personnel should identify the reason for the performance problem. Perhaps the VHW did not learn in his training program that purulent conjunctivitis leads to blindness and hence is lax about

educating parents as to the importance of treatment. Perhaps the VHW understands the importance of treating the children with pus in their eyes but when he sees such a child in the village, he is reluctant to discuss the matter with the parents. His reluctance might stem from the fact that the parents would react negatively to the suggestion that they were not properly caring for their children. Perhaps both the health worker and the parents understand the necessity to treat the child but the parents can't afford to pay seven hundred malian francs for the eye drops.

The important point is that performance objectives should be established and data should be regularly collected to see if they are being attained. In Koro data is being collected at this time that would allow one to estimate the number of children under five who are being treated with eye drops. However, no performance objectives exist and hence the personnel are unaware how well the VHW are doing in their fight to reduce visual impairment.

Another example of a performance objective might be to assure that over time an increasing percent of the VHW prescribe the correct dose of chloroquine for different age groups for the treatment of malaria. This implies that the VHW can differentiate a child less than one, from a child 1-5 years old, from one older than five. To test their ability to do so and thus the degree to which they are meeting their performance objectives, the supervisory team might ask a VHW to age 20 children during a monthly visit. If this were done for all VHW, perhaps once every three months, the team could see if a pattern of good or poor performance was developing. Again, if poor performance was noted, the reason would have to be identified and the proper corrective action taken. Poor performance might be due to lack of understanding of the methodology because little time was devoted to this issue during the training program. Conversly the methodology for determining age might be too difficult for an illiterate VHW to master regardless of the time devoted to it during training and supervision. Perhaps, the test to determine whether a child is over or under five years of age, i.e. reaching over the head with one hand and grabbing the opposite ear, is culturally unacceptable, perhaps distantly associated with negative gesture. This is an example of a performance objective implied by the content of the training program in Koro for which there is neither a performance objective established or data being collected which could lead to a decision about how well the task is being performed.

The VHW and the supervisory teams in Koro are both already being asked to keep and/or analyze a considerable amount of data. One might easily argue that more demands cannot be placed on either at the present time. If such is the situation, all possibly desirable approaches to monitoring and data collection should be described, and their advantages compared. Those monitoring activities which will allow the medecin-chef at the cercle level to make periodic decisions as to how to best allocate his training and personnel resources should be perserved, the others rejected.

III. PSR ACTIVITIES AT THE REGION, CERCLE, AND ARRONDISSEMENT LEVELS

A. Yélimané

Dr. Keita, the Regional Director of Medical Services in Kayes reports that, until very recently when he was given a budget for the PSR activities in the Kayes region, he had had very little contact with the PSR personnel or knowledge about the work being done in Tambacara. At one point in our conversation Dr. Keita remarked that the radios have made a real difference in his understanding of the project since even if not directly consulted, he can follow activities by listening when the Yélimané staff talks to Bamako or Koro. He has very little full time staff at the regional level and believes that he would need a public health physician and a full time management person to adequately plan the extension of a VHW based service delivery system to other cercles.

The cercle level personnel, the medecin-chef and his staff, have been involved with the PSR activities in the Tambacara arrondissement from the beginning but to an inadequate degree. Apparently Dr. Desole, the first Harvard advisor who lived in Kayes would spend a brief period of time briefing Dr. Pleah, the medecin-chef in Yélimané, of his intentions but would then continue to Tambacara to work with the dispensary level personnel in the villages. He reputedly devoted little time to the development of a team, as such, based in Yélimané or to the strengthening of the cercle level health care system. Dr. Dulaire and Mrs. Taylor were unable in their brief time in Yélimané to develop a fruitful, collegial relationship with the medecin-chef or other members of his health team. This is particularly unfortunate because the malian MCH has decided that the cercle - not the arrondissement will be the central function unit in the delivery system.

The medecin-chef himself has been unimpressed with the PSR activities in his cercle and especially with the technical assistance (TA) component. He frankly says that he sees no particular need for TA personnel, that Malians themselves are training VHW in other parts of the country and that given the proper support he could manage the program himself. He estimates that to extend the VHW based system to other cercles, he would eventually need at least an additional senior level, experienced infirmier d'Etat, to whom he could delegate some of his clinical responsabilities. He also believes that he would need a person with management skills in his office. It is difficult to tell when talking with Dr. Pleah to what degree he perceives the need for a manager in the sense of someone who will assume responsibility for medium term planning and resource allocation or whether he wants only an accountant-office manager who will assume primary responsibility for his reporting functions.

The PSR has provided training for the mid-wife based in Yélimané in the U.S. Her training program stressed maternal and child health/ family planning program development techniques. To date she hasn't

been encouraged to or help to develop a model MCH program at the cercle level. She will likely request a transfer in the not too distant future.

The one activity undertaken in the field of MCH was the very brief training of a number of traditional birth attendants (TBA) from villages in the Tambacara arrondissement. This was not apparently a particularly successful effort and did not involve the matron at the Tambacara dispensary. She reported to me that the PSR team's only request to her was to assure that meals were prepared for the trainees. Dr. Dulaire was unaware of where the TBAs are at this time or what they are doing. The Tambacara staff does not believe a man could supervise the activities of these TBAs. The matron based at the Tambacara dispensary hasn't been willing or able to go to villages by mobylette to supervise the TBAs. Hence this training effort has come to nothing.

Dr. Pleah believes that the PSR's most important contribution to reinforcing the cercle health services would be to construct and equip a modest operating room where he could do emergency surgery such as cesarian sections and repair of strangulated hernias. Unfortunately he has no data on the number of patients that he sees who require surgery and must now be evacuated to Kayes. He is confident however that if people realized that surgery was possible at the cercle level the demand would be much greater. The VHW keep no records at all and the records at the Tambacara dispensary do not identify patients evacuated to or from Tambacara. Hence it is impossible to get an accurate feeling for the number or type of medical evacuations occuring at this time. While in the villages, however, I got the distinct impression that the VHW themselves saw no advantage to evacuating a truely sick person to Tambacara or even to Yélimané. If transport could be found it was often just as easy to send the person directly to Kayes especially if that person would likely need surgery. I therefore suspect that Dr. Pleah is right when he says that even if current demand for surgery or evacuation could be measured it would not reflect the real need. In this regard I should note anecdotally that during my eight days in the Yélimané cercle one woman died at the dispensary in Yélimané from complications of childbirth and another, who labored almost 18 hours after the birth of a first twin to deliver a second dead twin, was lucky that she didn't die also. Had surgical facilities existed both the mother and the second twin might have been saved.

The two nurses in the Tambacara dispensary are clearly the personnel most involved with the "animation" of the villages and the training and supervision of the VHW in their arrondissement. They appear to be dedicated, competent people who have learned a great deal from associating with the PSR. Even they, however, are unaware of how oral rehydration solution should be administered. They vastly underestimate the potential needs of a child with significant diarrhea.

They deny that any PSR staff have worked with them to upgrade their clinical or diagnostic skills. They have no stethoscope, no blood-pressure cuff or other diagnostic facilities at their dispensary. The dispensary itself is an ancient banco brick, two room building whose dilapidated wooden examining table and other furnishings - a desk and a metal chair with no back - antidated the arrival of M. Diallo, the present infirmier d'état, 15 years ago. Because the roof leaks, the building is practically useless during much of the rainy season.

The dispensary had just received a supply of drugs from Yélimané two weeks before the evaluation team's visit. Mr. Diallo says that, although he often has no chloroquine or antibiotics, that he has been relatively well-supplied with medicines this year. This was his third consignment since the last rainy season. Unfortunately he has no role what-so - ever in ordering medecines. Dr. Pleah likewise complains that, although he goes through the motions of ordering medicines from the Pharmapro in Bamako, what he actually receives and is billed for bears little resemblance to what he orders.

M. Diallo and M. Diawara, the nurse with the Service des Grandes Endemies based at the Tambacara dispensary, agree that they will be unable to supervise all the VHW in the arrondissement at monthly intervals using mobylettes. They point out that the thorny, sandy terrain results in at least one if not three flat tires per supervision trip. They believe that they should be provided with a small motorcycle which would better withstand such vicissitudes. If provided with their motorcycle, they are still unsure if they, alone, could supervise a team of VHW in each village at monthly intervals. To what degree the nurses in Tambacara will need to be supported by personnel from Yélimané to maintain the necessary supervision is not clear at this time.

B. Koro

Although Dr. Brière, the Regional Director of Medical Services in Mopti, is better informed about the activities of the PSR than is his counterpart in Kayes, he also reports that he has had no substantive association with the project. In order to rationally coordinate the expansion of health services based on the VHW such as the PSR is developing in Koro, to the other cercles of the fifth region Dr. Brière believes that he will need as a minimum a deputy who can oversee the necessary planning and management activities. This person would ideally be a physician with management skills although a non-physician manager would be preferable to a physician without considerable management experience. Dr. Brière also mentioned the desirability of having a planning unit at the regional level which would correspond to the new planning division being created at the MOH in Bamako.

Dr. Brière believes that the PSR should have trained more VHW during its first two years. He hopes that the pace of training can be

picked up, that new elements can be added (he specifically mentioned leprosy control) and PSR activities extended into a new cercle.

PSR activities at the cercle level in Koro are much more impressive in terms of personnel training than those in Yélimané. A heterogenous group composed of a community development agent, a sanitation agent, various levels of male nurses and a matron. 3 Peace Corps Volunteers and the Harvard advisor constitute a team with impressive esprit de corps under the direction of the medecin-chef. Although all members of the team have specific areas of technical expertise and responsibility, they are polyvalent and participate in all phases of village sensitization and the training and supervision of the VHW.

The team trained a woman from each of the Chef-Lieu d'Arrondissement of the Koro cercle for six months to provide basic ante, intra and post partum care. These women (matrons) will return to their villages to work with the dispensary nurses and hopefully will eventually be able to supervise female health workers or traditional midwives at the village level. Although the Koro team has tried to encourage villages to choose a female VHW to be trained, to date none have done so. The team is planning a training program for TBAs in June. All efforts to train female health workers at the level of the Koro cercle have suffered from the absence of a sage-femme. No one with whom I discussed this issue seemed particularly optimistic about the chances of a dynamic immaginative sage-femme arriving in Koro in the near future.

The need for female health workers, either VHW or TBA, at the village level is attested to by the high rate of severely undernourished children and by the fact that one staff member estimated that at least one half of the 10-15 cases of adult tetanos case treated each year at the Koro dispensary are post-partum women. Male VHW can and should try to identify malnourished children and convince their mothers to change their feeding practices. They should also identify pregnant women and see they receive a tetanos vaccination during pregnancy when vaccine becomes available as part of the program. Although these tasks can be accomplished by a particularly agressive yet sensitive male VHW, they could be accomplished much more easily by a female village level health worker.

As in Yélimané the PSR has done little to improve the infrastructure or better equip the cercle level health facilities. A new maternity is under construction in Koro and a head tax was levied on each eligible citizen to build an operating room at the dispensary. An ex-Peace Corps volunteer raised almost two million FM for the construction of the operating room. In spite of all these fundraising activities there is still not enough money to build and equip the operating room.

When discussing how the PSR could best support activities at the cercle level, the medecin-chef stressed that the first thing that needs to be done is to insure a year round water supply easily accessible to the dispensary personnel. For many months each year the present well is dry. Often water is so scarce in Koro that there is no water to clean

wounds or with which the personnel can wash their hands between patients. Since the time of Dr. Semmelweiss we have understood that medical personnel with dirty hands cause fatal epidemics of post partum sepsis. This is truely an unacceptable situation for a "model" cercle level health facility.

The medecin-chef also mentioned the desirability of the PSR constructing maternities in the chef-lieu of the various arrondissements where the matrones that the project has trained will be working.

One of the PSR's major successes in Koro has been the integration of its activities with these of other development services in the cercle. M. Diallo, the Director of the Cooperative organization in Koro, was effusive in his praise of collaboration his organization, the CAC, had had with the PSR. The CAC installs consumer cooperatives which sell salt, sugar, soap, batteries etc, in the villages in much the same way that the PSR installs pharmacies. In the two villages in which they have both worked their activities seem to complement each other. For instance, the same management and accounting principals apply to both the cooperative and the pharmacy. Therefore the supervisory personnel of the two services can help either the pharmacist of the cooperative manager should they encounter a problem while on a supervision visit.

The representative of "Opération Puit" thinks highly of the personnel of the PSR and is excited about future collaborative actions. He is however frustrated because two wells that the PSR promised to build have not yet been built. Unfortunately the representative of "Opération Mils" was not in Koro at the time the team visited.

The chief of the UDPM in Koro spoke highly of the work of the PSR. He assured me that the political party will do everything in its power to encourage the villagers to support their VHW. The Governor of fifth region also told the evaluation team that traditional leaders in the Toroli arrondissement indicated to him that they valued their VHW and their pharmacies highly.

The two nurses in the Toroli dispensary, although heavily involved in PSR activities, are not as essential to the continuation of these activities as are their counterparts in Yélimané. As the team at the cercle level becomes more involved with the animation of new villages in the other arrondissements and the training and supervision of their personnel, more responsibility for the supervision of the VHW in the Toroli arrondissement will devolve on these nurses. The nursing assistant with whom the evaluation team talked at the Toroli dispensary, M. Kawaloum, seemed confident that he and his superior can assume the additional responsibility and can manage supervision trips on their mobylettes.

The dispensary in Toroli is in slightly better shape than the one in Tambacara, but none-the-less would profit from some minor improvements

like the construction of shelving. The nurses have a stethoscope, which the nurses aid incorrectly reported to me was broken, and a blood pressure cuff which, although not now working, could be easily repaired, The major difference between the Toroli and the Tambacara dispensaries is their drug supply.

The Toroli dispensary has had no drugs for months. The nurses report that they have received only one shipment of drugs since the last rainy season i.e. in the last year. I found no adequate explanation for this difference. Because he was not in Toroli when we visited, I was unable to talk with the chief nurse at the dispensary.

The Peace Corps Volunteers in Koro appear to be considerably more appreciated than their counterparts in Yélimané. One is currently developing detailed maps of the Koro cercle which will include information of interest not only to the PSR personnel but to those of other services such as "hydraulique" or the CAC as well. Another PCV is responsible, with the matron for organizing the training program for the Traditional Birth Attendants (TBA). The third PCV, a laboratory technician, is responsible for developing a lab at the Koro dispensary. The equipping of the lab and the provision of the technician is the only substantive contribution of the PSR to improving the facilities at the Koro dispensary.

C. Problems at the Cercle and Arrondissement Level

1. Problems common to Yélimané and Koro

a. The project director in Bamako gave USAID an order for medical equipment months ago. Some of this has been ordered and some hasn't. Apparently some of the equipment requested requires electrical power. Some of the equipment is relatively sophisticated. Questions exist at USAID as to whether less expensive, more easily repaired equipment might pose fewer recurrent cost and maintenance problems. These issues will be particularly important if Mali intends to similarly equip all its cercle level dispensaries.

b. The physical facilities in both cercles require modest refurbishing.

c. Both cercles and the arrondissement dispensaries receive medecines in a disjointed poorly organized fashion.

d. The cercle level health team as now constituted will not be able to train new and replacement VHW, periodically retrain those now inplace, and provide monthly supervision once there are VHW throughout the cercle. Little has been done in terms of personnel planning for the steady state situation.

2. Yélimané specific problems

a. The technical assistance team has left definitively.

b. The nurses at the Tambacara dispensary believe they will be unable to supervise all of their VHW with mobylettes.

c. The Peace Corps Volunteer in Yélimané has no job.

3. Koro specific problems

a. Koro has no midwife to supervise the training of female village health workers.

b. Koro has no year round water supply.

c. The leaders of the present Koro based PSR team have recently left i.e. doctors Sissoki and Kelly.

d. Wells for two villages promised by the community development expert on the PSR have not been funded. The Chief de Secteur d'Opération Puits reports that the project risks losing credibility if these wells are not approved in the near future.

D. Recommendations

1. The problem holding up procurement of supplies needs to be defined and resolved. If questions exist about the recurrent cost to the MOH of generators and air conditioners, these costs should be estimated by the technical assistance team. If sophisticated general anesthesia equipment is considered unduly fragile, or unessential for the cercle level, serious discussions about the alternatives should ensue. The possibilities of limiting surgical procedures to those which can be accomplished under regional or local anesthesia alone should be considered. Should regional or local anesthesia be found to be a reasonable alternative, an increased emphasis on these techniques may be necessary in the medical school curriculum.

If general anesthesia is necessary, the utility, cost, and maintenance advantages of a simple ether machine should be compared with those of more sophisticated machines requiring oxygen and/or bottled anesthetic gases.

2. An immediate priority of the new technical assistance personnel in both the fifth region and in Bamako should be to engage in the detailed and difficult planning for staffing patterns that will be necessary in the future. If VHW training is to continue in Yélimané the MOH will most likely have to post a senior, experienced manager to the cercle to help the medecin-chef with his planning functions. Once it becomes obvious that those VHW already trained are functioning

adequately and are being supervised regularly, training in other arrondissements should begin. At this time, one should consider posting a second medecin to the cercle. At the current rate of production of physicians - there were 29 physicians in the 1978 graduating class - Mali will soon have enough young physicians to post two each of the 46 cercles. If this is a policy that the MOH finds reasonable, beginning in Yélimané and Koro to define the different roles of the two physicians would be useful. Will one physician do only curative work and the other supervise the trainers and supervisers of the VHW? Or will each do both, switching roles at some frequency?

The need for additional personnel will probably become obvious in Koro much quicker. If the MOH accepts the estimates of the Koro PSR team that adequate coverage will result from the training of VHW for approximately twenty villages per arrondissement, coverage of the Koro cercle will be nearly complete by the end of the project. This supposes that the team can manage 3-4 training programs each year. Each training program will train VHW from approximately 10 villages.

As training procedes at this pace supervision is bound to suffer unless more personnel are added to the Koro level and greater responsibility for supervision is delegated to the nurses at the arrondissement level. What the ultimate personnel requirements will be depend to some significant degree on the purpose and frequency of supervisory visits deemed desirable and affordable. Perhaps supervision every 2-3 months will be adequate once the program is working well. Perhaps the dispensary nurse should take advantage of his presence in the village to give vaccinations. All possibilities should be considered and the necessary human and financial resources estimated.

3. The PSR team at all levels should attempt to improve the supply of medecines to the cercle. This does not mean that the PSR should attempt to address the ultimate problem of how the GRM procurs drugs from foreign suppliers. This is much too complex and politically sensitive issue.

The supply system should be analyzed, however. I suspect it does not confirm to existing Malian policies. The reasons why this is true should be identified and recommandations made to improve the system. For instance, both the GRM and the WHO have lists of drugs considered to be appropriate for the cercle and arrondissement level dispensaries. Are drugs not on those lists ordered? Even if not ordered are they some times supplied?

4. USAID should find a way to modify its current rules to allow moderate, appropriate amounts of dispensary repair and construction to be done with PSR funds. What kind of physical infrastructure is appropriate, i.e. meets minimal demands and is affordable, is controversial. In any case, the Tambacara dispensary should not be a quagmire in the rainy season, and the Koro dispensary should have water. If these cercles are to serve as models, USAID should be willing to support

minimal construction cost to see that in fact the cercles do become models. Having done what all parties agree is appropriate, the GRM may well discover that the capital cost are too high for this particular model to be replicated at the governments expense. At this point expectations will have to be scaled down. The project funded construction will then have served a useful purpose.

In this context someone suggested that USAID assist with the construction of maternities at the arrondissement level in the Koro cercle for use by the recently trained matrones. If a maternity can be constructed for six million FM and the local population can raise half of that amount, the possibility of USAID financing the other half should be considered, Obsiously the future implications of such an undertaking should be weighed. If an external donor is not available to provide such matching funds in other cercles, would the GRM be able and willing to do so. If not, perhaps construction of rural maternities is not a good way to provide maternal and child health (MCH) services.

Discussions of infrastructure development based on cost estimates developed by the technical assistance team would be useful. USAID should have the flexibility in its funding mechanisms to respond if those discussions identify appropriate interventions.

5. No technical assistance personnel should be permanently assigned to the Kayes region. The medecin-chef and his assistant (see above) should be assisted as needed by members of the Koro PSR team, the Bamako team, other Malian personnel and finally consultants from outside Mali. If, for instance, the medecin-chef should desire, as did Dr. Dulaire to repeat the disease prevalence studies (enquête medicale) and desires assistance developing a study protocol or training his encadreurs, the director of the PSR should try to make available, as a consultant, one of the personnel in Koro who was involved with the studies there. If, however, a study design significantly different than that used in Koro is desirable, epidemiological expertise from Bamako or outside Mali may be required.

6. The cost of providing a 125 cc motorcycles to the Tambacara nurses should be estimated.

If the recurrent cost of using motorcycles doesn't appear completely out of reason, this option should be field tested to determine its real time and labor saving advantages, as well as its real recurrent cost. I seriously doubt that motorcycles offer enough of an advantage over mobylettes to justify their higher capital cost, but this is the type of question the PSR was designed to answer.

7. The Peace Corps Volunteer in Yélimané should probably be reassigned. The current medecin-chef sees no value in generalist volunteers and hence the PCV 's presence in Yélimané is a waste of a potentially valuable resource.

8. The wisdom of developping a village based health system which depends even minimally on the presence of an active, enthusiastic midwife at the Koro level should be examined. If it is, as a highly placed Malian health official told me, practically impossible to find a midwife who will willingly spend two or three years at the cercle level while her husband is posted elsewhere, alternative solutions must be found to train and supervise the critically important female members of the rural health team. Perhaps the role of the matron should be upgraded. The obvious risk of doing so is that she will begin to look for an assignment outside her own village. The problem needs to be fully discussed before more matrons or TBAs are trained in the Koro cercle.

9. The departure of Dr. Sissoko and Kelly will temporarily lessen the effectiveness of the Koro team. The new medecin-chef will naturally require a few months to become thoroughly familiar with all of his clinical and normal administrative responsibilities. I will be amazed if the new HIID advisor for the fifth region arrives in Mali definitively and is installed and ready to work seriously before the end of July. There will be therefore at least two months when the Koro team will receive less supervision than it has in the past. The Bamako team should be especially supportive during this time. A site visit to assure that the new medecin-chef understand the resources available to him should be undertaken in the immediate future.

Apparently the HIID advisor may well be assigned to Mopti. This will be an advantage in that he will be able to work closely with the regional director of Medical Services to plan the extension of the VHW training program to other cercles. Great care must be taken, however, to see that he spends at least 6-12 months in Koro developing a personel, in-depth knowledge of the problems attendant to VHW training. This will pose problems because he will often be away from home or will have to install himself in two different houses during this two year term of service.

The pros and cons of assigning the new HIID advisor to Mopti rather than Koro should be fully discussed with Dr. Brière, the new medecin-chef in Koro as well as with the advisor himself before a final decision is made.

10. The PSR should construct a well at the dispensary in Koro and in the two villages where one has been promised as soon as possible. I will say more about well construction as a part of the PSR in the next section.

III. Additional Activities which could be included in the PSR

A. Possibilities

The possibilities are numerous and include:

1) Vaccination of children and pregnant women.

2) Cooperation with the Institute of Traditional Medecine and African Pharmacopea in Bamako to define the role that traditional medical practioners, their techniques and medicines should have in a village level health care system based on the VHW.

3) Classical maternal and child health (MCH) activities such as weighing babies and pre and post natal counselling of mothers including advice on the importance of child spacing.

4) Increased emphasis on village sanitation and the protection of water supplies. This implies an important health education component.

5) Greater emphasis on community development activities especially the construction of wells.

6) Participation in the identification and treatment of people with such endemic diseases as shistosomiasis, tuberculosis and leprosy.

B. General Comments

I cannot overemphasize how important I believe that it is for the PSR to assure that the current and future VHW have mastered the skills that they have already been taught and that the whole system is viable before new elements are added. The PSR in Koro is off to an excellent start but there is considerable work to be done to assure that the VHW can initiate and maintain a prophylactic chloroquinization program and can properly use the bandelette to identify severely malnourished children. Until these important tasks are mastered no new activities should be added to those performed by the VHW or his supervisors. The program as it is now constituted offers an important service which I believe the community will recognize and support. If too many tasks are added too quickly and the performance of the VHW or that of his supervisors suffers, the value of such a system may not be obvious to the community. Without community support such a system will fail completely.

C. Priorities among possible new activities

1. Vaccination program - The former chief of party for the HIID team, Dr. Nilson, submitted a proposal for an immunization program in December 1979. To my knowledge this proposal has not yet been seriously discussed by the various parties in the PSR. I agree with Dr. Nilson that, if a new activity is to be added, vaccination of children and pregnant women should be the first. More lives will be saved at lower cost by providing vaccines to these high risk groups than by any other activity.

When asked what disease they would like to learn more about, or be able to treat, the VHW in Yélimané almost universally responded that measles and whooping cough were their biggest problems. An earlier discussion noted that many maternal deaths in the Koro cercle could be prevented by vaccinating pregnant women against tetanos.

Dr. Nilson's technical proposal should be carefully reviewed by those Malians and their WHO counterparts responsible for developping Mali's Expanded Program for Immunization. This report is not the place to discuss the details of his proposal but I would like to emphasize that

a) including polio vaccine in such a program greatly complicates the the cold chain problem if injectible vaccine is used. If oral vaccine is used, it greatly increases the cost of a program. I saw few crippled children and health personnel told me that polio was not particularly common. Studies have already demonstrated that intestinal worms which, like the polio virus, are spread by the fecal-oral route, are relatively uncommon. The World Health Organization has developed excellent techniques for estimating the overall incidence of paralytic polio from surveys of lame children. Unless such surveys demonstrate that polio is a significant problem, the vaccine should not be included in the program.

b) evaluation of such an activity should be based on coverage rates established by surveys and decreasing morbidity and mortality rates established by routine surveillance. The check list proposed by Dr. Nilson as an evaluation methodology is useful but inadequate.

The newer measles vaccine and the combined vaccine against tetanos, diptheria and whooping cough are relatively thermo-stable. They could be delivered to the target groups during supervision visits to the villages by the PSR team members using small easily portable thermos bottles to transport them from the dispensary to the village. Storing the vaccine in Bamako, the regional capital or the cercle will pose significantly greater obstacles. No system for maintaining the cold chain should be instituted using PSR resources which cannot ultimately be replicated and maintained by the MOH in other cercles. For instance, the frequent travel of PSR personnel from Bamako to Yélimané or Koro should not be exploited as the method for delivering vaccines to the periphery.

The possibility of beginning a vaccination effort only at the level of the cercle and arrondissement dispensaries should be considered. Although only a small percent of the population would be served initially by such a program, vaccine would be available to those willing to come to the dispensary and dispensary personnel would gain experience using the vaccine. When everyone agreed that the VHW was adequately performing his other tasks, vaccination could begin in the villages.

2. Increase collaboration with the Institute of Traditional Medecine and African Pharmacopea (ITMAP). Mali recognized much earlier than most of its neighboring states the need to integrate the best traditional medical practices into a modern rural health care delivery system. Although, in the years since the ITMAP was created, much lip service has been paid to the desirability of this type of integration,

little progress has been made, in Mali or elsewhere, defining the role of traditional medecine in a primary care system.

A relationship between the personnel of the ITMAP and those of the PSR has already developed. The director of the ITMAP is particularly anxious to see a greater degree of collaboration develop between the two organisations. His deputy has participated in several PSR activities. In Koro investigation into traditional medical practices in the area has already begun. In Yélimané some of the VHW were chosen because they had a traditional role in the village - a few opened abcesse and one was a bone setter.

These beginning should be built upon. Any health care system which counts primarily on village support for its survival must valorize the safe and effective treatments that are already being used. Professor Koumaré and Dr. Koné should be asked to submit a research proposal to the MOH and the PSR team. The proposal should detail the way the ITMAP could use the present PSR structure to gain the necessary knowledge about traditional practices in the area. The proposal should then present a detailed research protocol to test different approaches to integrating the most useful of the traditional techniques with the others that the VHW is now employing.

Once all parties agree that the ITMAP's proposal is appropriate, the PSR should provide money from its budget to the ITMAP to execute the work in the field. If consultants from outside Mali are needed, either to help design or implement the field work, they could be paid by the PSR.

Unlike the addition of vaccines to the project, the addition of a traditional medecine component to the program will not immediately save lives. It will certainly, in the long term, save both the villagers and the GRM considerable amounts of money. Much more importantly it will demonstrate to the villagers, that the PSR and theMOH are sensitive to and appreciate the value of their traditional system.

3. MCH/FP

When the newly trained matrones become reinstalled in their villages and decisions are made as to how, and by whom, they will be supervised, they should be encouraged to develop ante and post natal and infant monitoring programs. Important services to be provided in such a context would include:

a) immunization of pregnant women and children;
b) monitoring of clinical signs of impending eclampsia in pregnant women by observing for edema or rising blood pressure;
c) nutrition education and iron supplementation to pregnant women;
d) education as to the importance of delivering at the dispensary or at home with the matrone in attendance;

e) weighing and charting of the weight on a "Road to Health" type card of all children under three years of age.

None of these activities require the physical presence of a maternity. In fact, if the matrones could be incorporated into the supervision teams, many of these activities could better be carried out in the villages. The PSR should consider the support of the matrones it has already trained a priority. If they are unable to work in the village initially, as a minimum the PSR should see that they have the equipment and supervision necessary to begin a program at the level of the arrondissement dispensaries.

The addition of a child spacing emphasis and the provision of contraceptive products should be undertaken only after these activities have the support of the politically influential people in the area. The MOH has a clear policy of promoting child spacing and PSR personnel should develop a strategy for winning political acceptance for the concept at the cercle level. However, the excellent start of the PSR should not be jeopardized by appearing to prematurely devote too many human and financial resources to an unpopular intervention.

4. Improvement of Village Sanitation and Provision ofSafe Drinking Water

Although certainly important, changing excreta disposal habits in a village is an extremely difficult task. In very hot, dry areas like Yélimané and Koro where studies have already demonstrated a relatively low worm burden in young children, I doubt that this is a high priority. In this respect I believe the current PSR approach in Koro is a good one. The VHW is encouraged to set a good example but valuable credibility is not lost trying to convince everyone else to dig a latrine. Once the stature of the VHW has risen sufficiently because of his demonstrated knowledge and effectiveness, he will more easily be able to attack this problem.

If heavily infected water sources, especially those harboring guinea worm, can be identified, filtering or chlorinating the water will be very useful. However, I should emphasize that recent studies have cast considerable doubt upon the efficacy of protecting water sources in the control of childhood diarrheas. Many people think water becomes contaminated long after it leaved the well. In any case, effectively and affordably chlorinating a well known to be contaminated is clearly a desirable public health intervention.

The question then becomes what chlorinating techniques will result in effective levels of chlorine residual for the longest time for the least money. If a decision to disinfect wells is made, some of the inexpensive devices that release chlorine slowly over many weeks should be tried.

I agree with those who say that assuring an adequate water supply is the single most important priority for the people of the Yélimané and Koro cercles. I am also convinced that having enough water to bathe and properly wash clothes and cooking utensils will significantly reduce morbidity from gastro-intestinal and skin infections.

However, I also strongly believe that the rather limited financial resources of the PSR should be concentrated on perfecting a mix of health interventions which are effective and affordable. The emphasis should be on trying new approaches and evaluating their effectiveness and cost so that, at the end of the project, the GRM will know what works, at what price.. I do not believe that providing services per se, should be considered the short term goal of the PSR. The long term goal is obviously to replicate the ideas that work and to provide services to the entire population.

In this light, spending three to four million FM to construct a well in a village doesn't seem like the best use of project funds. Doing so on anything but a very selective basis would rapidly deplete the project funds.

A more important consideration is the precedent that would be established. If the MOH and the PSR adopt policy that no health activities can reasonably take place wihtout a modern, dependable well, the MOH will constantly be stymied in its efforts to provide some minimal level of health care to rural Malians. The MOH will be unable to undertake any village level initiatives until a service dependent upon another ministry has mobilized the capital and human resources necessary to build the well. Parenthetically, in this respect, it is important to note that it is often the human and not the financial resources which are unavailable. The community development agent in Yélimané assured me that many Soninké villages which desperately want a well, and can pay to have it constructed, cannot find the necessary technical expertise.

For all these reasons, although I agree that the villagers in the Yélimané and Koro cercles need water more than they need medecines, I don't believe that funds from the PSR should be used for this purpose except in exceptional circumstances. Conversly I believe that having a full time community development agent on the HIID staff to help the communities mobilize their own resources or to put them in touch with possible external funding sourced is a good idea.

5. Control of Major Endemic Diseases

The VHW in the Koro cercle already understand that chronic coughers, especially those who cough up blood have a serious disease and should be referred to the supervision team for definitive diagnosis and treatment. Recent evidence from WHO sponsored studies in India questions the efficacy of BGG vaccine in preventing tuberculosis.

Hence, identifying the active cases and treating them becomes even more important as a method of controlling transmission. This task will have to be emphasized and the VHW encouraged during the supervision visits if the VHW is to have any effect on diminishing the prevalence of tuberculosis. There is no point in emphasizing the importance of identifying chronic coughers, however, if the supervision team is not prepared to follow-up with a definitive diagnostic test - sputum smears- and treatment for the sputum positive cases.

Control of shistosomiasis is probably too expensive and too complicated to be considered a goal of the PSR or of a VHW. As newer, less toxic, less expensive drugs become available for mass treatment of populations in highly endemic areas, the VHW will have a very valuable organization role to play.

Given enough time there is no reason that a supervisory team could not examine and periodically provide medecines for previously identified lepers in the villages with VHW.

6. Summary

All of the possible additional activities discussed above are technically rather simple. They could easily be accomplished in the village, by the supervision team during its monthly visit. However each additional activity requires some additional time. If many additional demands are made on the supervision teams one of two things will happen. They might spend less time with the VHW and the work of the VHW would certainly suffer. Conversely they could continue to spend the same amount of time with the VHW and do the additional tasks but only work in one rather than two villages per day. This would obviously double the supervision cost and would undoubtedly greatly increase the personnel requirements. Again I would urge all PSR and MOH personnel to carefully consider the VHW and their supervisor's ability to adequately execute any of the above tasks before adding one to their current load. Having decided that additional activities are desirable, the PSR must carefully formulate the behavioral objectives that will be measured and monitor progress toward those objectives. Only by doing so will the PSR personnel realize when the absorptive capacity of the system has been exeeded.

IV. The Health Surveillance System, the Informative System of the PSR and Measuring Impact.

The surveillance form currently in use (see Annex IV) at the dispensary level is much too complicated. Dispensary nurses are asked to differentiate between conditions such as amoebic dysentary and other diarrheal diseases. This is impossible to do reliably without laboratory facilities. They are asked to differentiate pneumonia from bronchitis, emphysema or asthma without having a stethoscope available.

Most importantly the majority of diseases listed on the surveillance form are not ones for which the MOH now has or is planning to have an intervention program. No reports are solicited for cases of fever and jaundice with gastrointestinal hemorrhage that might indicate yellow fever or lassa fever, extremely infectious diseases of tremendous public health importance. Diseases preventable by vaccination such as measles, whooping cough and polio are not specifically reported. Cases of malnutrition are not currently reported. Three important principals involved with designing a surveillance system are:

1) Report only diseases for which something can and will be done in the short or medium term;

2) Report only diseases or conditions for which reliable diagnosis can be made or those which are so important that even a suspicion requires a follow-up;

3) Provide feedback to the person doing the reporting.

The current form should be redesigned and simplified to emphasize information about conditions the VHW is expected to treat. In this way the information now in his notebook could eventually be incorporated into periodic reports that would demonstrate trends in disease incidence or prevalence. These reports will ultimately serve as an indicator of the success of a health care system based on VHW.

A surveillance system alone should not be counted upon to monitor the success of the VHW system. The PSR team in Koro has already demonstrated an ability to do field surveys which will produce invaluable information with which to monitor the impact of the VHW. As the size of the population to be covered by the VHW increases, more sophisticated means of sample selection will have to be developed. The PSR team should study the applicability of the randomized cluster sampling methodology used by the Center for Disease Control of Atlanta, Georgia to do nutrition surveys in the Sahel in 1973 and 1974. The same methodology is currently being recommended by WHO to assess vaccine coverage in EPI programs. Using this methodology one can accurately determine the prevalence of any condition expected to have a prevalence of 1/1000 or greater. The advantage of this method is that only seven randomly selected individuals in each of 30 randomly selected clusters must be evaluated in a population of up to one million persons.

The PSR in Koro has already taught the VHW to maintain birth and death registers. Deaths are listed by age, sex and major symptom. This is an extremely important activity which the VHW seem to be doing relatively well given that they have only recently started. A preliminary analysis shows the reported birth rate to be almost exactly what one would expect it to be. The death rate is lower that expected especially

for younger children. This probably reflects under-reporting. The VHW can be expected to continue this rather difficult task and to improve the accurateness of the death register only if the supervision team constantly encourages them and impresses upon them the importance of the activity.

Using the vital registers and the consultation records kept by the VHW and periodic surveys, supervision teams will truely be able to monitor changes in disease morbidity and mortality.

I cannnot overemphasize that this kind of monitoring is not an academic exercise to provide data for people interested in writing papers. Only by methodically collecting and analyzing such data will the MOH be able to determine whether this new system, which extremely poor Malian villagers are being asked to support to a considerable extent themselves, is truely influencing their health status.

Having said this I would also like to stress that this new approach to health care will not make obvious dramatic impacts in short periods of time. A minimum of ten years will be required to demonstrate the effectiveness of such a system. It is important that the donor community understands this basic fact and does not prematurely retreat from supporting various approaches to the selection, training, supervision and compensation of VHW. If the system is to prove itself, external support to African governments will be required for most of the next decade.

Because I do not believe that important changes in health status will result in the short term from VHW programs, I do not think the comparison arrondissement concept as proposed in the project paper was a good idea. Drugs should be supplied as widely as possible as a service that the project can provide. How those drugs are used should be monitored. However, establishing valid comparison groups and attempting to measure difference in health impact of two such approaches over a relatively brief period of time is extremely complex. I do not believe that the value of this effort would justify the resources the team would have to invest in it.

In their final evaluation of their work, Drs. Sissoko and Kelly present data that address the question of current and projected population coverage, and utilization. Their in-depth analysis of the activities of the VHW in the village Anakaga-Dogon from April until December 1979 provides invaluable insights into the way the system is being used at this time, Such analysis should be done for longer periods of time for other villages and the information pooled. To do so will require a tremendous amount of clerical work. A full time, trained statistician should be assigned to Koro to the PSR team. The objectives of his work would be two fold:

1) to assure that a maximum amount of data is collected and ready for analysis by the end of the project.

2) work with the members of the team to determine what kinds of data will be useful to collect and practical to analyse once the PSR resources are no longer available.

Because a copy of Dr. Sissoko's and Dr. Kelly's report was not available to me after our brief field visit in Koro, I will site little information relative to current coverage and utilization rates. Briefly, the VHW in Anakaga-Dogon, a village of 575 population, had 493 consultations during the nine month period of April-December 1979. This is a gross rate of 54 consultations per month. I am unsure how many person/months of VHW service took place in Anakaga-Dogon during the nine months. Seventy-seven percent (380) of those consultations were for people from Anakaga-Dogon for a rate of 73 consultations per 1000 population per month. The 380 consultations represented 293 different individuals for a penetration rate of 293/575 = 51%. At this rate each inhabitant of Anakaga-Dogon will visit the VHW 1.73 times in one year. The data from Anakaga-Dogon indicates that children under fifteen are under represented and women from 20-24 are over represented among the consultants. Among the consultations for children under five, 51.4% were for fever and 40.3% for conjunctivitis. The average per capita expense for medicine in Anakaga-Dogon was 74 FM. I quote these data only to indicate extensive data collection and analysis effort that the PSR team undertook in Koro. It is much too early in the life of the project to know if these rates will be typical of other villages or even of Anakaga-Dogon once people gain more experience with the VHW.

Diverse Issues

A. Should the Project open a New Cercle?

I believe that a third cercle should be opened only as a third priority. Clearly the first priority is to assure that in Koro the ongoing activities and any new ones are well executed. The personnel and financial cost of extending coverage to the entire Koro cercle must be determined. In my mind this was the service that the PSR was intended to provide the GRM. Because the GRM views the cercle as the basic functional unit in the health system, the PSR must concentrate its resources to see that all the required information is available for at least one cercle.

I believe the second priority should be to continue the efforts started in Yélimané. I believe that the current state of affairs in Yélimané is due to the inablility of the Harward technical assistance personnel to function in the Yélimané cercle. This view is not necessarily shared by Dr. Cissé, the sociologist on the evaluation team, He believes, if I understand him correctly, that the PSR would have had problems selecting, training and supervising VHW, regardless of the PSR personnel, because of the particular nature of the Soninké villages. The female to male ratio in the Tambacara arrondissement has been estimated to be 6/1 for the 15-44 year old age group. Dr. Cissé believes that the most resourceful

of the men in this age group who would make the best VHW are "en exode" in France.

I agree that this problem is important but don't believe that it should pose an insurmountable hurdle. The problem of emmigration of young men, if not to France and if not as serious, is present in all areas of Mali.

If one accepts my contention that the current problems in the Yélimané cercle stem from the inability of the Harvard personnel to function in Yélimané, then I believe attempting to continue the work underway using the local personnel, reinforced as need by consultants, makes more sense than opening a third cercle. Before the latest training program began in Yélimané, in mid May, 26 VHW had been trained in nine villages. The infirmier nurses in Tambacara are familiar with the project. These are valuable resources in which the PSR has already invested considerably. They should be maximized, not abandoned.

If the PSR continues in Yélimané without TA personnel, very important lessons will be learned as to what kind of consultant resources the GRM will have to supply to other cercles where VHW training and supervision will have to begin without TA personnel.

My suspicion is that the start-up problems in Yélimané - to the degree that they are not tied to the TA issue - will prove to be rather typical. Selecting, training and supervising VHW to the point where they do such good work that they are willingly supported by their fellow villagers is very difficult work about which no one is particularly knowledgeable at this time. If the concept is to succeed, donors such as USAID will have to be willing to provide long term assistance to African States and should not be discouraged at a temporary set back as has been suffered in Yélimané.

For the above reasons I believe PSR resources should first assure that all reasonable efforts have been made to see that work similar to that which is ongoing in Koro takes place in Yélimané.

If, and only if , careful analysis of the situation by the PSR staff and the MOH personnel indicate that the project has enough resources to support Yélimané would I recommend beginning work in a third cercle.

B. Implications of the PSR and other VHW Based Programs for Medical Education in Mali.

If a national system based on the VHW becomes a reality in Mali, physicians and nurses will have to become very skillful managers and supervisors as well clinicians. Management concepts as well as other public health skills should be introduced in the first year and built upon and emphasized throughout the medical and nursing school curriculum. I agree with the regional director of medical services in Mopti who told me that he doubts the value of short term training programs in public health for physicians once they have developed a clinical orientation in medical school. Physicians and nurses must realize even from the earliest phases of their training that their skill at supervising personnel or at analyzing the epidemiological situation in their area or at comparing the cost and benefits of two possible lists of dispensary drugs will be much more important to the functioning of the system than will their ability to do Cesarian sections or auscultate heart murmurs.

Therefore, I believe that the new chief of party should make an effort to share the experiences gained in Koro with those responsable for curriculum design at the schools of medecine and nursing. Dr. Sissoko's presence at Point G hospital will be a huge advantage in this respect.

C. Motivation of Personnel

Much discussion goes on about the importance of finding the appropriate type of remuneration for the VHW. My instinct is that if he does his job well his services will be valued and his peers in the village will find the proper way to remunerate him. I doubt that this is the biggest problem for the MOH.

He will not do his job well and therefore will not be appreciated and remunerated if he is not well supervised. How does the GRM encourage the brightest, most creative and enthusiastic of its young nurses and physicians to view service at the cercle level and the management of a VHW based health care system as desirable? Clearly two ways to do this are to establish differential pay scales and differential promotional practices for those who serve in rural areas and excell at "public heath" versus those who prefer service in urban areas and excell at "clinical medicine". Even keeping in mind the higher cost of living in the urban areas, I suspect that higher salaries will have to be paid to personnel serving at the cercle level than those paid to personnel serving urban areas, if rural service is to be encouraged. If a VHW based system is to flourish, service at the cercle level must not be viewed as what one does immediately following initial training before one can qualify for specialized clinical training.

D. Technical Assistance in Rural Areas.

I believe one important lesson that the GRM, USAID and Harvard should learn from this project is that it is extremely difficult to find

highly skilled U.S. technicians who will perform well in rural Mali. Dr. Kelly proved the exception to this rule but his extensive previous African, even Malian, experience undoubtedly was an important factor. In the future, projects requiring that highly skilled U.S. technicians live at the cercle level should be very carefully reviewed in light of the Yélimané experience.

E. Acknowledgement.

I want to express my sincere appreciation to all of the MOH and PSR personnel as well as to all of the other patient individuals who helped the evaluation team during its time in Mali.

KHach

EVALUATION REPORT

of the

PROJET SANTE RURALE

by

Annette Correze

This report, of which the basic outline can be considered as a summary report, will deal in turn with each one of the consultant's terms of reference and will answer the general questions put forth by the evaluation team's terms of reference.

I. TRAINING

The Consultant for Training and Community Development was asked to examine training activities at various levels with regard to methodology, pedagogy and nontechnical content and to examine in terms of needs essential to the creation of a primary health care (PHC) system.

The project's training component is made up of three major elements which are described in the basic Project Paper:

-- Training of trainers;
-- Training of village health workers (VHW);
-- Development of appropriate training support materials.

As no training activity was taking place during the period of evaluation, we developed an analysis of these problems through the use of:

-- Existing documents;
-- Interviews with the staff working with the project;
-- A determination (nonsystematic, approached through different interrelated elements of the project and necessarily subjective) of the pedagogical activity of both the professional health SMFF and the village health workers.

1.1 Training of Trainees

A study of the basic training system of MOH health professionals was not one of the objectives of our evaluation. We examined only the training pertaining directly to the project. Nonetheless, we wish to stress, in passing, the importance of introducing the basic ideas and methods of primary health care at every stage of the training of career health personnel. We would even go so far as to suggest a fundamental reform in the education of health professionals in which the new approaches would be fully integrated.

We know that some steps, such as the organization of practical field work where students are in direct contact with the rural areas, have already been taken in this direction of the Secondary School of Health and at the National School of Medicine.

Changing professional practices once they have already been established is, of course, an enormously expensive undertaking in both human and material terms.

Our interviews with various health personnel allowed us to see how much of an effort is required of them. Some practitioners have chosen the medicine as a vocation, attracted by the idea of treating curing and establishing a privileged relationship with their patients. All their education, particularly that received from western-structured institutions and especially for the older health professionals, keeps them embedded in a curative orientation to their work. They acknowledge that this conception of medical practice neglects an important segment of the population. They faithfully adhere to the PHC strategy which is national health policy for the country.

Still, it is too much to expect that they not feel a certain professional anguish; fear of losing their skills by undertaking new, different tasks; the impossibility of quickly perceived tangible results, etc. One should note that it is at the higher levels, where the administrative tasks, policymaking and coordination are important, that these reactions are most felt. It seems important to us that these hesitations and this anxiety be taken into account in the development of a PHC system.

We feel that these problems should be discussed further at the ministerial level with two objectives in mind:

-- Additional professional training--periodically and administratively recognized--for health personnel; this will be discussed below.

-- It is not our intention to propose the creation of an elite, privileged group of civil servants, as we are aware that this approach to PHC will be progressively applied throughout the country.

Rather, we believe it is important to recall these problems during periods of difficulty and transition, especially for the professionals called upon to undertake their new, demanding work and particularly in view of the demanding travel schedules the work requires. Efforts should be made to assure them several and efficient modes of transport, an upgrading of the value of the rural work, and a full recognition of this work in their professional careers, particularly regarding grades, promotion, scholarships, or whatever other steps available to assure that their efforts are highly regarded.

In the content of the project, two different levels of health personnel participate in training.

1. At the national level, a team is made up of the project training consultant and health personnel assigned from the Health Education Service. This team organized training workshops at the outset of the project. These workshops were intended to encourage an analysis of methodologies to be employed particularly in relation to approaches to rural settings and the pedagogy of instruction.

They also concentrated on developing appropriate teaching materials and visual aids.

Reactions to this national team vary depending on whether they come from MOH professionals or from personnel of other participating services.

The health professionals from cercles and arrondissements blamed the team for not having included them sufficiently in design work in the very outset; i.e., from the CONCEPTION of the workshop and for having intervened somewhat authoritatively into problems that they themselves felt they understood.

Others, however, highly appreciated these workshops which enlarged their areas of interest and presented to them a means of participation in the project's activities. In fact, they express a sharp disappointment that this kind of collaboration has not been repeated and that their participation is no longer solicited.

At Tambacara, where we met with several heads of service who had participated in the mutual workshop, this disappointment was strongly felt. Some even expected that the project would participate in their own activities; a case in point was the Head of the Rural Animation Center (ANAFR) who had hoped the project would assist in training of the young men assigned to his center.

In Koro it was at the arrondissement, in Toroli, that the health personnel expressed their disappointment most sharply.

It is difficult to evaluate these different reactions. Many factors need to be considered: personality conflicts, material problems, inevitable mistakes and misunderstandings at the beginning of any project, etc. On the other hand, this report cannot attempt to list the existing variables surrounding this question.

Nevertheless, we do recommend that the project closely reexamine the kinds of collaboration which might be established with other services in a concerted action in the villages. It would seem to us particularly useful to take advantage of the knowledge that some of them now have village life and problems. In this context, we can imagine a truly joint undertaking among several different agencies which would go well beyond a simple exchange of information or passive participation during training sessions. This kind of collaboration should actively take place

in any community development program. We think that it would also be useful for VHW training. Village organization problems (such as VHW remuneration) would come quickly to present themselves and discussion about them might well be invaluable.

Finally, we would like to emphasize the danger of raising expectations and then not meeting them. This can compromise future collaboration.

2. At the local level, training is undertaken by a joint team of technical assistance and MOH professional staff.

The situation is very different in the two project zones. At Yelimane training possibilities have suffered from some of the problems cited above: the basic conception of the project from the very start, the location of the technical assistance advisor, interruptions in technical assistance, personality conflicts among team members, etc.

At Koro, where everyone acknowledges that the present training process grew out of a severe progressive adjustment which also had their problem periods, we find a sound training component in daily operations via a variety of different interventions.

For us, this type of training is essential. Even if the growing experience of developing a PHC system makes it possible to identify a step at a time the major lessons to be learned, we still maintain that this kind of change process in rural areas requires constant analysis of the methods used, feedback from the rural population, and continuous evaluation of the activities undertaken.

It is during this work that an important part of health training takes place. And it is here that we see the technical assistance playing an essential part. And it is here that their training in public health will be particularly appropriate.

Here is an incontestable opportunity for joint team training where the technical assistants will receive valuable aid from the team members through a joint process of analysis.

One obvious precondition is required for the success of such a joint endeavor: adaptive personality combinations, and dependable relationships built upon mutual confidence.

Recommendations

We would recommend for the near future an analysis with the local teams of the role of the national training team.

In our view, this analysis should have two major components:

-- Encouraging discussion between the teams about METHODS and PEDAGOGY; exposing certain themes and heading the teams to working on them.

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This would require regular visits (though not so frequently as to hinder work) to the areas and producing materials, based on these discussions and at the request of the cercle teams to be used to facilitate their work (we refer, for example, to the outline for the preparation of training themes established for Yelimane).

-- Organizing, in a systematic way, ongoing training for the MOH professional staff.

We think that, beyond the daily training, which is necessary and which is described above, it is desirable to systematize this training. This will contribute to limiting the roles of the technical assistants in the field and allows for the constitution--at a national level--of a training team capable of assuring a certain COHERENCE in the primary health policy, thereby giving control of the policy to the Ministry--even if other agencies participate in its development.

We feel that the efforts already undertaken to associate the national team with other organizations in the health and social affairs departments are very positive in this sense.

Nonetheless, we stress the importance of associating the regional and local teams in the work of defining the training content They know better than anyone what the needs are and what priorities should be met regarding any action taken.

We see here an interesting middle ground between national level training and training abroad which is not always adapted to the realities of Mali.

Needless to say, we are aiming for a theoretical training plan directly useful for concrete action.

We repeat that if the policy of ongoing training for professionals is to be developed, study must be given to the possibility of recognizing it and valorizing it from an administrative viewpoint.

1.2 Training of Village Health Workers

For the sake of analysis, we will identify three activity components relative to the village training, all three of which deserve attention: the "sensitizing activity" (we give to this word not only an exchange of information but of an actual negotiation) in the milieu, the training itself, and the follow-up and supervision.

The Sensitization

This stage is for informing the population, discussing the project, and concept of choosing the VHWs. In both zones an

environmental survey preceded the training. Its aim was to collect information about the villages: the number of wells, the names of the heads of village, the existing organizations, the basic economic structure, etc., and to obtain an overall picture of the health situation: existing diseases, frequency of malnutrition cases among children from 0-5 years, etc.

For this environmental study, help was solicited from other service personnel, some of whom live in the villages and who helped introduce the project and the project team. It wasn't clear how these survey results were integrated into the training itself, and we will make [illegible] of it in the recommendation section.

Several questions can be asked in this area concerning methodology:

-- How much time should be spent on sensitization?
-- What should it include?

It seems to us that in both zones the training preparation period was very rapid despite the several preliminary visits made t the concerned villages (three or four).

Looking back through the activity log book, one finds that at least one or two of these visits were spent entirely on information activities; notation of the names of the selected VHWs and the date set for the training, for example, and that the majority of the villages were covered in one or two days.

To cite an example, we will describe the preparatory visits which took place in Koro last March 10-15.

-- The first visit consisted of a meeting with the chief of the village, his advisors, and the members of democratic organizations. Its purpose was to gather data about the village, explain the concept of the project, and ask for the names of the selected VHWs.

-- The second visit consisted of a meeting with the selected VHWs who were asked to fill out individual forms.

-- The third visit was to communicate the chosen date for the training period.

The Koro team pointed out to us that the sensitizing work was done rapidly by choice; the population is tired of lengthy meetings resulting in nothing. Therefore, they preferred to accelerate the preliminary process so that the villagers would have a concrete idea of the project immediately, even if it meant readjusting later, particularly concerning the choice of the VHWs.

We give full credence to this decision, but we would like to emphasize several points in order to stimulate further reflection on methodology.

What we know about rural milieus makes us think that it would be desirable, in the future, to try to reach the village population as a whole (including the women) so as to reflect with them on the desirable characteristics of the VHW, the best way to organize his work, etc.

We are fully acquainted with the extremely hierarchical character of the concerned societies and we know that, regardless of discussion, the choice of VHW will be strongly influenced and even determined in the end by the authorities. But a global information distribution might result, through a progressive process of adjustment growing out of village discussion, in a better concensus.

We wouldn't claim that a longer sensitizing period would eliminate all misunderstandings, and we feel that the statement that its concrete action which convinces the villagers better than anything else of the role of the VHW is well-founded. Nevertheless it seems to us that a middle ground might be found.

Another methodological problem that we feel should be discussed is: should the criteria used in choosing the VHW be established by the leaders or by the villagers before the selection is made?

It seems to us that the tasks that are to be entrusted to the VHW are not so abstract that the villagers couldn't study them and designate the necessary qualifications a VHW should have to capably carry them out. Studying the problem with the villagers would be of great help in answering a certain number of questions concerning the VHW:

-- Age
-- Education or not
-- Literacy or not
-- Male or female
-- Means of recompense
-- Area of influence
-- Number of VHWs per village, etc.

keeping it well understood that the preliminary decisions can be used on a trial basis and periodically reexamined by the villagers.

These problems of method should, of course, be examined pertaining to cost, cost in time, in work, in resources. But they are to be studied over time.

This is perhaps a heavy chore to ask of the health staff if it means more meetings in the villages, but if the VHWs are better chosen, are more stable, and meet the needs of the population better, the overall costs in terms of work will progressively decrease.

The Training

At the time of this evaluation, the following training activities had been realized:

Region of Yeliamane: An initial training session took place in Diongaga in January/February 1979 with six VHWs plus one who attended only partially (out of the nine originally expected), three traditional birth attendants (TBA) and one pharmacist.

A second session took place in May 1979, assembling sixteen VHWs from seven villages and organized in Diongaga, Komeoulou, Dogofiry, and Kersignane.

A third, to take place after our visit: on one training center, Oualoguela, assembling the VHWs from six villages.

Region of Koro: Four sessions took place.

The first, from March 6-20, 1979, assembling six VHWs from four villages. These VHWs were all male, the average age was 34 years, the average duration of education from 4-5 years, and they were all farmers.

The second, from May 30-June 6, 1979, assembled eleven VHWs from seven villages, again all male, average age 29 years, average education 2.9 years, farmers.

A third, from September 17-21, 1979, brought together sixteen VHWs from eight villages, of whom, it should be pointed out, 93.8% of the participants were from the functional literacy campaign trained through the Operation Mils program. Average age: 28.9 years, average education 3.3 years.

A fourth, from March 10-15, 1979, also held at Koro and assembling eighteen VHWs from nine villages (eleven villages having been sensitized). Out of eighteen of these VHWs, ten were illiterate. Average age 33.2 years, average education 2 years, all farmers.

At the time of the evaluation, out of 51 trained VHWs, 43 are still operating, that is, a rate of 82.4 (project statistic of April 1979-March 1980).

Twenty-seven pharmacists have been placed, of which 25 are in active service, i.e., 92.6%.

Modalities

We have remarked upon and appreciated the flexibility of the forms adopted in the two regions for these training activities. Decisions as to the location, length, and modality of the sessions have taken into account the difficulties specific to the area and of the desires expressed by the villagers. They vary according

to the seasons and the farm work that is being done.

They have lasted from several afternoons a week over a total period of two and a half weeks, to five days full time; from one theme treated in one village and a second in another, to a full program at cercle level.

We can only encourage the teams to keep up this type of work, trying to gather data by which the advantages and disadvantages of each form can be judged, not in order to make them uniform, but to adopt any of them later, based on more exact information.

Several characteristics of the forms used have been communicated to us by the professional staff in the two zones:

-- The "decentralization" of the training centers permit the villagers to be more closely associated with the activities proposed: evening gatherings, discussions. It also means that the VHW can get together easily, while at the same time, take care of their personal activities and family care the rest of the time; on the other hand, the physical conditions are more difficult, which deducts from concentrated study.

-- VHW training at the cercle level gives a "group feeling" to the VHW, a better interpersonal understanding; it produces a training session in more comfortable conditions. It favors relationships with the training team.

Here again, we can only recommend that the different modalities of training sessions be submitted for negotiation by the villagers and the VHW and that their choices be a theme of reflection on methodology taking into consideration the length of time spent, the costs, the schedule of the trainers, etc.

Another aspect that we feel should be included in this study on methodology--we have noticed in both cases the presence of a similarly constituted training team, assembling professional health staff and staffs from other departments.

If this formula has the advantage of allowing the health personnel, the VHWs, and the villagers to establish trust and rapport, it seems to us there is a risk of putting constraints on the training methodology, on the free expression of the trainees. We present this as a simple question, not having been able to get a clear idea on this problem. It also seems to us that there is a risk of the professional staff being forced to do too much traveling which might result in their becoming exhausted.

It is without doubt, however, the best opportunity to train the whole team quite quickly; they can then more easily divide their tasks.

Here again, no model is sought just a progressive adaptation to concrete reactions.

The Content

Having read the themes developed during the different training sessions and having observed some of the VHWs at work, we are left with several questions concerning the goals of the project. We will go into these in point 2 of our terms of reference.

As we pointed out above, the training doesn't use, or uses very little of, the information gathered during the village surveys.

The themes cover essentially the diseases which can be treated by the drugs available in the village, the recording c- consultation visits, and of drugs sold.

In Koro, the first day was spent testing the VHWs' knowledge of the most common diseases, their cause, their traditional treatment, and the terminology used in the local language. They are also encouraged to think about their role in the villages.

We think it might be interesting to add two other themes:

-- A collective study on the organization of the tasks among the VHW. This was particularly pertinent in Yelimane where we noticed that the VHWs were developing competitive attitudes; the VHWs responsible for the pharmacy work more than the others, going so far as to make the latter's work impossible when they go away, taking with them the medicine box or locking it up.

-- The "health education" aspect and village organization. In speaking of health education, we don't mean theoretical courses on general problems of prevention, environmental hygiene, etc.; we think that these themes could go along with the sale of medicine, advice on prevention, according to the particular case, along with a few words about the influence of the sanitary conditions in the village.

As for village organization, one of the first stages could be, for example, for the VHW to give some thought with the villagers on the organization of their work:

-- Should they be available at all times?
-- Is it possible to conceive of alternating their work, limiting the times they should be available, etc.?

We feel it is important that the VHW foresee, from the very start, an "activation activity" in the village on the concrete problems connected to health. It is within the training framework that he can be helped to reflect on this task.

Pedagogy

The themes that we found written up in certain documents seemed to be presented in a simple and clear way.

However, we noticed that they seemed to be directed more particularly towards the literate VHW (the majority group at present). A half a day was devoted to each theme (in Koro). This seems too fast a rhythm for illiterate VHWs to follow if they are to absorb their new knowledge at each stage. Without having any real basis to say so, we have the impression that there is more pedagogical work to be done regarding the illiterate VHW.

Another remark concerns the absence of (or at least the apparent absence of) long-term training. The necessity of adapting the training activities to different needs as they arise during the VHW activities shouldn't be incompatible with the necessity of specifying the final goals and how they are to be reached. For example, defining the frequency of refresher courses, and the criteria to decide when they have become necessary, would improve planning for the entire zone.

Follow-up and Supervision

In both zones, a very real effort to follow up the progress of the trained VHW has been achieved.

In Yelimané we can count, for the first trimester of 1980, 27 visits into villages where VHWs exist either for supervision--register control, joint consultations, pharmacy controls--or for community development activities.

In Koro, between August 23 and September 28, 1979, each of two base sectors received five visits; the overall literacy campaign zone of Toroli, 17. Eight of these visits were devoted to supervision and drug register control, 14 to information activities or medical provision deposits, and 2 to discussion sessions with VHWs. One large village (more than 1,000 inhabitants) received the following visits by team members in seven months:

1 - 12 times
1 - 7 times
1 - 5 times
1 - 3 times
2 - 2 times
7 - 1 time

Some of the visits, of course, were made by several members of the team together.

Although the number of visits and their regularity are important criteria for serious follow-up, the length of the visit and its content are the determining factors.

The joint consultations with the VHW or a dialogue about their practices constitute an excellent means of ongoing training.

However, we felt that these were overly "technical" follow-up visits: well-diagnosed diseases, correct drug doses, well-kept registers, etc. Obviously, these verifications are indispensable and the VHW technical competence is the basis of the success of his activity in the village.

We would recommend that the VHWs not be allowed to settle into the single role of medicine distributors and that quite soon they be engaged in the study of their educational role. For this, it would seem useful to encourage periodic dialogue between the villagers and the VHW, for which project assistance would be useful.

From this dialogue, important elements would progressively develop regarding:

-- Study of the requirements of the different groups within the population: male, female, children;

-- The response to these requirements from the project;

-- Reflection on the area of influence of the VHW;

-- The capacity of the project to reach the different social groups; in reading the registers, one can only assume that all the patients come to buy their medicine. Probably only those with enough money to do so, come.

We would suggest the establishment of an analysis form sheet that could be progressively filled in during the regular supervision visits. This, of course, would imply that the visits take a specific form. Two or three villages could not be visited in the day. More time would have to be spent in each, but perhaps constant dialogue would diminish the total number of visits necessary, etc. It seems to us that all these things are part of this constant reflection on methodology.

All of our ideas on these problems come from the basic belief that the villagers should be given as much responsibility as possible and as soon as possible; otherwise, the project will be too dependent on the work of the training team (national and expatriate professional staff members).

1.3 Development of Appropriate Training Material

In this domain, it seems to us that a very positive collaboration has developed among the project, the Health Education Department, and DNAFLA.

The material that we saw was well adapted.

We will draw attention to only two points:

-- The necessity of testing the material before producing it in large numbers;
-- Studying the possibility of decentralizing the centers of production.

We can easily see these centers on a regional level, available to all the services involved in primary health care activities, permitting undoubtedly a harmonization in materials and pedagogy in our zone.

To end this section on training, we will sum up our recommendations:

Sensitization

-- Make it into a regular negotiation process on the modes of action;
-- Use the surveys already carried out;
-- Go into more depth;
-- Study the possibility of letting the villagers define the selection criteria for the VHW.

Training

-- Actively associate other services;
-- Integrate the survey data;
-- Stimulate thought on health and village organization;
-- Work on pedagogical methods for the illiterate VHW;
-- "Think" in medium- and long-term time spans.

Follow-up Evaluation

-- Carry out an evaluation in the village as well;
-- Take into consideration all social categories and groups.

II. CORRELATION BETWEEN TRAINING AND THE NEEDS AT DIFFERENT LEVELS FOR THE ESTABLISHMENT OF THE PHC SYSTEM

We've already talked a bit about this point in the first section. Concerning the professional staff, complementary training is required.

Everyone expresses the desire to improve their knowledge about planning and management. This need principally comes from regional directors and doctors in the cercles.

The PHC system requires different management of personnel, and a different type of training for them.

We feel it would be worthwhile to do further professional staff training in the pedagogical and applied sociology areas.

What's more, the PHC system requires teamwork for which the professionals are not prepared.

The curriculum for ongoing professional staff training in the development of a primary health care system might include:

-- Survey techniques and understanding local conditions;
-- Group dynamics--team building;
-- Pedagogical techniques (with accent on didactic methods and visual aids necessary for the training of literate trainees).

We would like to emphasize the necessity of giving the professionals the opportunity to share their experiences and to think about the methodological problems together. This is a necessary part of any organized training program.

At the same time, we would reiterate the necessity of recognizing this training from the point of professional status and compensating it.

Concerning the VHW: The training seems to us, at present, too centered on curative aspects if not on the singular use of drugs.

We recognize the value of relieving a certain amount of suffering and offering medicine to the villagers, but for us, the primary health care system's goal is not just that but also to enable villagers to better organize themselves to deal with their health problems.

This aspect which is lightly touched on in the VHW training seems to us extremely important.

Just as agricultural extension work often only reaches a limited group of farmers, the most privileged, the PHC system must not reinforce social inequalities by devoting itself primarily to the sale of drugs.

That is why we recommend that all project activities seek representatives from all social categories to express their opinions on specific problems and to encourage collective forms of organization to deal with these problems.

The VHW ought to understand, from the very beginning of his training, that he is not simply a drug salesman, but that his principal role in the village is to incite collective discussion, organize, and provoke thought about village health problems.

If this aspect is considered to be as important an objective of the project as the placement of a village pharmacy, it should rapidly lead to a new set of criteria for selecting VHWs.

From this perspective, the VHW training should consist, in large part, of a pedagogical initiation. In the same way, direct

observation of existing health conditions and promoting collective thought about this should be essential training elements.

As an annex to this recommendation, we add that we think that as of now, thought should be given to the area of influence of the VHW and to the criteria by which he selected as to:

-- Age
-- Profession
-- Residence
-- Social and/or economic status
-- Personality, etc.

In conclusion, the adequacy of the training sessions is highly influenced by the idea held about the PHC system. We cannot stress enough the necessity of emphasizing this notion as much as possible and on all levels concerning two choices or rather two complementary components.

-- The training of an intermediary corps of health agents: village hygienists and matrones, more and more specialized who would carry on the work of the "official" health personnel.

-- And/or progressive and collective education for the villagers as a whole. The choices "made" depend on the training at all levels.

III. ORGANIZATION OF HEALTH PERSONNEL AT DIFFERENT LEVELS TO MEET THE NEEDS OF THE PHC SYSTEM

The regional level, according to what we observed, was of relatively little concern to the project at present other than from the administrative point of view.

We find this unfortunate because the increasing numbers of primary health care experiments necessitate the presence at this level of a genuine coordinator to preserve the spirit of the PHC and to coordinate methodological research.

It is difficult for us to make propositions concerning the organization of the personnel without having been able to analyze the tasks at the different levels. That should have been part of the first phase.

We think that this level, for aforementioned reasons, should conduct an analysis of the data gathered by the project. Obviously, this couldn't be done without reinforcing the staff or at least redistributing existing staff tasks.

It would also be useful for this level to encourage exchanges between the experiences through an information system or meetings.

Support of the project in this domain would appear useful to us.

The Cercle Level

If the project "animation" team is to be situated at this level as it is in Koro, rotating responsibilities, animating the entire zone, reinforcement is necessary in two areas:

-- Personnel: We observed an increased number of tasks brought about by the setting up of the PHC system. If the professionals in the field are not to become rapidly discouraged, the staff must be sufficiently large to keep up with the rhythm of visits, administrative work, pedagogical preparation, and cercle health activities without becoming overworked.

We would recommend that the Ministry keep close watch on this problem particularly in the zones where the PHC system is in operation. The situation in Yelimane, where out of six newly appointed staff, only two have arrived at their assignment posts, is a source of difficulty.

-- Material resources: If the PHC system succeeds, the health centers in the cercles are going to have to meet an increased demand for health care. We saw this in Koro where several cases--all justified, according to competent sources--have been evacuated by the village health workers.

It seems, therefore, indispensable that some equipment and support be planned at this level to meet such requirements. The VHWs get discouraged quickly if they discover that the cases they evacuate turn out badly because serious cases have to be transported over poor roads.

At the same time, medical provisions for these centers ought to be assured.

And finally, we repeat that the professional staff working at this level must be given the operational resources for the work and some kind of per diem for their visits into the field.

We bring up this point again in the general questions section and recommend that the project reexamine its approach to this problem.

Arrondissement Level

The same problems as discussed above are encountered at this level.

This level provides follow-up support for the VHW; it's their first contact with a health service. We think their health resource

needs ought to be met at this level. We were struck by the destitution of the arrondissement dispensaries--Tambacara and Toroli.

It seems to us that the villagers' confidence in the project will be influenced by such facts and that the project should guarantee at least a minimum of support at this level to earn credibility.

IV. INTEGRATION OF THE HARVARD PERSONNEL AND RELATIONS WITH THE EXISTING SERVICES IN THE RURAL MILIEU

This point is particularly developed in the general questions section.

The integration of the personnel and their relationship with the Malian professional staff depends largely on the personalities involved. We have been aware that personality problems have consumed a lot of energy and have certainly impeded the development of the project.

Nevertheless, we feel that an experienced team has a part to play in the training of professional staff. See point 4 of the general questions section.

Collaboration between intervening services in the rural milieu has developed within the framework of community development where it has become well established in our opinion.

We think it should be developed as well in the realm of health training for professional staff in these services: encadreurs for the OMM; students at the Rural Animation Centers. Such a thing would reinforce the collective capacity to detect the problems in this area and to participate in studies on organizational forms, training content, etc. It would also improve the information exchange and the follow-up of village activities.

V. MCH ACTIVITIES

For this chapter, we have profited from Mme. Keita, midwife, whose contribution to the study and contacts with the village women were very valuable.

In the villages where we were able to go, we systematically sought out as many women as possible with whom we might talk.

We also met with the traditional birth attendants (TBAs) who had already undergone some training (Yelimane) or those who had been designated by the villages for the next training program in Koro.

We will present the problems and recommendations for each region individually.

Cercle of Yelimane

In the arrondissement of Tambacara, we were able to meet with a certain number of women in groups and also with matrones and individual women (the women in five villages).

The interview with the matrones included the following questions:

-- Her actions as of the moment she is called to see a woman;

-- Problems encountered for which she could do nothing;

-- What the training taught them:

-- How the deliveries were portioned out;

-- Health problems specific to women, to children;

-- What help, support they would hope for.

In the women's group, we spoke of the following:

-- Their health problems;

-- Their daily occupations and the problems connected with them;

-- Health expenses: whose responsibility they are within the family.

TBA Training

Three TBAs were trained in two sessions during the first VHW training session in Diongaga in January-February 1979.

Even the trainers admitted that this session was not very adequate. Some advice was given about delivery hygiene and the cases requiring evacuation or particular preventive measures to take.

The TBAs, very old women, were very frightened by their car trip and remained traumatized by the experience for several months!!

Several problems surfaced following this experience, which ought to be studied before the second training session planned in six new villages in the project zone:

-- Not one female health professional from Yelimane or Tambacara was associated either with the conception of the training or with the training itself.

As for the midwife residing in Yelimane, it appears that personal problems kept her from taking an interest in the project, but she didn't seem to have been overly solicited, either.

The matrone from Tambacara was not solicited for this activity, either. Here again, the professional staff mentions her personal problems, but she herself indicates that when there were project meetings or visitors, she was "sent to prepare food."

What are the "real" reasons for this non-participation on the part of the female professional staff? (They are undoubtedly mixed). This raises the question of presenting a project to women by an entirely male project team before the arrival of Ms. Taylor.

In fact, we never could get it clear whether the decision to train the TBAs came from the women, from an initial project decision, or from some other source.

Whatever happendd, this training had some negative effects which had better be checked if the experiment is to be started over in better conditions.

-- The women are very hesitant to admit they are TBAs.

-- They feel themselves controlled (for example, in one village they say all three go for deliveries, which is unlikely).

-- They possess material (enema bags, for example) which they don't know how to use.

-- They have changed nothing in their practices.

In one village in the new zone where sensitizing has been done for recruitment of TBAs for the new session, the women have been chosen by the advisory committee, but don't know what they are going to learn and ask to be informed. What's more, they have never assisted in any deliveries.

Recommendations

-- We think that no new training sessions should be undertaken until a feminine team has been constituted which will be able to take charge of the session and its follow-up. Some elements exist: one of the matrones working in the cercle maternity would be available and interested in this work. She could be helped by the matrone of Tambacara.

-- In our opinion, the sensitizing activities in the village should be reviewed and a reassessment of the selected TBAs be undertaken. If most or some of them have never assisted in deliveries, it is obvious that the training should be very different, probably longer, including practical work in the cercle maternity.

-- A final question that will be returned to further on: Is the priority to train TBAs?

Problems Voiced by Women

What is revealed by the meetings with the women is an obvious underlying message. In several villages, we had trouble obtaining the name of the VHW and all cases, it is always the pharmacist whose name is given.

Concerning his job, the women say: "There is nobody who gives care here, there is someone who sells medicine." "You can't talk about just any disease with him. Anyway, he always gives out the same pills; they are the same for everyone..." "It is not the VHW who is going to treat women's diseases." "There is nobody to cure you here, if you don't go to Tambacara, it's no good. For anything more than a pill, you have to go to Tambacara," etc.

Nevertheless, the women go to the VHW; the registers prove it even if, in this region, they go less than the men.

We feel that these remarks come from the belief that they know that the VHW cannot actually solve their own specific problems or their children's.

It is interesting to notice that in the VHW register in Diagadromore, out of 80 adults, 19 women had come for consultation, of which 14 came for wounds or sprains.

Another hypothesis, only the women with money are informed and go see him.

In this immigration zone (Souinke) the women pay, they say, for their own and their children's medicine. Outside of the rainy season when they cultivate, mostly peanuts, and have some income, they have trouble procuring money. During the rest of the year, they have to depend on money sent by their husbands, brothers, or sons from Europe while they are under the supervision of a father-in-law or brother-in-law who control their social behavior.

This fact is presented by the staff team member as a particular problem for women. No woman can follow a treatment with a VHW for a long length of time without it becoming a family problem.

Recommendations

All of these observations emphasize the necessity of training a woman to be responsible for these problems.

Should this woman be a TBA? We have come to think that maybe it isn't a priority.

In view of the problems arising from the age of the TBAs and the tendency of most women to designate the younger ones, we think it might be more efficient, for the start, to train women-hygienists who could then easily learn about the hygiene conditions necessary for delivery and the identification of high risk deliveries, but who would not be specialists in this. This would be a good opportunity, for example, to use the survey material on malnutrition. Other training content would, of course, be decided upon with the women themselves.

-- We re-emphasize the necessity of having a team of women, or women in the team, to run this project. The women's organizations in the village could help this team.

The discussions with the women have brought another problem to light which leads to another recommendation for the project: The most important problem for the women is not directly a health problem, it is the problem of WATER. Most of the wells in the villages we visited were dry. The women had to spend a great deal of time getting water, sometimes only once a day. During the rainy season, they often took water from small swampy rivulets.

We believe that there is here a priority activity to be undertaken for an improvement of the village health situation: prevention of diseases in connection with water; lessening the fatigue for women.

The project's CD activity is concerned with the problem but has no resources with which to deal with it.

We recommend that immediate research be done to find a solution to this problem thereby gaining the women's confidence.

The project will never reach its objectives if it leaves women out of the activities undertaken.

In the Cercle of Koro

It was more difficult to assemble the women of Koro: they are visibly busier in this season than the women in Souinke. We found them occupied in carrying wood, drawing water, taking care of animals.

Training of Matrones

A sensitizing activity was undertaken in regard to the women so they would choose TBAs for training.

There again, we wondered about the context of this sensitizing. Most of the women proposed had no idea of what this training would be.

The appointment of delegates raised some problems. The women didn't want to accept this responsiblity, and they were chosen by the village council.

In one village, the TBAs chosen refused to accept and the village chose no one else. In one village, the selected candidate said she would accept but she didn't know what she was going to learn.

Here again, the women who have been chosen must be clearly identified, TBAs or not, in order to adapt the training agenda to their level.

There is a problem in the organization of a female team for training and follow-up. At present, there is no mid-wife in Koro. Deliveries are done by a nurse specialized in obstetrics, whose familial obligations prevent her from leaving home, and by matrones who have just been given new status and who are to be shortly assigned to various arrondissements. One of them will be given a post in Toroli, but would not be capable alone of taking charge of this activity.

the Cercle happens to have two social aides present who say they would be interested in this type of activity, but who, from an administrative point of view, ask that the social center be converted to a CD center.

We will draw the Ministry's attention to this point, their participation appearing indispensable to us. At present, work with the women is being assured by a Peace Corps Volunteer. Malian women must take charge of the program with her help.

The choice between TBAs and women-hygienists must be studied. We are less sure than in Yelimane that a woman hygienist would be preferable.

The consultation records show a nearly equal number of visits by women to the VHW and for more varied reasons than in Tambacara.

However, we would recommend a more complete discussion with the women on this theme before the training session planned for the TBAs.

The Women's Problems

The women from this Dogon region display great fatigue even though we weren't there in the farming season at which time they work as hard as the men. The two major problems in the zone:

The provision of wood which requires long trips and transport of heavy burdens.

The provision of water: very deep or dry wells.

These two chores are the source of an obvious physical exhaustion. One wonders how they manage in the rainy season when they not only farm but transform peanuts to oil.

In this zone should the emphasis be on health, in the sense of curing when one is ill, for the women, or on community development activities aiming to lighten their work load?

In our opinion, the question is: does one wish to sell aspirin or diminish the causes that make it necessary?

To the question "does the project meet the needs of the population?", our answer is no, at this stage, as far as the women go, or at least very partially.

We have identified some reasons for this:

-- Absence of trained and interested female professionals;
-- Project orientation defined by a male team;
-- Analysis of requirements not sufficiently taking into account the specific needs of all social categories.

We have not spoken of the children, considering their situation closely tied to that of the women. It is through the women that they can be reached, but we wish to point out that it is through them that we can reach the men and interest them in the specific problems of women who want their help in finding a solution.

We would find it interesting, stemming from a dialogue about VHW activities, to begin with the village population as a whole, a study of these problems.

VI. CONCEPT OF COMPARISONS BETWEEN THE TWO REGIONS--IS IT VIABLE?

If we are indeed talking about the two regions in which the project was at work, we believe an effort at comparison is worthwhile.

To make it viable, it would require material and human wherewithal: the organization of meetings, for example.

Throughout our report, we have tried to isolate points which could be used in a study on methodology. This type of content could periodically be studied by the two teams together.

What's more, a permanent evaluation plan, which would be set up in such a way as to avoid the comparison of noncomparable criteria, would serve as a basis of exchange between the teams.

The difficulty, which could even be of interest, would be to set down step by step the things that differentiate the two regions from the following perspectives:

-- Socio-economic realities
-- Team operations
-- Organization
-- Resources
-- Expenses, etc.

and to examine these results in an effort to evaluate the importance of these different factors. These indicators would be particularly valuable in determining extensions in another arrondissement or another zone.

Collaboration could also be based on training material developments.

We would consider these exchanges as an important training dimension for the professional staff.

GENERAL QUESTIONS

Viability of the Volunteer VHW

The contacts made in the villages, the interviews with the people playing a role in the supervision of the VHW, makes it clear that their remuneration (or rather their non-remuneration) is a problem.

Aware of being of service to the community, the VHW expects his service to be remunerated. They express this directly or indirectly.

It should be noted that the age of the VHW is a factor. It would appear that it is easier for an older person, socially and economically settled, to be satisfied with the prestige or increased power that he receives from this position, than it is for a young person pressured by different economic needs which are essential for him.

In both zones, it was left up to the villagers to find a solution to this problem. This seems to be the source of many misunderstandings. In some cases, the VHW training is perceived as a government intervention and the government is expected to find an answer to the problem in the form of a salary for the VHW and even by integration into the Civil Service; in others, the social relationships within the village is the hindering factor: for example, where the VHW is related to the village chief and the problem is shifted to his shoulders, it being inconceivable that the village be responsible for paying for a service rendered by a member of the chief's family.

Recommendations

Since the VHW has now been working for between six months to one year in both regions, it would seem appropriate to us that the Ministry of Health and the Project Team study as of now, with the villagers, what to do about paying the VHW.

A volunteer program turns out to be entirely unrealistic on both a short-term and long-term basis in view of the economic situation in both regions.

Several hypotheses have been put forth by our interlocutors or by members of the evaluation team. It would be appropriate to study and experiment with those that have been retained.

One thing appears obvious: the impossibility of asking the villagers to pay the VHW individually. Even if villages see the project as a positive activity, it still is imposed from outside and it seems unfortunate that the effort to offer the rural milieu a health program is translated for them by a supplementary expense that is not required in an urban milieu.

We will mention some of the hypotheses presented, specifying that within the framework of the evaluation, these propositions were not studied in great detail.

-- Use of the 15% refund granted for drugs.

This refund places a sum of money at the disposition of the villagers for them to manage as they see fit. One of the uses of this money could be for VHW remuneration. This formula runs the risk of encouraging an overconsumption of medicine, or of bringing about a differentiation in the salaries of the VHWs which could become a source of problems. An inter-village structure might alleviate this problem.

-- Responsibility for payment given to the FGR.

This is what is used in certain regions for the payment of rural matrones.

This would require that the budget management be open to the villagers and controlled by them which doesn't seem to be the case, the appointment decisions being made at the administrative and technical levels.

-- Use of profits made by a cooperative supply store.

The suggestion made by the Cooperation staff member and the Koro team: accompany the placement of village pharmacies with the renewal or creation of a cooperative supply store, stocking basic necessity products, seems of interest to us.

It has been proved that such a store, regularly and well-supplied, can generate considerable profit.

The trouble is in the supplying. This is not always guaranteed. If the store is empty too often, private merchants will replace it rapidly.

Collective village activities, such as a collective field. Much experience in this area has shown the precariousness of such a solution. It is hard to ask villagers to add another chore to their heavy rainy season schedule. It can sometimes work for one or two years, but rarely for longer, and it cannot be considered as a permanent solution to VHW remuneration.

Gifts in kind to the VHW from the village or from organizations such as the PAM. This method also seems unstable and could lead to problems between the VHW and the villages.

In conclusion, we will make two recommendations concerning this problem:

-- Study the problem of VHW salary as of now.

-- Study the possibility:

- of providing the villagers with a financial sum (preferably at the inter-village level);

- make it possible for them to manage and control the distribution of these sums.

The Possibility for the Ministry of Health to Meet the Recurring Cost of a PHC System

It does not yet seem possible to estimate the real cost of a primary health care system. This cost would depend largely on the functioning of the system itself and on the choices made:

-- Staff requirements
-- Frequency and intensity of training sessions
-- Choice of VHW (attrition rate)
-- Types and frequency of supervision
-- Association and integration with other development activities and the participation of their staff members, etc.

What appears clear is that in view of the present economic situation in Mali and the GRM budget, it does not seem realistic to think of setting up such a system with the resources it requires--with only national resources.

Nonetheless, it seems to us that the investment that foreign aid provides for experimentation and the establishment of a PHC system creates a capital stock of knowledge in methodological areas and particularly in training, which represents an important acquisition.

It is in these two areas that the initial costs are high and we feel that it is entirely justifiable for foreign assistance to help such projects get started.

The recurrent costs of a perfected PHC system can be minimal once the system is operating, the training of trainers accomplished, and the integration of the overall development problems of a zone established: "integrated" activities of concerned agencies, village organizations, etc.

For this reason, data analysis, methodological study, and VHW selection criteria are the essential elements in elaborating a more economical system.

The Possibility of the Cercle Health Center to Organize the Training, the Control, and Surveillance Needs in the Framework of a PHC System

The achievements of the project in the Koro Cercle show that the cercle is capable of taking charge of the PHC system.

Still, we must isolate the determining factors:

- Sufficient and relatively stable staff.

- "Conversion" of the team to a PHC spirit: taking into account his habitual professional practice (not only one who gives treatments but who trains, manages, programs, etc., one accepts the idea that the rural person can learn enough to be responsible for some of his own health problems).

- A minimum of logistical resources.

- Establishment of a training and supervisory team using other service personnel (cooperation, literacy campaign, etc.).

- Association of the arrondissement level into the training and supervision. As the system extends throughout the cercle, optimal use of arrondissement staff in training as well as in supervising will be the key factor to a stable system, in our opinion.

Let's add here that the development of a team at the level of the cercle seems to us to instill a certain coherence in the PHC system. Not that one must necessarily develop one model (the system must remain adaptable to varying situations), but one must try to reduce the inevitable mistake-prone initial period and to unify (without necessarily making uniform) the methods used, training content, salary rates, etc. within one zone. This requires that the team be sufficiently staffed and relatively stable.

Not entirely understanding what is meant by "surveillance needs", we will only say that it seems to us that it is more the role of rural development (cooperation, operations) to recognize the needs of the area and coordinate them with the selected activities, if only because it seems to us that a solid economic base is indispensable for any project--even a health project--to achieve its goals.

But in this area, we would tend to be rather practical-minded. There is much to be done, in all realms, and the motivation and quality of the work seem to us more important criteria than the nature of the institution!

The Role of the Technical Assistant in the Project

Present experience of the project has taught us that this role depends largely on the personality and past experience of the technical assistant..

The advantage of the technical assistance over the national professionals is not, from our point of view, one of competence,

but that of the technical assistants being outside the institutional framework in which the health service staff situates their professional activities. Innovation is undoubtedly easier for the technical assistants.

Their role, at a local level, has two aspects in our opinion:

-- Help reorganize the service activities so they will meet the needs evolving out of the PHC system and lead to creative thinking on the part of the professionals. They will be able, if they can establish good relationships with the professionals, to have a definite influence in "converting" them to the PHC spirit we mentioned above. This conversion will never be fully reached through taking courses and lectures, but through daily practice and example.

-- Teach the professionals--when they don't already know--the required techniques of the PHC system, especially those concerned with management, programming, gathering, and analyzing data.

Our Malian participants at all levels recognized their needs in this domain and expressed their desire to receive training of this sort.

This is why, when asked what technical skills they would like the technical assistants to have, they choose management or planning technicians. At the same time, they show interest in having one technical assistant with medical training to improve the dialogue. This leads one to think that a Public Health Doctor would be the appropriate choice.

At the national level, the essential request is that of effective representation of field level problems, a mediation role versus a directive role, which tends to become monopolized anyway by multiple tasks. The proposition is clearly for a manager and some emphasized the capacity to be a good communicator as well.

We should like to make a recommendation to MOH about Peace Corps.

The Volunteer qualification--which in no way puts their sincere effort to cooperate into question--often does not correspond to the exact needs expressed by the med-chiefs. This is particularly evident in Yelimane.

The result of this fact is:

-- A rejection or underuse of staff who could be quite useful in the initial stages of the activities.

-- Discouragement and confusion in the Volunteers.

We would recommend that the Ministry, in cooperation with the field teams, very clearly define the need for and skills required of PCVs. Agreement on this should be reached before accepting PCVs.

Advantages and Disadvantages of Association of PHC Activities with Operation Mils Activities

There didn't seem to be a real association of activities between the project and the Millet operation at present.

At Toroli the literacy campaign head is associated in the training program (though not, apparently, in the conceptual activities of this training). The head of ZER took part in the second training session but didn't participate actively.

The sector de base workers were called upon to help with the data gathering activities at the start but not since then.

At the regional level, it is considered particularly unfortunate that the project isn't "integrated" into the OMM activities. When asked to define the meaning of this significance, the answer was essentially in financial terms: the project being managed by the OMM just as the literacy campaign, wells and blacksmiths are, for example.

We will settle then for an "expert's opinion" on this problem:

The disadvantages that might arise would be that PHC would become one of the goals, among others, of the Operation, and not necessarily the major one. The project results, then, might be reduced. What's more, what seems to us to be one of the most positive aspects of the Koro project: the training and interest of the cercle health staff would never have been obtained so quickly if they hadn't felt directly responsible for the project.

The advantages: If the goal hoped for is not only a distribution of medicine to the villages, but to enable the villages to be more responsible for their health in all realms through village organization and the training of some of the villagers, then it seems to us advantageous for the primary health care system to be integrated into OMM.

There is, here, the added possibility of a solution to the problem of remunerating VHWs through the various village level experiences and organizations which have been tried: experimental villages, production cooperatives, etc.

Having said this, we don't mean to say "join" or "don't join." Such a decision must be based on the smooth functioning and on the quality of the recipient organization.

It is advisable to study this problem in terms of cost and end of project operations at will.

A joint effort can lower these costs.

The Utility of Developing the Idea of a Comparative Arrondissement

For us, this idea is basic to the very concept of the project.

It is difficult to identify every factor that plays a part in the health situation of a population. We want to question the possibility of gathering some reliable information about the changes taking place in a given real health situation and being able to identify their cause.

The use of drugs is closely connected with the standard of living of a population.

The evaluation schedule didn't allow us to get an idea of VHW clientele in terms of its social categories.

Instead of using criteria such as "drug consumption" and "improvement of health conditions in the villages", we prefer finding it more useful the criteria "village responsibility for its primary health care" which indicates to us a level of organizational activity.

From this point of view, the idea of a comparative arrondissement (as was presented to us: an arrondissement where there is only a pharmacy but no accompanying activities of VHW training) doesn't seem of much interest to us.

On the other hand, as we indicated in our specific report, we would find it worthwhile to establish comparative criteria between the two zone projects, not to oppose the two teams or the two zones in comparing their socioeconomic characteristics, but rather to help the Ministry of Health classify the PHC experience according to:

--Methodology;
--VHW characteristics;
--Training at different levels, etc.

and to help all those people involved in similar activities to benefit from the experience of others.

From this point of view, the meetings between the Yelimane and Koro teams as long as their goal is to examine this or that method, seem very useful to us.

Should PHC Activities Be Developed in a Third Cercle?

Considering the problems arising at the technical assistance level from the beginning period in which the Yelimane team seems to still be, considering the change in team leaders in Koro, it seems premature to us to envisage at this point project extension into a third cercle.

It would seem better to first consolidate the activities that have already been undertaken and to advance a little further in methodological thought and training of trainees.

Our personal experience has shown us that this is preferable in terms of efficiency, to a too rapid expansion of services.

The success of a project like this one cannot be measured only by the number of functioning VHWs and the number of training sessions held, it should be measured, in our opinion, essentially at two levels:

-- Motivation and training of health staff involved in the project;

-- The actual assuming of responsibility of the health activities by the population.

We easily perceive that in terms of cost, if one compares the thousands of invested dollars and the quantitative results, one might have trouble justifying the validity of such experiments.

However, in our opinion, the actual costs should be evaluated on a medium- and long-term base. For us, the most significant success indicators would be at the end of the first four years:

-- The rate of functioning VHWs (or the rate of attrition).

-- The attitude of the professional health staff in the project towards the problems of the rural milieu.

-- The amount of village organization in assuming responsibility for their activities.

-- The interest taken by the villagers in health problems, particularly those concerning the two most vulnerable categories--children and women.

Obviously, we aren't forgetting the more "scientific" indicators such as those which measure the evolution of most frequent diseases and the state of health of the various social categories.

To the question of WHEN to start a new cercle, taking into account the preceding considerations, we cannot answer. It is up to the individual teams in the field to answer. A sharing of and study of the different experiences will undoubtedly accelerate the extension process.

Efficiency of the Drug Distribution System

We dont have enough information to answer this question.

We observed in Koro that the VHWs were coming to renew their drug stock without any trouble at the cercle level and they expressed

at this time their extremely confident and kindly relationships with the health staff.

At Tambacara we were surprised to find the drugs entrusted to a village shopkeeper but could obtain no indication as to what had led to this decision.

It seemed to us that the participation of other service agents had been solicited and was useful for transmitting supply renewal orders and delivering drugs to the villages.

Should the Drug Revolving Fund be Managed at the National Level?

Again, we don't have enough information on this point.

We think it would be useful for the funds to be managed at the regional level so as to give this level the possibility of coordinating, developing strategies, etc., to give it an active part in the project.

Information System

In both zones, a large effort has been made in this domain.

In Yelimane, the report-summary made by Dr. Dulaire and Ms. Taylor provided valuable and clear information on what had been achieved in the framework of the project.

In Koro, the existence of very complete documents by village and by training session of VHW profile statistics, their attrition rate, etc., facilitates the task and provides all the information needed by anyone wishing to study the project or get an idea of the PHC system.

Comparing the two zones in this area enables us to make several recommendations:

-- The data gathering system should be part of the health staffs' training. If it is carried out primarily by technical assistance staff, it may well be seen as a control, an inspection, which is what was felt at Tambacara, we thought. If it is integrated into the work of the health staff members themselves, as it has been for a short while in Koro, it adds to their training, increases their understanding of the PHC system, introduces them to management, to planning systems, and gives them control over this type of activity which will continue after the departure of the technical assistance team.

The interest manifested by the Koro team is significant: they found that it added positively to their work and enriched their career.

Nevertheless, the burden of this task must not be underestimated, as it increases the number of visits to the field and adds to the daily, "classic" tasks of the staff. This model can only succeed if there is enough personnel.

One question must be asked about this:

-- Should one member of the team be specialized in this area or can the whole team be instructed in it, as in Koro, to permit a rotation of jobs?

We think that this question deserves to be included among the themes presented for permanent methodological reflection.

Specialization

-- Compared to a certain mobility among the personnel, is it "profitable"?

-- Can health personnel be transformed into "managers"? Does this require specific recruitment or can this subject be introduced into the training of all the personnel?

-- Who is to do the training of these subjects? (statistics, visual representation, etc.)

Polyvalence

-- Are all the health personnel interested in and/or capable of learning these techniques which are sometimes difficult?

-- Do they have time? Can they be given time, etc.?

The same type of observations and questions can be put to the Ministry:

-- What structure and which staff for data analysis?

-- How to interpret and use it?

-- What kind of data distribution for personnel or agencies involved in the PHC activities? By what means?

This final question seems very important, in view of the diverse activities undertaken by the Ministry as well as by the developmental structures: cooperation, operations, other projects, etc.

It seems essential that the Ministry have the possibility to keep charge of these activities and to develop a veritable national policy.

The project's system of data gathering seems to us a good way to help the MOH in the task if the interpretation and analysis of the information is well developed.

KKash

EVALUATION REPORT ON PROJET SANTE RURALE MALI

By

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19/5/80

INTRODUCTION

My portion of the evaluation team's effort involved the following scope of work (paraphrased):

- Assess GRM costs broken down by salaries, transportation, per diem and "other", assessed at national, cercle and arrondissement levels, also to assess village costs for treatment, village health worker (VHW) support, referral, drug resupply and "other".
- Analysis of whether costs are within $3 per person per year.
- Analysis of comparative arrondissement drug distribution concept.
- Assess GRM and village absorptive capacity to meet recurring costs of project.
- Identification of major problems relative to the above.
- Identification of major recommendations relative to the above.

My report is organized as follows:

I. <u>Financial Analysis</u>

A. Recurring costs

1. Definitions of costs
2. Economic costs versus historical accounting costs

B. Historical project costs

C. Historical project costs as basis for planning

1. Adjustments required
2. Extrapolated costs: national, per person per year
   a. Unadjusted
   b. Adjusted for omissions and corrections in the observed arrondissement
   c. Adjusted for lack of representativeness of arrondissements for other areas
   d. Sensitivity analysis

D. Recurrent cost recovery by:

1. Villages
2. GRM

II. Logical Framework/Design Critique

A. Necessity for

B. Revisions recommended

III. Conclusions and Recommendations

A. Project relevance

B. Project design, implementation and evaluation modifications

C. Conclusions within my scope of work

1. Comparative arrondissement concept
2. Costs
3. Cost recovery capability

It should be noted that our evaluation was a joint undertaking with a great deal of mutual discussion and overlap. Portions of the other team members' assessments will shed additional light on what follows, and it is hoped that what follows can illuminate their work.

I. FINANCIAL ANALYSIS

A. Recurring Costs

1. Definitions of costs

Which project costs are defined as "recurring" depends upon the viewpoint. At the individual village, "start-up" supplies of medicines, training the initial cohort of Village Health Workers (VHWs) and the like are "non-recurring" (one-time) costs, while expenditures for replenishment of medicines sold, to retrain VHWs or to train replacements are "recurring" costs.

However, at the arrondissement level (as well as cercle, region and national levels), as additional villages, arrondissements, cercles, and regions establish project activities, the "start up" costs will recur, albeit once each time. The only truly non-recurring costs are one-time national level costs such as administrative costs incurred when P.S.R.(Projet Sante Rurale) initial negotiations were underway.

Thus, in what follows we use two fundamental categories of cost or expenditure:

(1) Start-up/initial/establishment
(2) Operation and maintenance continuation

2. Economic costs vs. historical accounting/financial costs

The scope of work calls for a determination of project financial costs to date. It should be noted that while this analysis will help guide future budget planning, decisions regarding project continuation, equipment, personnel, and the like would need to be analyzed in terms of of economic costs and benefits. Stated simply, the latter involve with/without comparisons of costs incurred or benefits gained ("opportunity costs") or of costs foregone and benefits gained ("opportunity benefits"). Thus, a radio may have a $2000 accounting cost, but it may save by eliminating $400 vehicle trips to Bamako or disallow (by use of money or other resources) training "X" number of VHWs. Also, economic costs and benefit calculations often do not use market ("accounting") prices, as the latter are distorted away from 'true' social costs where there are subsidies, monopolies, unemployed resources (see E.J. Mishan in Revue Canadienne

d'Economique, IV, No. 1, Fevrier 1971), but rather use "shadow prices". The scope of cost and benefit coverage differs; an economic analysis might trace out effects of not only one "round" of expenditure but the "multiplier effect" of subsequent respending:
1MF + .8MF + .64MF + ... = 5MF.

Finally, note that here we are dealing primarily with transfer payments from one sector or "pocket" into another, whereas economic analysis might focus on net new income or wealth (as in larger crop production).

B. Historical Project Costs

Although historical data on Yelimane is spare and in some cases not valid[1] (see annex for numbered notes), good data were obtained for March 1979 through March 1980 on the cercle of Koro, especially the arrondissement of Toroli[2].

These data have been reclassified and are shown in Table I[3].

TABLE I (Cost/Village in 000MF for 1 Year)*

	Salaries	Transportation	Per Diem	Other	Total
Initiation	21.9	43.1	9.0	48.2	122.2
Direct supervision	22.0	37.0	14.0	6.0	79.2
Overhead	27.6	144.0	0	19.3	191.4
Total	71.5	224.1	23.0	73.5	392.6

*Details may have slight errors due to rounding off

Table 2 shows the result of allocating overhead to the other two categories according to judgments on whether the subcomponents were "start-up" costs or "operating and maintenance" costs[4].

TABLE II (Cost/Village in 000MF for 1 Year)*

	Salaries	Transportation	Per Diem	Other	Total	
:art-up	36.9	99.5	9.0	67.5	212.9	(54..
)erating & ıintenance	34.5	124.6	14.0	6.0	179.1	(45.'
Total	71.4	224.1	23.0	73.5	392.0	
	18.2%	57.2%	5.9%	18.8%	100.0%	

Details may have slight errors due to rounding off

C. Historical Project Costs as a Basis for Planning

1. Adjustments required

One must be very cautious in simply extrapolating pilot or demonstration experience to the future for the same area or to other geographic areas.

(a) The data in Tables 1 and II do not apparently contain expenditures for a number of goods or services (usually because they were not yet provided or else were relevant to a higher administrative level), such as training of trainers, some training materials, training of matrones and village midwives, refresher training, training of replacement VHWs, in-country delivery costs for medicines, and salaried time spent at regional or national levels.

(b) Learning from experience can result in altering what is done or doing jobs more efficiently (or less efficiently) by the same people, such as fewer supervisory trips, less time spent on recordkeeping, or broadening medicines on diseases covered.

(c) Measurement errors can exist in the pilot region. For example, when medicines are donated

in purchases from Bamako of replacement medicines (and a lag in actual money flow) which could underestimate purchases compared to true or eventual values. As a second example, the first year of a project may appear to produce growth trends in consultations or purchases by villagers which are in fact intra-year or seasonal movements, leading to over- or under-stated projections.[5] If there is a secular growth curve, first-year data may understate project participation. Additionally, equipment lifelengths or usage may be overestimated or underestimated; values shift as in kilometers/liter of gasoline.

(d) Historical cost data are expressed in units of purchasing power relevant to the period in which they are recorded. Inflation, especially different rates of relative price change among different goods or services, can seriously distort figures such as first-in, first-out inventories of medicines costing MF of one purchasing power but sold in MF of another. Of course, today's budget needs must be extrapolated to tomorrow by price indeces relevant to subcategories, e.g., wages, petroleum products and medicines.

(e) Finally, even perfect data for one demonstration arrondissement, such as Toroli, is not representative of what one can expect in 1) other arrondissements of the same cercle, or 2) other cercles or regions. Costs are affected by distances[6], terrain, village sizes[7], population densities, tribal and language differences[8].

The next section extrapolates historical data to the national scope (and also on a per person per year basis) 1) without adjustment, 2) with adjustment for factors (a)-(c) above, and with adjustment for (e)[9]. No adjustments for purchasing power (d) have been made.

2. Extrapolated costs: national, per person per year

(a) Unadjusted

Table III summarizes the historical data from Table II extrapolated to cercle (Koro) and to country-wide scope without any of the recommended adjustments, simply for comparative order of magnitude purposes[10].

TABLE III (Total P.S.R. Costs (000MF) Per Year Without Recommended Adjustments

	1 Village	1 Cercle	Country	Per Person
Start-up	212.9	25.548	1.073.016	.182
Operation and Maintenance	179.1	21.492	902.664	.152
Total	392.0	47.040	1.975.680	.334

Please note all figures are in thousands of MF; thus, an initial year of start-up with an essentially full year of operation and maintenance would cost (unadjusted) 334MF per person (total population), whereas subsequent years would cost (unadjusted) 152MF per person (in 1979 prices). These figures correspond to $0.80 and $0.36, respectively (at $100 = 420MF), unadjusted[11].

(b) Historical data based on Toroli with adjustments for a) omissions, b) learning curve, and c) measurement errors (see Section C.1. for adjustments considered).

Table IV adjusts the historical cost experience for the Toroli arrondissement[12].

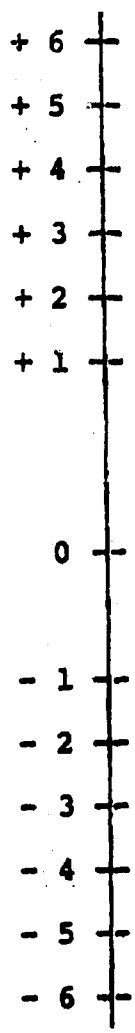
TABLE IV (Total P.S.R. Costs (000MF) Per Year Adjusted for Omissions, Measurement Errors)

	1 Village	1 Cercle	Country	Per Person
Start-up	390.7	46.984	1.961.123	.334 ($0.795)
Operation and Maintenance	195.1	23.412	983.304	.167 ($0.398)
Total	585.8	70.296	2.952.432	.500 ($1.193)

(c) Historical data also adjusted for representativeness

The following scale, Figure 1, depicts a number of considerations which could act to cause the adjusted Toroli experience[13] in Table IV to be unrepresentative of other arrondissements, cercles or regions. I have subjectively scaled their impact, where "+" means the factor probably works favorably (to reduce costs in other regions or at later times) from the Toroli experience--i.e., to make some of Toroli costs "too high" (higher than average). Thus, "-" means Toroli's costs are understated, "+" overstated; the numbers simply give a sense of order of importance.

FIGURE 1



Factor:

1. Economies of scale
2. Learning curve
3. Different mixes of services, equipment, overtime
4. Growth curve
5. Seasonality obscures trend
6. Use of averages when variation exists
7. Errors in allocations or estimates
8. Inflation (understating nominal costs)
9. Regional differences in distances, density, etc

Careful judgments were made about components within each factor; nevertheless, they are subjectively based. My overall judgment is that factors 1-7 would tend to cancel out collectively across all areas (though not, of course, for a particular arrondissement or cercle or region). Factor No. 8 is ignored here (section C.I.d.), leaving Factor 9 to be reckoned.

An important consideration in factor 9 is increased transportation costs which increase in approximate proportion to distances and which represent about 1/2 of unadjusted start-up costs and 3/5 of unadjusted operating costs.

Table V shows how per capita costs increase if the transportation component is multiplied by 1.5, 2 or 2.5x[14].

TABLE V (Total P.S.R. Costs per Capita (MF and $)

If Toroli transportation component is multiplied by:

	1.0x	1.5x	2.0x	2.5x
Start-up	334 ($.79)	412 ($.98)	490 ($1.17)	568 ($1.35)
Operation and Maintenance	167 ($.40)	225 ($.54)	283 ($0.67)	341 ($0.81)
Total	500 ($1.19)	637 ($1.52)	773 ($1.84)	908 ($2.16)

The transportation component must be multiplied by a factor of 3.8 x the Toroli experience in order to meet the oft-quoted $3 per capita maximum. I feel that the costs in the 2.5x column represent an accurate order of magnitude.

D. Recurrent Cost Recovery By

1. Villages

The village pharmacies under P.S.R. are given (as an example) $100 retail value of a mixture of medicines which are sold to residents of the area under prescription of the VHW. Suppose these medicines are re-ordered when the retail value is $30;

the wholesale price is 85% of the $70 to be reordered or about $60. Thus:

	0	1	2	3	4 ...
Retail value medicine	100	30	100	30	100 ...
Cash	0	70	10	80	20 ...

The cash residual builds 10, 20, 30, etc. (to be spent as the villages choose and as the pharmacy recovers its costs of medicines).

Villagers trade cash for medicines. We heard mixed reports about effects of cash shortages as a limitation of ability to buy medicines. My impression from discussions is that, on balance, cash can be found. Medicine expenditures per capita averaged about 55MF per year ($.13) (though about 85MF per population of villages with pharmacy). This compares with taxes per capita of about 2500-3000MF ($6-$7)[15] and a reported case of a village where expenditures on radio batteries far exceeded those of medicines. Finally, utilization rates do not suggest medicine expenditures beyond reach. Improved family expenditure data (on all types of goods and services) from a sample of families would help analyses in the future.

Secteur de base data and separate data for Anakaga-Dogon show medicine inventories sufficient for 14-18 months[16].

VHW services are, we heard, sometimes paid for in-kind, while pharmacy drug restocking is not reimbursed. These payments, though relevant to the project participation, are internal village matters not considered here.

2. Government of Mali

The amount of GRM expenditures on P.S.R. which is recouped is difficult to estimate with precision. We can give only the order of magnitude.

Stated simply, the GRM receives its income from a) sales of Government owned enterprises, b) taxes (direct, indirect), fees and the like, c) Government borrowing or noninflationary printing of MF, and d) net overseas receipts.

Sale of one unit of penicillin to replace a unit at a village pharmacy results in a transfer of 85MF from pharmacy to Bamako. The GRM in turn paid 8.9MF to the U.S. drug company and to have the drug delivered by air freight to Bamako[17], leaving 76.1MF/unit contribution to the revolving fund to help defray other costs such as local transportation. Such data on other medicines plus data from Brinkenhoff[5] (p. 70) and from Kelly & Sissoko[1] on village drug sales allow us to estimate per capita contribution margins to the revolving fund at between 26.4 and 38.4MF/person/year based on sales of about 44 to 64MF/person/year[18]. Thus, the GRM exports 10.9MF/tot. pop./year to buy medicines but recoups 37.3MF/tot. pop./year from village sales in exchange for a net of 26.4MF/person/year.

The P.S.R. expenditures are potentially recouped as shown in Figure 2.

FIGURE 2

Sources	Expenditures	Recoupment
Government enterprise sales	Salaries	Taxes
Taxes, Fees	Drugs	Margins
Borrowing	Equipment	Borrowing
Net from Abroad	Gas, Oil,etc.	Etc.
		Non-recoupment
		Purchases in France, U.S.,etc.

Thus, recoupment takes place to the extent that recoupment through taxes, margins and the like collectively exceeds sources used to finance the given project expenditures, and so on from year to year.

Project Sante Rurale presently, and in the foreseeable future, involves expenditures lost overseas for petroleum products, vehicles, medicines, and some other equipment. These may be balanced, more or less, by donor imports of money or goods or services and, as we saw above, net recoupment on drug expenditures of 2.42MF for each 1.0MF

spent[19]. Recoupment via taxes depends upon how spending patterns, tax rates and the like differ from those collectively used as sources of funds. For example, for villagers who buy medicines instead of batteries, the GRM gain is roughly the difference between battery taxes (direct and indirect) lost and medicine margin gained. If improved health through the P.S.R. increases agricultural production, future taxes may increase, and so on.

Thus, one can see that estimation of any project's recoupment ability is complex and requires economic analysis via a special separate study.

At present, with donor levels as they are and foreign purchases at current levels, I would hazard a guess that recoupment approximately equals expenditures (for GRM, not necessarily MOH) Future recoupment under various conditions requires special study for reasons cited above.

II. LOGICAL FRAMEWORK/PROJECT DESIGN CRITIQUE

A. Necessity for Critique

The logical framework is the summary of the project logic, information system, planned results, and key assumptions. It provides part of the basis for project evaluation and for the P.E.S. (Project Evaluation Summary). One cannot comment on the progress at G (goal), P (purpose), O (output), and I (input) levels, on the hypothesized linkages between adjacent levels nor on completeness and validity of assumptions when 1) levels (G, P, O, I) are inappropriately labelled and sequenced, 2) are not targetted with indicators meeting indicator criteria, or 3) have missing elements. The P.S.R. logical framework[20] has all of these defects.

B. visions Recommended

1. The basic logic of P.S.R. is as follows (details to follow).

In terms of cause and effect and general sequence[21].

FIGURE 3

I	O	P_1	P_2	G
Resources	Goods & services provided by project staff	VHWs, MOH personnel* et al., behavior induced	Villagers' (beneficiaries) behavior induced	Health et al. benefits

I includes medicines, equipment, etc.
O includes such things as VHW training and medicines.
P_1 includes such things as VHW diagnoses and referral, *MOH utilization of improved management skills and development of a long-term replication plan.
P_2 includes utilization of pharmacies and proper health practices.
G includes changes in morbidity, etc.

The current logical framework (annex J of PP) has shuffled categorization as shown in Figure 4, (we refer here to the indicator column since it is more detailed than the narrative column and is almost entirely narrative anyway).

FIGURE 4

Indicator Column item as classified in Project Paper	Classification In terms of project logic (Figure 3)
G 1 (goal no. 1)	P 1
G 2	G
G 3	G
P 1	O 22
P 2	P 1 or assumption
P 3	O
P 4	O
P 5	P 1
P 6	O
P 1 (next page)	P 1
P 2	P 1
P 3	P 1
P 4	P 1
P 5	P 1
O 1	O
O 2	O

The first three output means of verification a output indicators (though not targetted), while the output indicators 3, 4 and 5 are really me of verification (i.e., data sources). Input information not shown in my copy of the PP.

2. Figure 5 shows the recommended narrative logic (in paraphrased form for brevity) where "+" denotes an item added which was not in the PP.

FIGURE 5

Recommended Logical Framework Narrative

(Abbreviated Phrases)

G Decreased morbidity and mortality
+ G Decreased pain and suffering
G Continued (after 4 years) expansion of PHC (Primary Health Care) system

+ P_2 Villagers using services of VHWs and pharmacies, performing improved health practices
+ P_2 Increased emphasis on preventive practices
+ P_2 Increased role of women in activity promoting health (as consumers, child care, workers. . .)

P_1 Adoption by GRM of village level health services policy
P_1 Institutionalization of training, administrative capacities
P_1 Coordination of PHC activities with other development activities
P_1 Adequate flows of medicines and services
+ P_1 VHWs make proper diagnoses, referrals, etc.
+ P_1 Pharmacies make proper distribution, recordkeeping

O Assist MOH in preparing expanded PHC implementation plan
O Establish demonstration programs (trained VHWs, stocked village pharmacies. . .)
O Conduct training programs
O Develop baseline information, reporting and evaluation system

I Resources required

The additions to purpose are critical since they focus on behavior which is necessary to success at the next higher level. Behavior implies requisite a) skills and abilities, b) incentives and motivation, and c) supports, all of which need to be thought through for soundness in the various replication areas. Each line of the narrative will require:

(a) assumptions (one or more factors beyond the direct control or influence of project staff) which could help or hurt achievement at that level. Such assumptions are crucial in judging feasibility, contingency plans, and in performing evaluation.[23]

(b) Indicators by which i) performance targets may be set and ii) actual performance measured (through the means of verification sources). To be managerially useful for decision-making, planning, monitoring, control, and impact appraisal, each indicator should meet the following criteria:

i) Validity/plausibility: measure what it purports to measure, vary directly with project progress.

ii) Reliability/precision: repeated measures of the same thing (person's weight, etc.) should produce negligible differences among measurements.

iii) Objectivity: both a skeptic and a proponent should agree on the measure (not a matter of opinion).

iv) Targetted: explicit with respect to magnitude, timeframe, locale/clientele.

v) Verifiable: there exist (or can be developed) data sources for it.

vi) Independence: each indicator measures its own level and could logically fail to respond to the next lower level.

The present logical framework has only two indicators that essentially meet the requisite criteria (P_1 and O_1); others for the most part fail to meet any or one or two at best.

III. CONCLUSIONS AND RECOMMENDATIONS

A. Continued Project Relevance

Conclusion: The P.S.R. project concept remains quite relevant for the following reasons:

1. The overriding goals of decreasing morbidity and mortality and of decreasing pain and suffering obviously remain important ends.

2. There have been no major environmental changes apparent excepting a) the escalating inflation in petroleum prices which affects transportation costs and foreign exchange; and b) attendant GRM

fiscal problems in terms of operating budget, management skills, and debt management. Recommendations: In-depth analysis and technical assistance (hereafter abbreviated IDA/TA) of this economic/fiscal situation.

3. The targetted performance levels' reasonableness of achievement-is difficult to judge in light of the lack of targetted indicators. However, after the fact, Toroli experience suggests that reasonable and significant targets can be established and achieved. Thus, the existence of relevant goals, no surprising shifts in environment, and reasonableness of achievement warrant a continued relevance rating in my opinion.[24]

B. Project Design, Implementation and Evaluation Modifications

Conclusion: The P.S.R. design logic (as modified in section IIB) is sound and has been demonstrated as such in Toroli.

Recommendation: IDA/TA to improve framework logic, targets, assumptions, management information and evaluation system as argued and outlined in IIB.

A further design/implementation recommendation is increased attention to social soundness consideration especially those surrounding the behaviors connected to those purposes added in Figure 5.

Recommended also is IDA/TA of management skills, supports and incentives. Study after study shows project success or failure depending critically on day to day management skills. While the de Geyndt portion of this team evaluation contains most of our management recommendations, I would specifically recommend transfer of such things as a) logical framework design, b) basic management accounting and financial control concepts[25], c) elementary data reduction and display methods (charts, graphs, . . .), and d) management decision and control aides[26]. These methods could be delivered via project-specific case examples/workshops, have immediate pay-off, and could have a spread effect, while outlining the project's technical assistance span.

Regarding project monitoring and evaluation, it is recommended that specific management questions be formulated about the project by GRM, USAID and HIID[27]

and that the requisite data, reporting and analyses required to answer these questions be implemented, with due attention to the costs as well as potential benefits of such information.

C. Conclusions Within My Scope of Work

1. Comparative arrondissement concept

I feel that the comparison of areas with vs. withou VHWs is not desirable at this time.

(a) Though the assessment of the VHW component per se may be desirable, it is not clear that the comparative arrondissement design is the best or even a valid way of accomplishing it. Validity depends upon the nature of other variables and their statistical control, the sample sizes involved (especially if the treatment unit is one arrondissement) and the availability of information on such variables as factors and effects, many of which are not being collected.

(b) This evaluation question should, I believe, be coupled with other evaluation questions (previous section and note[27] so that a more complete design is set, one which might involve comparisons among matched pairs of villages so as to maximize management information to all parties.

(c) There has been, and is now, political objection to the comparative arrondissement concept, which to now has blocked its implementation (perhaps making desirability and methodology a moot point.[28]

2. Project costs

Section I of this report attempted to summarize the start-up and operating costs per person per year under a variety of assumptions. It is estimated that project start-up costs (Table V) are at most $1.35 per person per year, while operating costs are $.81 with the total for a start-up and full year = $2.16, a start-up and half year of operations approximately $1.35 + 1/2(.81) = $1.75 and so forth. Again, the cost is an estimated average and will vary by area. I conclude that the cost is, therefore, less than the maximum $3.00.

3. Cost recovery

Section I.D. analyzed cost recovery, and will not be repeated here. The major points in conclusion were: a) villagers can recoup their recurring costs, b) the GRM as a whole can recoup most if not all of their recurring costs (see I.A.1. for definition), but c) final judgments on "b" must await special economic/financial analyses as noted at several points in this report.

In conclusion, let me note again that this part of the team evaluation will hopefully give and receive light from the other parts. The report was done in one draft over several days in order to meet my deadline.

In the process of analyzing the great amount of information from people and reports at national, regional, cercle, arrondissement, and village levels in such a short time, I may have left questions unanswered (or have given unclear answers), or you may wish further rationale or calculations. In any case, please feel free to contact me.

Jim Vedder
19/5/80
Bamako

ANNEX TO P.S.R. FINANCIAL EVALUATION

19/5/80

[1] Cited in Daulaire and Taylor, P.S.R. Yelimane = A Preliminary report January 1980.

[2] Sissoko and Kelly, Projet Sante Rurale Mali - Apres 18 Mois Sur le Terrain and Rapport duel Janvier a 31 Mars 1980 (par region de Mopti, cercle de Koro) as well as earlier reports and field visits.

[3] The threesrows of Table I correspond to Sissoko-Kelly's initiation plus equipment, supervision, controle et recyclage au village des H-S, and frais generaux, respectively. Under frais generaux, transportation costs of the special studies were removed from other and placed in transportation. Note also Table I is per village in thousands of MF, thus some Sissoko-Kelly (SK) data were divided by 10 or 20 as appropriate. Strictly, some of the other overhead (19.3) was transportation and per diem for special medical studies but was not allocated to those categories in Table I.

[4] For example, in Table I, the 144 (000 MF) of transportation overhead (frais generaux) included 38 per village for trips to Bamako and Mopti; half was arbitrarily estimated to be start-up related (54% of the remaining transportation costs were. . .). Three-fourths of that portion of the med. chef's time which was spent on P.S.R. was arbitrarily estimated to be spent on start-up, etc. In the future, logging expenses as between start-up and other activities would ease the estimation process.

[5] Seasonality may be seen in Brinkerhoff, Projet de Sante Rurale, January 1980, (HIID), pp. 63-67, and in preliminary data for Sissoko-Kelly, note[1].

[6] Even in Koro cercle, the five arrondissements besides Toroli average 2.4 times the distance from Koro (61.6K vs. 24K) with Dinangourou 115K away (at its center). In addition, cercle distances from Bamako vary enormously.

[7] In Yelimane cercle, the mean size of villages with pharmacies or with VHWs is 1357 or 2.3 times the average for Koro cercle at 579 (see six-month report of Nilson, 15/6/79).

[8] HIID accounts show some vehicle costs 2.4 times as great in Yelimane as in Koro, though other transportation-related costs are difficult to compare due to omissions, lack of specificity, or misclassifications in these accounts.

9 The reader will be spared calculational details; the latter are available upon request. Some guidelines are shown in added notes below.

10 Toroli data in [1] represented 43 villages, 20 with pharmacy (46.5%), but about 95% of the population lived within 5K. Assuming the six arrondissements outside Koro (Centre de Sante) including Toroli also require about half the villages having pharmacies to ensure 95% complete coverage within 5K, we require about 120 times the scale of Toroli (6 arrondissements x 20 villages). This is a reasonable first approximation since all arrondissements except one have populations in the 20,000-27,000 range. Koro cercle data are thus 120 times the per village data. National data are 42 times Koro cercle (42 cercles). Data are unadjusted otherwise.

Per person here uses total rural population. Note quite different results should one use persons as size of i) village population, no. persons at need, no. persons served, no. consultations or visits, etc. Since these vary proportionally by area, all per capita figures in this report are per total rural population or rural population with access (95%). We assume Malian population = 6,500,000 x 90% rural = 5.9 million. Data have not been broken further by salaries, etc., though they could be. Note also some data in other reports (e.g., [1] uses various scopes; secteur de base, for example), different populations and may not be comparable.

11 If the start-up year had nine months of operation and maintenance, the latter would cost about 9/12 as much as shown, for a total of about .182 + .114 = .296(000)MF/person.

12 The replacement VHW training assumed 25% attrition per year; matrone and midwife training costs adjusted from VHW training costs; portions of administrative time at regional and national levels estimated to be spent on P.S.R. were assumed to be 80%. For set-up strictly speaking, overhead types of costs are accurate only at national level, being fixed and spread over fewer persons at other levels.

13 Data problems noted above and in reports on Yelimane make it impossible to get valid data for cercle much less data comparable to Koro cercle. This at least points out how some basic information gathering and analysis allows one to know what's happening in one area but not in another.

14 Computations on request; technical assistance salaries excluded.

15 Based on Anakaga-Dogon village profile "Annexe Anakaga-Dogon, Avril-Decembre 1979, Donnees et Analyses" by Sissiko & Kelly.

16 $\frac{\text{Average inventory}}{\text{Sales/year}} = \frac{1,423,288}{965,405} = 1.50$ years

$\frac{\text{Average inventory}}{\text{Sales/year}} = \frac{50,000}{42,575} = 1.16$ years

17 Cost data on medicines found in [1], and from invoices examined in Bamako.

18

MF PER UNIT

	Penicillin	Aspirin	Sulfisoxazole	Chloroquine
Retail Price	100	12.5	.700	20
-15% Margin	15	1.9	.105	3
= Wholesale price	85	10.6	.595	17
-Cost of unit & transportation to Bamako	8.9	1.7	.311	12.1
= Unit contribution to revolving funds	76.1	8.9	.284	4.9
xBrinkerhoff unit consumption/village pop./year*	.168	2.64	.006	.888
= Contribution/village pop./year	12.78	23.5	.0017	4.35 = 40.63**

*22 aspirin/100 pop./month = 264 aspirin/100 pop./year (expenditures/consultation level for year) = 2.64/village person/year.

**If village pop. represents about 65% of population, the contribution/total pop./year is 26.4MF.

Broader data on retail sales in [1] shows a different mix and contributions of about 59.1MF/village pop./year and 38.4MF/pop./year.

Weighted cost data show cost 16.73/village/pop.year or 10.9MF/total pop./year and weighted wholesale data as 57.3 and 37.3, respectively.

19 From note 18 26.4 divided by 10.9 = 2.42.

20 Project Paper, Annex J.

21 Logic takes precedence over sequence; thus, institutionalization of management practices (in P_1) may occur after P_2 but is

behavior hypothesized as being induced by project staff (TA) advice, and the like found in "O".

22 Assuming "establishment" means training VHWs and stocking pharmacies.

23 To help ascertain whether changes or regional differences in narrative indicators were associated with project factors at the level below or with factors which are in the project's environment (drought, other agencies' supports and the like).

24 In particular, I believe that efforts in Yelimane should be continued, although with diminished technical assistance. Most problems heretofore were contractor problems, Malian interest seems high, and the alternative (lack of improvement in primary health care) is much worse. See comments in the de Geynt report.

25 For example, data on Anakaga-Dogon show amount of inventory in stock of:

$$\frac{\text{Inventory}}{\text{Sales}} = \frac{50{,}000}{42{,}575} = 1\ 1/6 \text{ years' supply}$$

while Kelly-Sissoko figures show:

$$\frac{\text{Average inventory}}{\text{Sales}} = \frac{1{,}423{,}288}{965{,}405} = 1.5 \text{ years' stock}$$

As a second example:

Beginning inventory
+ Purchases (or donations)
Available for sale
- Sales
Ending inventory

Can be used as a quick method of taking inventory or as a cross-check to validate records against physician inventory. Of course, figures could be in physical units for one medicine or, for mixes, in monetary units for a single period. The last two items can be reversed to check on sales, etc.

26 Such as decision trees, structural elements of decision problems, Gant charts.

27 For example, effects at various levels of the logical framework of male vs. female VHWs on types of utilization, different tribes on participation, different types on levels of technical assistance. . .and morbidity or mortality rate differences with or without the project.

[28] We were told orally by a GRM official that the concept was a waste of money since the resources could be spent better elsewhere. See also Brinkerhoff (January 1980), p. 26.

Hass

Evaluation Report on Mali Rural Health Project (688-0208)

(Projet Santé Rurale:PSR) VHW = H.S. (Hygiénist- Secourist)

by: Willy de Geyndt, PhD.
University of Minisota

I. Introduction

This report is one of a series of reports written by members of the evaluation team each one focusing on different aspects of the PSR. The report deal mainly with the management of the project, the logistics, and the information components. The emphasis will be on the planning, organizing and controlling functions because it is in these management areas that the most serious deficiencies have occurred during the first half life of the PSR. Inextricably linked to this is the role of the technical assistance (TA) provided by HIID (Harvard).

There exist many ways to structure an evaluation report. The author has opted for an issue-centred format from a decision-making perspective. For each issue a diagnosis will be made, a number of alternative solutions will be examined and the author's preferred recommendation will be stated. Different or additional information available for analyses might have resulted in a change of preferences although these changes would have been minimal. More important is the political context which is more difficult to query for a short term visitor and which undoubtedly will influence the final decision-making process.

2. Koro Cercle

A four day site visit to Koro cercle plus one day in Mopti (capital of the Region) has given us a good understanding of the activities carried out during the first 22 months of the PSR in this area. Performance during that time period is quite impressive and a sound basis has been laid to build on. The positive results are largely due to the leadership and organizational skills of the medecin chef Dr. Sissoko and the Harvard advisor Dr. P. Kelly. The harmonious relationship between these two persons was an important factor contributing to the embryonic success of PSR in Koro. On May 12, 1980 this team has left the project upon termination of their tour of duty.

Alternatives

The major issue facing the Koro site for the next two years is whether to extend coverage horizontally and/or vertically. The following alternatives exist:

A. Horizontal extension

1) Extend activities to all arrondissements in Koro Cercle

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a. continue with current level of services
b. add new services to current services

2) Extend activities to <u>some</u> arrondissements in Koro Cercle

a. continue with current level of services
b. add new services to current services

3) Continue to focus on <u>one</u> arrondissemrnt (Toroli)

a. with the same services as being provided currently
b. add new services to current services.

B. <u>Vertical Extension</u>

1) <u>Continue</u> with current level of services

a. Training of trainers
b. Medical, socio-economic, and sanitary surveys
c. Installation of village pharmacies

(1) Sensitize village population
(2) Recruitment of VHW
(3) Training of VHW
(4) Distribution and control of drugs
(5) Supervision and retraining of VHW
(6) Health promotion

d. Training of "matrones"
e. Vaccination campaigns (menegitis epidemic in 1979)
f. Traditional medicine integration (just started)
g. Community development and appropriate technology
h. Development of training materials
i. Data collection, book-keeping, inventory control, report writing and miscellaneous administrative tasks.

2) <u>Add</u> new services and <u>expand</u> current services

a. Institutionalize training, supervision and retraining of VHW and matrones
b. Integrate traditional medicine with modern medicine
c. Maternal and child health with emphasis on training "matrones" and "accoucheuses traditionelles".
d. Family planning to follow PMI actions
e. Integration of PSR with other sector activities (Opération Mils, Hydrolic service, Cooperatives (CAC)
f. Immunization campaign at cercle level
g. Strengthen and equip Koro dispensary maternity and hospital
h. Strengthen community development wills in some villages, simple technology
i. Develop integrate preventive and curative services (the VHW is "hygiéniste" (preventive) and "secouriste" (curative)

C. Analysis of Koro Alternatives

The design of the PSR specified the arrondissement as the service area and the unit of analysis. It also required the presence of comparison arrondissements. De facto, activities in Koro have been expanded beyond the limit of the pilot arrondissement Toroli. This was inevitable. The menigitis epidemic forced the project to go to all arrondissements. In order to fulfill its objective of integration with Opération Mils, the project needed to start activities in other arrondissements. The comparison arrondissement concept was ill-conceived and could not be implemented because of practical, ethical and political considerations. The Malian Health Services delivery system is based administratively on the cercle and not on the arrondissement. The medicin chef is located at the cercle level and he is the only physician in the cercle. Evacuations from villages go to the cercle and infrequently to the arrondissement dispensary which is staffed by a nurse and a nurse-aide. Non-health actions (wells, Opération Mils, CAC, etc.) are mostly cercle-based. It was unrealistic and impractical to have the PSR arrondissement-based. It was therefore not surprising that it was forced to expand beyond the Toroli arrondissement.

The current services listed above need strengthening and expanding. Some have a strong foundation and can be continued with the current level of effort, e.g., installation of village pharmacies, development of training materials surveys and administrative tasks. Other services have barely been started and need strengthening, e.g. the training of "matrones", a dialogue with traditional medicine practitioners has just begun, (the vaccination campaign was a fortuitous event due to the outbreak of the menigitis epidemic).

A decision to expand current services and add new services requires a prioritized listing of services, taking into account the appropriateness, the availability, the accessibility and the acceptability of these services, their cost and their needs in terms of manpower. Given the experience of 22 months of planning and operations, the initial design of the project needs to be modified to reflect more accurately the medical and political realities, the better known needs of the population, the cost and manpower constraints, the turnover in leadership, and the nature of the TA. Mid-course corrections are frequent and accepted in demonstration projects. Indeed lack of flexibility may ultimately endanger a project. What is of essence is the utility and not the purity of the design.

D. Recommendation for Koro

The ultimate decision will be made by the three parties involved based on a number of factors and their priorities. This writer recommends:

a. Making the cercle the service delivery area and extending activi-

ties to all arrondissements. This change will put the project in line with the GRM administrative structure and require a full commitment from the medecin-chef to the PSR which is not based on a personel relationship, as was the case with Drs. Sissoko and Kelly. The cercle attempts to meet the health needs of the population and problems are solved at that level by the medecin chef. The presence of PSR in one arrondissement creates needs in other arrondissements which must be met by the cercle.

b. Strengthening the capacity of the cercle to handle referrals from villages and arrondissement. This will involve capital investment in equipment e.g., a generator, lab. ability to perform surgery under local anesthesia, minimal sterilizing equipment, etc. This is primary care also. (see Section 10, Medical Equipment and Supplies).

c. Continuing the current level of services and extend them to all arrondissements. This means giving up the comparison arrondissement concept which was not a workable concept anyway, and also will free up some money.

d. Strengthening some current services e.g. training of "matrones", integration of traditional medicine.

e. Adding new services selectively based on cost and manpower studies, e.g., maternal and child health, especially the training of "accoucheuses traditionelles".

f. Placing more emphasis on integration of PSR with other non-health autorities. This action will help achieve the objective of preventive care by improving the quality of the environnement.

3. Yélimané Cercle

Information on Yélimané Cercle and Tambacara arrondissement was obtained from reports and interviews. Most helpful were the report written by Dr. Dulaire and Mary Taylor, the taped report by Dr. M. White and the interview with Dr. Cissé, a Malian sociologist, who all studied the Yélimané site of the PSR in detail. A site visit for the writer could not be arranged. A training seminar for a new group of VHW was being conducted at the established trip time and the medecin chef preferred not to be visited during that specific week.

The difficulties in starting up this site and the turnovers of Harward advisors have been told in several reports and the reader is well apprised of the many problems faced in Yélimané. Data on Yélimané are scarce. The Brinkerhoff report used almost exclusively Koro data. The Dulaire report has remedied somewhat the paucity of data.

According to the Dolaire report, 8 villages out of 28 in the Tambacara arrondissement had VHW's in place in January 1980. These

8 villagers cover 47% of the arrondissement population. Other accomplishments are minimal and for below expectation. What then are the alternatives for this project site?

A. Alternatives

1) Horizontal extension of services to cover Tambacara arrondissemen

   a. same services
   b. adding new services (vertical extension)

2) Horizontal extension of services to cover Yélimané cercle

   a. same services as in Tambacara
   b. add new services (vertical extension)

3) Horizontal and vertical extension of services in Tambacara only

4) Horizontal extension of services in Tambacara only

5) Discontinue services at Tambacara and drop the Yélimané part of the project.

B. Analysis of Yélimané Alternatives

The design was identical for Yélimané and Koro, thus the comments made for Koro are valid for Yélimané regarding the use of the arrondissement as the unit of service delivery and the comparison concept. The record of TA in Yélimané is not very good. It is questionable whether there is a fair chance of improving it.

The infrastructure of current services in Tambacara is not developed well enough (and sound enough) to expand services to other arrondissements. Coverage of the Tambacara arrondissement should be considered before any other horizontal expansion takes place. Current services being offered are along the lines of those offered in Koro all but less comprehensive and firmly footed. Adding new services and/or expanding current services must be analyzed in light of the capabilities of the Malian team which is now shouldering the burden completely and in light of the local needs which are better known now. Abandoning the project in Yélimané is a poor alternative. Three Malian have been trained as trainees, 27 VHW have gone through training, 14 " accoucheuses traditionelles" have received training, costs have been incurred, the population's expectations have been raised and the medecin-chef wants to make it work, At the time of this writing he is conducting a training seminar for new VHWs.

C. Recommendation for Yélimané

Horizontal extension of services to cover Tambacara arrondissement. Strengthening of current level of services, i.e., no new services until infrastructure is well established, training manuals and materials are completed and acceptable, reporting of activities is organized, reports on logistics and drug consumption are forwarded on a regular basis. At that point the situation should be reviewed and decisions made on horizontal and vertical extensions, with the ultimate goal of making the cercle the service area and unit of analysis.

The experience of Koro can guide the development of Yélimané. More communication and exchange of ideas should take place between Koro and Yélimané for a brief period (two to four weeks). Malians can and should help Malians. Yélimané may be behind Koro in its accomplishments but given that there is a will to succeed it should be given the opportunity and the assistance to perform.

4. Third Cercle Issue

One end of project output mentioned in the ProAg is activities in three regions which implicitly means involving three cercles. The third cercle idea is mentioned in other reports and the issue has become a topic of debate.

A. Alternatives

1) No third cercle and continue with current two cercles

2) A third cercle in a new region

3) A third cercle in the Mopti region adjacent or not to the Koro cercle

4) A third cercle in the Kayes region adjacent or not to the Yélimané cercle.

B. Analysis of Alternatives

The issue is a third cercle or not, and if yes, where? Beginning activities in a third cercle involves set up costs (vehicles, drugs, supplies, gas, teaching materials, etc.), personnel availability and personnel costs. Thus budgetary considerations and manpower supply are crucial items. The writer does not have a grasp of the budgeting situation. Records are not adequate. The financial report may shed light on this aspect. The MOH needs to decide whether sufficient manpower will be available. Assuming these conditions are met and a decision to start a third cercle is made, then where? A new region will be the most difficult task:

establishing relationships with the medical director of a new region and his regional superiors, setting up the logistic and information systems between the new cercle, the new region and Bamako, purchasing a RAC system, etc. This would component difficulties. A third cercle in the Kayes region may be premature given the insufficient performance to date of the Yélimané cercle. It may lessen the chance of Yélimané to be successful. A third cercle in the Mopti region would combine the most chances of having a fair opportunity to succeed, especially if the third cercle is adjacant to Koro cercle. The experience in Koro is positive, regional authorities are supportive, and Koro personnel could give assistance to the new cercle in the organisation and training components.

C. Recommendation on Third Cercle Issue

Given that the Koro cercle is not covered completely yet and that Tambacara arrondissement is not served yet, and that these are higher priorities, the writer feels that a third cercle should not be started. It is better to focus the energy on the horizontal and/or vertical expansion of the Koro and Yélimané cercles, and make sure that these efforts are successful. Not enough is known to date on the effectiveness and efficiency of the Koro and Yélimané experience to warrant launching a third cercle. A thourough analysis of Koro and Yélimané should precede any initiative in a third cercle.

If however, a decision is made to start activities in a new cercle, then, a cercle adjacent to Koro cercle should be selected for reasons stated above in the analysis of alternatives.

5. PSR at the Regional Level

The evaluation team had an opportunity to discuss the project with the regional medical director (two meetings) and with the Governor of the Mopti Region. The regional level has only been marginally involved in the project. The project link goes directly from the cercle to the national level. Cercle reports follow the hierachical channel and copies go to the region. A radio transmitter is installed at the region and is linked to Koro and Bamako. The region is not involved in logistics, drug distribution, remittal of cash proceeds from the sale of drugs, training activities or other project related matters. The regional medical director acts as a consultant to the medecin chef of the cercle although his role has not been defined and is therefore unclear.

A. Alternatives

1) Continue present patterns as described above.

2) Involve regional level more actively in PSR.

a. plan for expansion within region.
b. train manpower at regional level.

B. Analysis of Alternatives and Recommendations

The pattern of marginal involvement of the region in the first half life of the project was correct. More active involvement would have created an additional bureaucratic layer during the difficult start-up period of the Koro project. Looking ahead to the next two years and keeping in mind the goals and objectives of the PSR as laid out in the PP and the ProAg, it is clear that the current pattern needs to change and the region needs to become more involved. The project design calls for plans to expand the PSR to the entire country. This is an ambitious goal. It may be wise to aim for a regional expansion before attacking the nation as a whole. Replication and expansion would be easier through the addition of cercles in the same region while at the same time developing the regional infrastructure for delivering basic health services to the rural population Technical assistance must be provided to the region in the areas of planning and controlling. The needs must be defined in terms of manpower, budget, training, logistic support. Planning the expansion of the Koro experience to the Mopti region is a major task. The next two years must focus more on the region:start training programs, assess needs, draft plans for total regional coverage. The authorities in the Mopti region are supportive of the project. They like what they see happening in Koro. They alerted us to the shortage of staff. Also integration of health services with non-health activities is more easily done at the cercle level. These constraints must be kept in mind. It must be stressed however, that any major geographic expansion of the project will require strengthening the management capabilities of the region.

6. Technical Assistance Performance

A meaningful analysis of the TA performance must be placed first the broader context of AID's policy of host country contracting. It often puts a contractor between a rock and a hard place in that he must follow the rules and regulations of two parties. Many contractors complain about this predicament. It must be pointed out, however, that the contract negotiated between Harvard and the GRM is quite favorable to Harvard. The terminology at times is vague, outputs are not quantized and measurable, and restrictive clauses are minimal.

A number of mistakes have been made by all parties during the first two years of the project. The reader is aware of the deficiencies in the contractor's planning, organizing and controlling of the project, the lack of detailed action plans with verifiable milestones and regular process or output oriented reporting for financial and service delivery accountability, the internecine squabbling between HIID and MOH and within the HIID team, the high turnover rates on the Harvard site, etc. The purpose of this evaluation is not to point fingers. We must state the fact, however, that the net result today is a lack of trust and conficence between Harvard and MOH, a breakdown in communications, a cretibility gap in the competence and sensitivity of HIID to Malian needs

and delays in carrying out parts of the program. One bright exception is the performance of the Harvard advisor in Koro whose loyality, however, was primarily to the Malians. The negative trend can be reversed through a redefinition of the roles of the respective parties and an infusion of a different mix of technical assistance skills. Some improvements in the relationship between the HIID and the MOH has occured since the replacement of the HIID chief of party by an interim chief.

A. Alternatives

1) At the service delivery level

a) A physician advisor at Koro for the first year and at Mopti for the second year.
b) A physician advisor at Yélimané for two years.
c) A physician advisor at Koro but not at Yélimané.
d) A non-physician health systemmanager
- at Koro and Yélimané
- at Koro only
- at Yélimané only
e) No permanent advisor but technical assistance on request with support of the national level and for specific short term assignments.
f) Suspend technical assistance.

2) At the National level

a) A permanent physician advisor as chief of party.
b) A permanent health systemmanager as chief of party.
c) A permanent operations officer advisor.
d) A community development specialist advisor.
e) Any combination of a), b), c), d).
f) Technical assistance on request only for specific short term assignments
g) Suspend technical assistance.

3) At both levels

a) Clearify authority-responsibility structure between all parties.
b) Define the limits of delegations. The delegation of authority.
c) Clearify information flow.
d) Develop a management information system geared to decision-making.

B. Analysis of Alternatives

physician. How important is medical knowledge to the success of the project? Three non-Malian physicians plus three Malian physicians plus two regional medical directors seems to be an overdose of medical skills. A cursory review of the minutes of the joint meetings at the national level indicate that at least 95% of the issues raised are non-medical and deal with management matters which do not require clinical skills. Furthermore, the Malian physicians' knowledge of local pathology and epidemiology is likely to be as good if not better than that of the expatriate physician. In the interview with the Harvard physician in Koro - the only Harvard physician in Mali at the time of this evaluation - it became evident that his knowledge of French, his human skills and his organizational skills contributed more to the project than his medical skills. However, unless the advisor to a Malian physician is a physician himself, he may have difficulty winning his conficence, his cooperation and his respect. For psychological reasons it may be important to have physicians advisors. The optimal solution is a U.S. physician advisor who is a good manager, speaks French and know the Sahel region. Evidently this is almost an impossible combination and one is forced to look for suboptimal solutions.

Yélimané has been without a permanent physician advisor for roughly half of the time. The project continues under the leadership of the medecin chef and more VHWs are being trained and drugs distributed. The needs of Yélimané may be met by short term consultant especially with management skills. A summary of the weakness of the Yélimané project mentioned in the report of each evaluation team member must be made in order to determine the type of technical assistance required in Yélimané. The same procedure should be followed for the Koro project and for the national level. At that point, a meaningful definition of the needs for TA can be made and how best to meet these needs. A matching of skills with needs must take place in order to select the best alternative among the list mentioned above. This will minimize cost and maximize the effectiveness of the TA effort.

Recommendation

The objective of TA is to train other people to take over their tasks and to carry them out as effectively and efficiently as they can. At the end of the TA efforts, systems must be in place and Malians must be trained maintaining these systems as an integral part of the Malian health care system.

Without the benefit of the inputs of all the evaluation team members and of the prioritizing of TA needs as suggested above, the following recommendations are made:

1) Appointment of two permanent advisors at the national level: one physician and one health care administrator. The former handles clinical issues and the latter management issues. Both report to the Project Director in their respective areas of competence, one of whom to be designated Chief of Projet. Both spend half of their time in the field, at times travelling together, at times alternatively depending on the problems. The physician advises Koro and

Yélimané on clinical matters.

2) Appointment of one permanent advisor to the Koro cercle for the first year and to Mopti for the second year. This advisor should preferably be a health care administrator with strong skills in health planning and teaching.

3) The MOH assigns a second Malian physician to Koro cercle to extend coverage horizontially and vertically.

4) TA to Yélimané to be put on a request basis.

5) The manager advisor to develop uniform systems for Koro and Yélimané in finance, logistics, information collection and reporting, inventory control and all other aspects of operation.

6) The manager advisor to train Malian staff at the MOH including the Project Director.

7) The manager advisor to structure a financial reporting system based on a budget for the total project, to train a Malian in the upkeep of the system and in reporting financial data on a monthly basis to MOH, Harvard and AID. Use cost center approach and structure system for management decision making.

8) The three parties to define authority-responsibility structure, reporting relationships and integrative mechanisms.

To sum up this important issue this writer would

a. Freeze hiring temporarily;
b. summarize project weakness;
c. prioritize weakness;
d. develop job description based on priority list;
e. match c. with d;
f. hire the right persons;
g. if the right person cannot be found, leave the position open, which may be less damaging than hiring the wrong person. The weakness are mostly in the management area and in the lack of teaching and training counterparts. This will be born out by an analysis of all evaluation reports.

7. PSR's Information Component

The structural and functional weakness in the management of the project affect the information flow. There is no central repository for all documents relating to the project. The evaluation team had difficulty in finding certain reports and when found was unable to obtain photocopies.

One could hope that copies of all reports and health data will be available at the headquarter of HIID in Cambridge but that is doubtful. One consultant' report refers to the report of another consultant "which has unfortunately disappeared". Information available is not necessarily accessible, and the quality of available and accessible information is not always acceptable.

The TA office should be held accountable for centralizing all relevant data. Information pertaining to the Koro service area is neatly organized, classified and stored in Koro in a locked wodden box: training sessions by cohort, profile of VHW's, one info folder per village, dispensary statistics for 1978 and 1979, medical surveys, survey of wells, surveys of sanitary and socio-economic conditions, activity data, authorization request forms, training materials by language, etc. This wealth of information can be consulted easily. The lack of photocopying service preclude removing any of this information from the site.

In Koro, base line data was collected and used for structuring the content of the training program. Ongoing activities are documented and summarized in reports. The reports follow the Malian hierachical channel : Cercle - Region - National. Harvard and AID may receive copies if the MOH decides to release them.

The central project office in Bamako should also have complete documentation on all other rural health projects currently sponsored in Mali by other countries (France, Germany, Switzerland, Netherland) and on health activities by international organizations (WHO, World Bank). It should serve the function of a clearing house and have on file all health and non-health data relevant to the project. This is a major weakness. Unless the situation changes quickly and dramatically it is doubtful that reliable and comparable summary data will be available at the end of the project.

The acquisition of radio transmitters at the national, regional and cercle levels will not solve any of the problems mentioned above but it helps communication and coordination and saves fuel and time. The smooth functioning of the total system should not depend on the radio. It is doubtful that upon extension of the PSR to a larger area radios will each time be available.

The Drug Supply System

At the Koro cercle level the drug supply system seems to be functioning smoothly. Drugs order are placed to Bamako via radio and supplied by vehicle traveling to Koro. Drugs are received and checked for quality and quantity by the medecin chef. The storeroom clerk enters the quantities on the green inventory sheets, one green sheet per drug type. Drugs are stored in locked metal cabinets, one drug per shelf for easy medical inventory control. Keys to the cabinets are kept by the medecin chef. There have not been

shortages of drugs. Distribution of drugs to villages is done in one of two ways. The supervisor/trainers of the VHW take drugs along on their inspection and ongoing training tours to replenish the village pharmacies or the VHW goes to Koro to purchase more drugs.

At the village level drugs are usually kept in a locked wooden box donated by the village. The VHW is usually the pharmacist and quite often keeps his records along with the drugs in the box. The VHW keeps a record of all drugs sold and gives the money to the village treasurer. The latter will use the money to buy more drugs. The proceeds of the sales go from the village to the cercle to Bamako. Spot checks in villages revealed sufficient inventories, adequate controls and good record keeping.

According to the Dulaire report the control of drugs in Yélimané is deficient. Procedures were not followed as is the case in Koro. This situation must be corrected quickly.

At the national level procedures are followed as spelled out in the "Pharmaceutical Management System" paper written by the Harvard advisors and officially confirmed and transmitted by Dr. Konaté with his lettet to AID of April 6, 1979. Drugs are stored at the CAF and at the Pharmacie d' Approvisionement. Request for purchases are transmitted to AID who order the pharmaceuticals from the U.S. At no point has there been a delay or a shortage of drugs. Reception, storage, issuing and inventory control of drugs at the national level is carried out by the Harvard administrator. He is not training a Malian counterpart. This is a fatal flow in the project and can be traced to the current malaise at that level.

The drug replenishment fund is currently kept at the national level. If and when the region becomes more actively involved in the project, it may be advisable to decentralise this fund. This could be done when more than one cercle in the region becomes operational.

The Transportation System

For Koro cercle spare parts for 4 wheel and 2 wheel vehicles are ordered from Bamako. The order request is made up in four copies and spare parts are sent to the cercle. The spare part inventory at the cercle level is minimal and does not meet 80% of needs as mentioned in the plan. Spare parts are stored in a locked metal cabinet and the keys are kept by the medecin-chef. Records of inventory control are adequate. Major repair and overhauls of the Land-Rover are done in Bamako.

Because of the high cost of fuel (± $3/gallon) the Land-Rovers are expensive to operate and as arrondissements more distant from Koro are being served this cost will increase. A comparison between the use of motorbikes versus Land-Rover done by the Koro team shows that the cost per km. for a Land-Rover is 159 MF versus 25 MF per km. for mobylettes. This cost includes depreciation, maintenance and fuel consumption.

Controls of gas consumption in Koro are adequate. Each Land-Rover trip is authorized by the medecin chef and recorded. Gas is often in short supply and comes from the region (Mopti). In the beginning gas was obtained with coupons. This has now been replaced by a cash system with adequate control. Whether the vehicles which were purchased with project funds are used exclusively for the project is difficult to ascertain and is doubtful. The project is only one of the many responsibilities of the medecin chef and he controls the use of the vehicles. We do not feel that this is a major concern at this time.

Current information from Yélimané is not available. No report has been submitted by Yélimané to Bamako since last October.

At the national level a list of spareparts is made up by MOH assisted by the Harvard administrator. The request goes to AID who orders and pays. The ordered materials are received by the MOH and distributed to Bamako, Koro and Yélimané according to their written requests. Storage, issuing, and inventory control are contractually the responsibility of MOH. In practice the Harvard administrator controls the whole sequence. No Malian counterpart is being trained. Again, this is a fatal flaw in the project and is one more symptom of the malaise at that level. Harvard's role should be setting up the system and advising on its operation. As it stands now, the Harvard administrator is the operation officer. No training and no integration into the Malian MOH structure is taking place. For logistics management, the host country contract concept is a cosmetic term.

Medical Equipment and Supplies

Ordering and purchasing of medical equipment and supplies, including water testing equipment, follow the procedures outlined earlier for drugs and spare parts. Requests of GRM are received by AID. Discussions between GRM and AID may take place relating to the appropriateness of certain items. AID orders and pays. GRM receives, stores and distributes with operational input from the Harvard administrator. The latter part of the sequence, i.e., the post-order activities, have not been tested yet. All medical equipment and supplies orders are recent. The first purchase order was placed by AID on December 5, 1979. Except for the water testing equipment the goods have not arrived in Bamako yet. Medical supplies include gauze, syringes, scissors, lab supplies, etc. Medical equipment is limited to basic lab equipment especially for water testing, e.g., lab test kits, microscope, incubators, centrifuges, ., and to some basic medical equipment such as otoscopes and ophtalmoscopes. Receiving, storage, inventory control, distribution and utilisation of medical equipment and supplies cannot be evaluated yet.

A current major issue is the request by GRM for major moveable equipment to equip the cercle dispensary at Koro, e.g., hydraulic surgical table portable X-ray unit, autoclaves, generators, air conditioning units and anesthesia equipment. AID has not ordered any of this equipment and the GRM request is under study.

Should project funds be expended for these items? Does it fall within the intent and purpose of the project? Will it help achieve the objectives of the Project?

The answers to these questions depend partly on discussions which need to be made on previously raised issues (e.g. extension of horizontal and vertical coverage, marking the cercle the service area) and partly on the definition of basic health services, of referral mechanisms and integration with MOH structure. Are basic health services synonymous with primary care service? Basic or primary care are flexible concepts defined differently in different countries. In the U.S., a primary care physician means the first contact point between the patient and the physician, and thus, primary care physicians include the general practitioner, the family practitioner, the pedietrician, the internal medicine practitioner, the obstetrician and the general surgeon.

This evaluation recommends strengthening the Koro dispensary to allow it to perform surgery under local anesthesia and Cesarian sections (mostly what in the U.S. is labeled "same day in same day out surgery" or ambulatory surgery) and to do basic lab tests. The nearest place for such procedures now is Mopti. Given the road conditions, a complicated pregnancy cannot arrive alive in Mopti.

One must give due consideration to the support systems when purchasing equipment. A centrifuge or a surgical intervention requires a supply of power. This means generators with the attendant maintenance, spare parts and fuel consumption. Sterilizing equipment requires training the staff in aseptic techniques, in the use of the equipment and the storage of clean and soiled supplies. Equipment should be simple to operate, easy to repair and to clean, and handled by trained staff. The GRM request should be discussed along these lines.

Another consideration is the fact that the presence of minimal equipment at the Koro dispensary will require the med cin chef to spend more time in the dispensary and less time visiting arrondissement dispensaries and villages. This evaluation recommends a quid pro quo: The MOH assigns a second physician to Koro cercle. This is also in line with a recommendation contained in the TA section of this report and in Koro expansion recommendations.

An overriding factor is that medical equipment should not be purchased with project funds if that equipment cannot be operated and maintained without technical assistence.

II. Training Materials

Supplies for making training materials are furnished by Bamako to Koro and Yélimané: paper, stencils, writing supplies, a copying machine (antediluvian) etc. The training materials are produced locally without coordination between Koro andYélimané and without integration into the Malian

health system. Either there is a lack of leadership at the national level or a conscious decision was made to delegate these tasks to the local level.

It is unclear what the role of Harvard training consultant has been and no reports were available to enlighten the evaluation. No visible outputs could be traced and the Koro team took pride in the fact that they have developed the materials themselves.

The training materials in use at Koro were reviewed and found adequate to meet the training needs. The Dulaire report on Yélimané does not deal with this topic.

The training component of the PSR is vital to the success of the project. The diffusion of training and the institutionalization of training programs and procedures and of retraining activities are crucial elements. Here is an area where the project can make a long term impact: the training of trainers with supporting systems to reach a multiplier effect.

It is recommended that a training library be set up at the national level. This may include audio-visual training aids, multilingual training documents, training manuels with training procedures, course contents and evaluation guidelines. The training component should be divided into training of trainers and training of health manpower. A liason should be established with Malian academic institutions (e.g., Ecole Nationale d'Administration, Centre Pédagogique Supérieur, Centre des Hautes Etudes de Comptabilité et de Gestion, Ecole Normale Supérieure). The objective is to install a training system and a training library which can be operated by Malians without external technical assistance. This would be an important legacy and outcome of the PSR.