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THE MANANTALI RESETTLEMENT PROJECT

THE FIRST YEAR MOVE

by

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SARSA Cooperative Agreement: The Manantali Resettlement Project

The First Year Move (1)

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The Manantali Resettlement Project, designed to facilitate the relocation of villagers whose upstream homes and lands were to be flooded by the construction of a high dam at Manantali, had planned to move approximately half the population of the Bafing reservoir by the rainy season of 1986 (late June and early July). While there were many problems in achieving this goal, with a few exceptions to be discussed below it was essentially reached by early July 1986.

This report discusses some of the important socio-economic issues that have appeared in the process of resettlement. The data used come from two sources: 1) a field visit carried out in late June and early July of 1986; and 2) a preliminary analysis of indicators collected by the Section Social et de Suivi (SSS/Social and Monitoring Section) of the Projet pour la Reinstallation des Populations de Manantali (PRM), the agency of the Malian Government responsible for the resettlement effort.

The Situation

In January 1986, little progress had been made on resettlement project implementation. Village site clearing had started and, in a few villages, clearing for fields had also begun. At that time, it was calculated that if the villagers continued to work at about the same level of effort, approximately five more months (until May) would be required for them to complete necessary clearing of their fields. In addition, brick making and house construction had to be done and supplementary roads had to be built or improved. The situation did not appear to call for optimism.

Yet by the end of June 1986, although construction remained behind schedule, the situation had considerably improved. In most of the villages which were to relocate in 1986, more than half the houses were built. People were moving into these new villages, and while they missed some of the amenities that would make them truly home, such as compound walls, granaries, and chicken coops, the new villages looked like Malinke villages, with nucleated compounds scattered through a relatively compact area.

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Daily, trucks moved people and their goods to their new villages. Cattle were walked to the new sites which are not too far away from the old ones. Elderly men and women and small babies were transferred in Land Cruisers as were a number of important village ritual objects. It was planned to finish the actual moving process by July 15. Of the 4500 persons who had initially been designated to move, approximately 3500 - 4000 will actually relocate according to schedule. Those who remain in their old sites, for reasons to be discussed below, should not be at risk of flood this year.

Weather imposed the late June - early July deadline for completion of the major tasks for the 1986 move. The people are dryland farmers who must begin cultivation with the onset of the rains. Therefore, they must either have resettled by now and begun to farm, or they must cultivate in their former fields and remain there for the remainder of the 1986 agricultural season.

Rainy weather also imposes severe constraints on house construction. Houses, kitchens and granaries are being constructed of air dried mud brick. The bricks take approximately 14 days to dry and cure sufficiently in rainy season humidity, and since the rains have been coming more than once a week, and usually with fairly strong winds, many bricks were ruined, even though they had been stored in covered hangars. The brickmakers decided they had to stop until the major part of the rainy season is over; they will begin working again in approximately October.

Builders will continue to work until there are no more bricks, and they will finish doors, windows and floors on the houses that already have walls and roofs. However, when they run out of building materials, and have completed all the structures they have already begun, they too will probably stop work until October or November when they again have bricks.

Although the relocation is more advanced than was predicted last January, the project remains behind schedule. There was no attempt to have all structures built before the move took place. First, it was decided that only *cases d'habitation* (houses) would be built. Kitchens and granaries would have to wait. While granaries will not really be needed until the harvest begins in November or December, it would be convenient for women to have kitchens in which to cook during the rainy season. However the people agreed to move with only houses ready.

A second compromise had to be made when it became clear that all houses would not be ready. Rather, the project got people to agree that they would move when at least half the houses in every compound were finished. Since every adult normally has his or her own house, this means that individuals within a family, but not different families, will have to double up until enough houses are finished. The people accepted this compromise also, although they were not always satisfied with it.

In addition, the progress of construction among the villages occurred at distinctly different rates (see Table 1). Each village was assigned to a different contractor to build, and contractors' work was of widely varying quality and speed. Actual progress did not necessarily correspond with likely progress indicated by the written proposals each had offered. By the middle of June, three of the 14 villages that were supposed to move clearly had insufficient housing. These were Niqui, Farabanding and Tintilla.

Until early June, the Government of Mali (GRM) had as its official policy that all of these 14 villages which had planned to move in 1986 must move. This was so despite the fact that several of them were above 167 meters, and thus would not be flooded in 1986. The Ministry of Industrial Development and Tourism which oversees this project was insistent on this matter and it was non-negotiable. However, in mid June 1986, there was a general "remaniement ministeriel" or change of ministers and a new Minister of Industrial Development and Tourism was named. The director of the FRM went to meet with this new minister a short time after he took office, and the latter decided that two of the 14 villages -- Niqui and Farabanding -- would not have to move this year. If their new houses were finished and the family wanted to relocate, the project was to move them for the 1986 season. Otherwise they would remain in their old village for the 1986 season and cultivate there, being moved afterwards. Preliminary discussion with residents of Niqui and Farabanding suggest that in both villages, some families will indeed move this year, but the majority will wait until 1987.

This policy change reduces somewhat the number of people to be moved by June 1986 and it will slightly increase, by the same amount, the number to be moved in June 1987. Some additional circumstances will also increase somewhat the number of relocations next year.

The other major reason that people have deferred their planned 1986 move is the splitting or segmentation that has occurred in at least 3 villages. In Soukoutali, about 5 families settled in Sonfara (an existing downstream village); the project has no responsibility for these people who have built their own housing. In Konkorma, where people wanted to remain upstream, no water could be found in a suitable site, so a new site was chosen downstream. While the majority of families moved to this site, 9 families refused. These latter moved to relatives in Tondidji and they will relocate with the regular inhabitants of Tondidji next year, thus adding slightly to the numbers for next year's move. Finally, the largest split was at Kenieba where a group wanted to move upstream to a place called Kerouane. Since the FRM refused to build two separate sites for one village, this faction took responsibility for building its own houses, etc. However, they chose a new site that will be inundated in 1987, and will be forced to move again next year. At present, the GRM denies any responsibility for these people, but it is not impos-

sible that an accommodation will be reached next season and they will receive some services.

Because of all these different special cases, it is not possible to give an exact figure for the number of people who have moved this year and therefore to state precisely how many need to be moved next year. The original plan was to move about half each year, but in fact the 14 priority villages contained 59% of the censused population (4795 of 8104), and 61% of the cases *d'habitation* (2308 of 3772). Despite the fact that some who were to move this year won't move until next, there should still be only about 50% of the population to take care of in 1987.

The remainder of this report discusses the major socio-economic issues among the villages in the resettlement project during the end of June 1986, as the first wave finished the moving process. These issues are of both short- and long-term. Short-term issues are those which require an immediate solution. Long-term issues are those which may cause potential problems for the population later on during the project, and will need to be watched closely by the project monitoring team. However they do not require immediate decisions or action. Each of these sets of issues is discussed in a separate section below.

In order to understand these issues, it is necessary to understand the data on which the concerns are based. Before exploring the problems directly, a short section on methodology will discuss what data were used and how collection and tabulation were done.

Methodology

The data discussed below come from two major sources: field interviews and indicator questionnaires collected regularly by the SSS in Manantali.

Field Interviews

A series of rapid rural reconnaissance type field interviews were done in Manantali and Selingue by a team composed of Thayer Scudder, Charles Howe, Curt Grimm and Dolores Koenig, with interpreters to assist in translation from Bambara/Malinke into French. Many of these interviews were primarily directed by Scudder who drew on his 30 years of resettlement experience to ask questions in comparative perspective.

After the departure of Scudder and Howe for Senegal, Koenig collected additional information from some village visits, the village based animateurs, and the SSS staff, and from Institute for Development Anthropology field research assistant Grimm, all of whom have a wealth of information gained from living with the villagers over the past year or so. Reports which document some of the major milestones of project implementation were also collected.

Indicators

Since late April 1986, the animateurs have been collecting quality of life indicators among people chosen from a sample of 12 villages. Each animateur is responsible for a primary village where the indicators are collected each month; this is invariably the village in which he lives. In addition, each animateur has a secondary village where he interviews inhabitants every two months.

There are two basic sets of questionnaires, one administered on a village level and the other on a household level. The former questionnaire is administered in each of the sample villages. A sample of five households, totalling 60, was chosen in each village for the household level questionnaire.

The initial schedule was followed with some variability. While some animateurs scrupulously adhered to the planned interview schedule and completed three primary village and one secondary village interviews by the end of June, others were less exigent about following their schedules. Since the animateurs also have many social service tasks to do (such as organizing the actual move of the people), it is understandable that some who were responsible for many moving villages had problems following the schedule appropriately. However, the importance of collecting these indicators reliably on a regular basis was again stressed, and the supervisors have promised to encourage the animateurs in these tasks.

Characteristics of the Sample

As noted above, the sample contains 12 villages, 6 interviewed every month, and 6 interviewed every two months. The villages were divided among those moving this year and in 1987, among those moving upstream (a minority) and those moving downstream, and among those moving onto the left bank (also a minority) and those moving to the right bank. The villages are the following:

Moving 1986

- Kenieba-Bafing (from right bank to right bank downstream; original population 602)
- Keniekenieko (from right bank to right bank downstream; population unknown)
- Konkorma (from right bank to right bank downstream; originally to go upstream, but no sites found there; population 293)
- Firia (from right bank to right bank upstream; population unknown)
- Bamafele (from left bank to right bank downstream; population 555)
- Kouroukondi (from left bank to left bank downstream; population 221)

Moving 1986 and 1987 (above 167 meters and village unfinished)

Nigui (from right bank to right bank downstream; population 308)

Moving 1987

Tondidji (from right bank to undetermined site; hope to move upstream, but must find water; population 417)

Badioke (from left bank to right bank downstream; population 311)

Dugoudinko (from left bank to right bank downstream; population 284; moves from far south to far north)

Bantandioke (from left bank to right bank downstream; population 158, including hamlet)

Marena (from left bank to left bank downstream; population 462)

Each village was stratified according to family size into large (25 or more individuals), medium (9 to 24) and small (1 to 8) families. One family was randomly chosen from the large category and two each from the medium and small categories.

The Preliminary Analysis: Its Limitations

The following analysis concerns primarily the first two months of indicators, and provides basic statistical portraits of the population of the Bafing. These initial results should be considered tentative, since the animateurs were not yet experienced in using questionnaires. In addition, there was no formal pre-test of the forms, and a few errors became apparent in their use during the initial months (especially the lack of correspondence between the weight/height tables used by the animateurs to measure children and the form for recording the information). These errors will be corrected in subsequent runs of the questionnaire forms, and as the animateurs themselves become more experienced in their administration there should be an improvement in the quality of the received information. To help resolve existing problems, there was a meeting with the TDC supervisors and the animateurs where the errors were discussed in detail. The TDC supervisors will themselves hold meetings with each animateur to discuss individual errors more fully.

These technical problems notwithstanding, it is worthwhile to analyze the state of the population after the first year's resettlement activities. In the case of villages resettling in 1986, this will be their only statistical portrait before their move. It is important, however, to realize that even these baseline data cannot show what the area was like before dam construction came to the valley. The villagers have been clearly affected by the dam building boom as well as by their own preparations for their imminent departure to the new villages. To have had a better look at what life was like before the resettlement, and how it looked over the different seasons, it would have been necessary to begin to collect these indicators at least a full year before the move.

It should also be noted that the analysis has been kept relatively simple, because it was done totally by hand. The forms themselves must stay in Manantali, while the computers remain in Bamako. The data have therefore not been entered into computer files and it would be unproductive for the data management expert which the Institute for Development Anthropology hopes to provide to the PRM to arrive in the field until the computers are installed. Therefore no complex comparisons (such as between villages of different sizes; among large, medium, and small families) could yet be carried out and the analysis is restricted to that which can be done by hand calculator. Given these restrictions, it is nevertheless worthwhile to look at the current state of the population.

Because the sample chosen was not random, it is not possible at present to multiply its characteristics by some particular number to arrive at an estimate for the total population (e.g., to calculate a birth rate for the total population). To do this accurately requires waiting until both the sample and the census are on the computer and it is clear what proportion each stratum contributes to the population as a whole. In several cases where calculations such as birth rate for the population are attempted, the resultant figures are tentative indicative estimates only.

The fact that data collection had not started before the population had already begun preparations for the move implies further problems. It is impossible to determine whether the differences between the villages moving this year and those moving next year are due to the move or whether they relate to some other factors. Those moving this year are closer to the dam, and therefore closer to the economic boom it has generated. Even before they moved, they were better able to take advantage of new opportunities. This becomes important because, as will be seen below, in a number of characteristics there are some striking differences between the villages which are moving this year and those which will not relocate until 1987.

Once this material is computerized, it should be possible to divide the indicator results by several different types of controls. This will help indicate which factors seem to be more important in the differences found among villages (effects of the move *per se*, as against village size or accessibility to Manantali itself). However, it is difficult to control for many factors when doing hand tabulations. As it was decided that one of the major control factors of interest at the end of the first campaign would be whether or not the village was actually to move this year, this is the only control variable used in the following discussion.

Short Term Issues

There are several immediate socio-economic issues that will have to be faced by the PRM over the next several months, including: (1) incentives to farming in the region; (2) health and

nutrition problems; (3) the questions of alternatives to this year's pattern of house construction; and (4) how to encourage fishing among the local population.

(1) Incentives to Farming

Although the people seem accepting of their move, a major indication of the psychological stress usually associated with involuntary relocation is seen in the reluctance of many to begin cultivating their new fields. A variety of reasons are expressed by relocatees to explain their disinclination to farm. Some claim that the new fields host a weed that resists cultivation and requires inordinate labor to eliminate it. (Curiously, they also note that the weed supposedly indicates particularly good soil, revealing some ambivalence about its presence). Others assert that they are unable to sleep at night because there are neither doors nor windows on their partially constructed cases, and they are therefore unable to work hard during the day. A further indication of psychological stress are the rumors that the first one to cultivate will have serious problems or die.

The shortage of adequate labor is a serious matter. Older men who manage communal fields need the labor of their sons which traditionally they had by right. Yet this year many young village men have been involved in wage labor on various resettlement activities and are reluctant to return to work for their elders for little or no cash remuneration. Farmers also used to hire labor, paying them from 200-500 FCFA/day plus lunch. Today the cost of hired labor has increased, and to compete with wages from resettlement activities, farmers need to pay 1000 FCFA/day. Thus, not only is labor now in shorter supply than it was previously, it is also more costly. The farmers must ask themselves: is a day's labor to cultivate a sorghum field for subsistence worth 1000 FCFA?

The question of wage earning in the Manantali region and its impacts will be considered again in the section on long-term issues. But the short-term issue is how to get people to work the new fields this year. First, it should be noted that many project activities will close down or be severely curtailed in the rainy season (such as brick making, house construction, etc.). Thus many of the young men will no longer have alternative wage earning activities. They may still prefer to spend the money they earned previously rather than farm, but there will be far fewer competing activities. That lack of alternative remunerative arenas may drive some of the young men to return to farming.

The other issue is the kinds of incentives that would encourage farming. Since the people themselves complained that missing doors and windows kept them from farming, and since their installation is not seriously impeded by the rainy season, Scudder suggested that contractors install doors and windows first in the houses of those people that have begun to cultivate. The SSS found this a useful suggestion and intends to implement it.

Another suggestion that someone raised to encourage farming is to make receipt of WFF food conditional on cultivation. Although technically feasible, the suggestion was rejected as lacking in compassion. Certain people are not working because of real health problems and denial of food aid would clearly exacerbate the problem. Furthermore, the WFP's own self-image as a humanitarian program to help people in need would be challenged by such conditionality even if it were thought to be in the population's own long term best interest. It was decided, rather, that priority in WFP food deliveries should remain where need is greatest.

Since there is really no way to force people to begin farming, the animateurs must continue their slow process of "sensibilisation," letting people know what the FRM will and will not do. Rumors abound in the region that the FRM will feed the people and will pay their taxes. The animateurs are constantly stressing that this is not true and they must continue to do so. In addition, as people begin farming (as some, especially women, are), they should be positively encouraged by the animateurs.

The FRM raised the possibility of providing short cycle variety seed to farmers who get a late start. The mechanisms for getting large amounts of seed to Manantali are unclear, since the local agricultural extension agency, ODIPAC, is short on funding and, according to local farmers, unable to make its normal input deliveries. However, if at all possible, seeds for short cycle food grains should be made available those farmers who wish them. Even if it is too late to do anything this year, arrangements should be made for next season, when one can anticipate similar problems for farmers moving in 1987.

(2) Health Problems

In addition to inducing psychological stress, resettlement is known to increase somatic stress on the relocatees. In part this is related to psychological stress and in part to often impaired nutrition, but it is also a function of new infections as people move from one environment to another and come into contact with new people and disease vectors and germs for which they have little resistance. Both morbidity and mortality normally increase during the initial years of an involuntary relocation.

In anticipation of a worsened morbidity, a series of health indicators is being collected by the animateurs. This survey of health indicators has only just begun, and reliable data on prelocation years are unavailable. It is therefore premature to make any firm statements about changes induced by relocation. It is, however, feasible to make cross-sectional comparisons among the different villages.

The major health indicator studied, weight-for-height in a sample of children between the heights of 65 and 115 cm, showed

distinct nutritional-status differences in various sample villages (2). Table 2 shows overall results by village for proportions of children at certain weight-for-heights. As can be seen, overall some 43% of children are at 100% or more of the norm for their height. Some 26% overall are below 90% of the norm, and some 6% are below 80%. However, there are some villages in which the figures are better than average and some in which they are notably worse.

In particular, the situation at Firia was quite bad in April, but got somewhat better in May and continued to get even better in June. This coincided with the movement of this village to its new site. Firia was the only village which positively looked forward to its move, because the water availability was grossly inadequate at the old site. The data suggest that the greater availability of water may account in part for the nutritional betterment of the children of Firia, and for the people of that village at least this is a clear benefit of the relocation.

The other two villages with bad nutritional statuses were Marena and Dugoudinko, neither of which were slated to be moved in 1986. Interestingly, when these health data are compared with data on water availability, one of these villages, Marena also showed water problems. On the other hand, the water situation at Dugoudinko is not nearly as bad.

Although the trend is not completely clear, it is tempting to conclude that poor health/nutritional status of children is due not simply to lack of food, but also to lack of potable water. If this is true, we should expect to see nutritional status improve as the new villages are supposed to enjoy improved water supplies. However, if pumps break down or there are additional water problems in the new villages, these may negatively affect children's health.

Even if the health problems in the village are due primarily to water rather than to food problems, FRM can still respond with a food distribution sensitive to health issues. Villages with poor nutritional profiles should be first to get their food distributed each month. The SSS can track nutritional levels month by month (especially when the computer gets to Manantali), and adjust the distribution pattern to assure priority to the most needy villages. Since only some of the villages are actually surveyed, it is important to explore the proposed solution in other villages that may have the same problems.

In the case of Firia, it is important not only to distribute food in a priority way there but also to stock the food warehouse in the village in a priority way, because the road to Firia is likely to be cut off soon by flooding of the Keniekenieko stream. Of the three delivery areas (Firia, the left bank downstream, and the downstream right bank), Firia should be the first priority for food delivery. The left bank should be second priority with the right bank last. This urgent level of priority probably need concern Firia only, since there are no other villages in a

similar situation, i.e., being so far inland and also moving upstream.

Further, because young children, especially those being weaned, are most nutritionally at risk, it would be useful if the community development workers could provide some village level training for women in the preparation of the WFP food into supplemental children's foods. This would be a good task for the animatrice. If she herself does not have information on these foods, it may be available from community development organizations in Bamako or from Peace Corps. It is always questionable whether mothers have the time or motivation to prepare these supplemental foods for their children, yet this is a period where people have had to modify cooking habits to some extent to use the new foods being distributed; it would therefore be a useful time to do some small informal demonstrations on supplemental food preparation.

Table 2 also shows monthly variation in nutrition. As yet no clear pattern appears. In terms of actual food available, one would expect it to be lowest in August, before the fonio (the first grain harvested) ripens. Water availability should begin to improve before that when the rains begin to come. One might expect that overall nutritional status will diminish through August and begin to improve in September. Therefore it is extremely important to get food deliveries done in a timely fashion, since food stocks are at their lowest during the rainy season. This is also the period when transportation is most difficult.

The data were looked at impressionistically to see if there were any health status differences by sex. This perusal revealed that both boys and girls appear in the poor nutritional category, and there was no clear cut correlation with gender. However, once the data are computerized, sex-related differences may be discovered.

Morbidity and mortality will be reflected not only in children's health, but also in that of adults. To this end, the household level part of the survey collected information on illnesses, and on work time lost because of sickness and disease.

Table 3 shows the very large number of illnesses from which these people claim to suffer. We had made a previous code of approximately eight ailments which were thought to be most common. However, the amateurs came up with 31 separate disease categories. Virtually all of these disease categories refer to symptoms (i.e., stomach ache, impaired vision, diarrhea, constipation) rather than to discrete diseases. Only a few ailments mentioned, like malaria and wounds, are diseases rather than their symptoms.

A few complaints, such as stomach ache, diarrhea, and malaria, were frequently mentioned. Malaria was obviously common, although perhaps somewhat less so than might be expected. Malaria is most troublesome during the rainy season when mosquitoes

abound.

As can be seen from the chart, those who moved showed fewer diseases than those who did not. However the incidence of disease is somewhat suspect, because of 83 accounts of sick people, some 27 came from one village (and one interviewer). Even though this village had been interviewed 3 times, I would suggest that either this village, or this interviewer, is extremely sensitive to thinking about illness. Some short focused fieldwork ought to be done here to determine more precisely what is going on. It is clear that this part of the indicator questionnaires will need some further investigation into what diseases people are likely to mention if morbidity is effectively to be tracked through the study. Comparison with the results of the epidemiology study would also be useful to see if similar diseases were mentioned.

Table 4 shows the breakdown of diseases by age and sex. As would be expected, diseases were most common among the newborn to age 5 group. However, the 16 to 30 age group also noted many diseases, with women showing greater morbidity among movers and men showing greater morbidity among non-movers. Older people, perhaps surprisingly, showed few complaints. It is unclear whether people have had to be in basically good health to survive as long as they have, or whether they have grown to live with their complaints. I recommend that the health service infrastructure be made available to the people as soon as possible.

People have little money to pay the full costs of health treatment for themselves or their children. These costs include a good deal more than simply medications and the doctor's fee. In the case of a sick child, for example, the mother must accompany the child to Manantali, and then spend several days there while the child is treated. Thus she must pay for food and lodging in addition to the actual treatment, and loses the time she might be spending on activities in the village. This is especially difficult during the busy agricultural season, yet we have learned to anticipate that morbidity is highest during the rains when food supplies are lowest and demands on labor and energy are high. In many cases, therefore, diseases will be left untreated. However, the readiness with which the people ask the animateurs for medications indicates a willingness to use Western medicine if it is available.

This disease information should provide a baseline for the monitoring of increased morbidity over the next several years. The vaccination program carried out under the auspices of the project should prevent or limit epidemic outbreaks, such as measles.

(3) Alternative strategies for the Second Year of the Move

A further issue of immediate importance is the question of whether the strategies used this year (e.g., paying villagers to clear their village sites; having houses built by contractors who

hire their own work force, including villagers) should be followed for the second wave to move next year, or whether those strategies should change.

The question becomes particularly important in light of the tardiness of this year's work, and in light of the fact that this year's target of completely moving half the population has not really been achieved. In particular, only the houses planned for the new villages have been built, and as noted earlier, not even all of those. Some 350 kitchens and 1500 granaries which were owned by the first wave of movers had not, by the time of my field work, been built or completed. Thus, the remaining structures for the 1986 season will need to be completed in addition to those planned for 1987. If the project is to ensure the resettlement of all reservoir inhabitants by June 1987, greater operating efficiencies will have to take place.

There seem to be two basic issues involved in this decision: 1) speed of work and ability to produce on time; and 2) choice and participation of villagers in the reconstruction of their homes. Based on his extensive resettlement experience, Scudder notes that resettlement is most successful where people not only choose the style and siting of their new housing, but also participate substantially in the construction. However this option was seen to call for more time than was available, and, in Manantali, where time was short, the PRM decided to use contractors to do village reconstruction in the hopes of accelerating the task. However, with the demonstrated inability to meet 1986 deadlines, it must be asked whether this strategy ought to be continued during the 1987 campaign.

If the inability to meet deadlines was due primarily to contractor incompetence, then the strategy should definitely be changed. However, this is not the case. Although some contractors were not well organized, and the brick makers did have labor problems, other contractors were very good and eventually the brick makers got organized.

The origins of the problem seem to reside in the delayed signing of contracts by the GRM and USAID. Work did not begin until late January-early February 1986, after the formalities of agreement were completed. Then it took some time for work to get underway. In early April, bricks were being produced at a rate of only 12,000 per day, but by mid-May a daily output of 38,000 was achieved. PRM now knows which contractors produce better quality work and are likely to adhere to schedules; these contractors could be favored for the 1987 construction campaign.

In principle, the 1987 campaign should proceed without many hitches. All the major contracts have been signed, and clearing and construction work can begin immediately at the end of the current rainy season (by October-November 1986) rather than being delayed until February. This will almost double the construction time available. Although the contractors will still need some mobilization time to get laborers and material into the field

again, they are now experienced and should be able to do it more quickly.

And there are indeed incentives for them to begin and work efficiently. As they are paid on a piece work basis (for each brick or house, etc., formally received by the PRM), they only get paid as they finish work. Despite the problems and extra costs of working out in remote areas of Manantali, contractors are attractively compensated and the majority of them should be ready to recommence work in late 1986.

It appears, thus, that the likelihood of contractors meeting their 1987 construction targets is substantially greater than in 1986. However, if there is more time for the contractors to do their work, there is also more time for the local population to take over some of it. In the interests of greater village autonomy and participation, should this be done?

Available time remains a consideration in this decision. The time constraint concerns not only that needed for the villagers to build, but also that necessary to gain acceptance of the new strategy. In this first year of the project, villagers have grown used to that strategy of implementation. Changes in the second year should only be done with the accord of the villagers. This would require meetings with the resettlement committees and other members of the population in all villages and will take time that might otherwise be put directly into land clearing and building. While the concept of increased local participation is a good one, as the degree of choice increases, decisions might take longer to be made, potentially slowing down implementation. The costs and benefits in time gained and lost must be seriously considered. Changing the strategy may cause some loss in construction time.

The other issue is who would do the construction. At present, villagers are responsible for rebuilding a portion of their structures (e.g., chicken coops, livestock enclosures, hangars of various types) with building materials supplied by the project. They also participate in house construction as employees of the contractors. In particular, many did not like the quality of roofs made by the contractors and insisted on making their own and then they were paid by the contractor. At least a few work for brick making and building contractors on other tasks. Could villagers assume greater responsibility, bypassing the contractors?

This may well cause several problems - problems which would probably be resolved, but would also slow down work while the resolution was taking place. The first of these is labor availability. For example, if villagers were given responsibility to build their own houses, the indemnity for the houses would likely be given to the head of the household, instead of the contractor. The head of household would then need to find labor; presumably he would try first among his own family. Already in the question of farming, it has been seen that young men prefer to work for

strangers for cash rather than for their elders for little or nothing. There is no reason to believe however that the head of household would be willing to pay market rate wages to members of his household. Normally, families can work through these conflicts and come to a resolution; there is no reason to believe that that would not happen here. The point is rather that the resolution of this kind of conflict will take time; this is a problem that would not likely be faced if the present building strategy is continued.

Some families would not be able to mobilize the labor necessary for house construction and the project would need to provide replacement structures for them. This case by case consideration of whether to build housing or not would of course increase PRM's management load.

Wholesale transfer of house construction from building contractors to villagers would also mean less work and income for the former, eroding good relationships between them and the project. This has already occurred with the roads component. And poor relations with contractors are likely to manifest themselves in further delays.

Thus, despite problems with contractors meeting 1986 deadlines, increased efficiency in 1987 is not likely to be achieved by turning responsibility for house and kitchen construction over to the villagers. It would seem best to continue the policy of contracting the building of these two structures.

There is however a third structure, granaries, about which it may be useful to entertain an alternative construction strategy. If people wish, it may well be a good idea to vest them with responsibility for granary construction, paying them an indemnity that otherwise would go to the contractors. As granary constructions constitutes a relatively small part of the contractors' earnings (since the price paid for construction is less than that for a house), contractors might be more agreeable to turning this over to the villagers. In addition, the timing constraints on granaries are significantly different from those on houses or kitchens.

While people need houses and kitchens immediately after they move (by May or June), the major need for granaries begins in December or January, after the harvest. Thus villagers can wait several months longer to build them, as long as they have enough sacks and dry storage space to store the grain that they move with them. In the meantime, the competition for village labor will be less. Land clearing and house construction will be essentially finished in these villages the preceding season, and most of the major agricultural tasks are also completed before granary construction begins. Elders should be able to convince the younger people to work for them more easily when other village based income earning opportunities disappear.

Culturally, people are likely to be interested in building

their own granaries. A major stock of wealth of a farmer is in stored grains. In a normal situation, a farmer would not let a stranger know how many granaries he has, because he would not want his true economic status to be known. The project was allowed to census granaries only because of the need for reconstruction. However if people were to rebuild their own granaries, they would be able to recapture a sense of privacy about how many they had and where they were placed.

If people are compensated for granary construction, Scudder argues that indemnities for these structures should be given not in cash but in kind. A part of the indemnity could be in building materials, and the remainder in food grains. Given that there is some question of whether people will have enough to eat next year (if they don't start cultivating), this would also help solve the food crisis. Also, even when they do start cultivating, they are likely initially to have somewhat smaller fields, and thus to have somewhat less food to store. The building of replacement granaries could be spread over two years, rather than in only one. A change in strategy for granary construction should be seriously considered. If adopted, however, the project should continue to build granaries for those who are very poor or sick or otherwise unable to mobilize the requisite labor.

(4) Encouragement of Fishing

Scudder notes that one of the major new income earning opportunities that occurs in conjunction with dam construction is the growth of fishing opportunities for those around the reservoir. Within the Malian context, this opportunity would normally be seized by immigrant fisherman (the Bozo) who will slowly colonize the shores of this lake, as they have already done at Selingue. However, the resettled population will also be able to take advantage of these opportunities if they are given some training and the opportunities to get necessary equipment.

This is an option that should be pursued for those villages that will be resettling above or directly below the dam. Among villages moving this year, this includes Firia (upstream) and Dialakoto (directly below the dam). Next year there should be several more villages settling around the reservoir. This opportunity should also be offered to some of the extreme upstream villages which will not actually be resettled, such as Solo and Sitafeto.

The actual mechanisms for doing this are not clear, but should be looked into by the PRM. If there are existing Malian organizations which might be active in this area (e.g., Operation Peche), they should be contacted. Peace Corps might also be contacted about the possibility of providing fisheries volunteers. In any case, fishing strategies should be oriented around dried and smoked fish, because of the difficulties of transport out of the region. The Selingue reservoir provides a lot of fresh fish because of its proximity to Bamako, but this would not be an option in Manantal.

There is some urgency in looking at this issue, because if the local population is to become involved in fishing, they will need to do so before migrant fishermen are firmly established in the region and monopolize all opportunities. Therefore, the FRM should look into this as soon as possible.

(5) Short Term Issues: Conclusions and Recommendations

The following issues are the most pressing at the end of the 1986 campaign.

a. Encouraging the beginning of agriculture in the 1986 agricultural season. A variety of simple incentives (e.g., the provision of doors and windows, material for chicken coops) ought to be pursued to reward farmers for beginning to farm. Animaleurs should continue their campaign to impress on the farmers the necessity to begin to produce again.

FRM should look into the possibility of making available short cycle grain seeds to farmers; if it is too late for this year, they should look into this again for 1987. They should look at possibilities for providing excess emergency food aid if people continue to refuse to cultivate, e.g., as an indemnity for granaries (see below). The likely outcome however is that most people will do some farming this year, although at levels below that of the previous year.

The FRM should not try to push contractors to continue to work in this rainy season when they want to stop. Although this retards construction somewhat, it frees up the labor of young men for farming.

b. Health Issues. Health indicators should be used on a regular basis to target villages where children show poor nutritional status. These sample villages (and equivalent non-sample villages) should be given first priority in food distribution. Since water seems to be at least as crucial as food in nutritional status, the FRM should make sure well pumps remain working, and begin to make plans for training villagers to take over maintenance.

There is as yet no clear evidence of increased adult morbidity or mortality due to the move, but these indicators should be carefully monitored over the next few years.

c. Changing Construction Strategies for 1987. For the reasons stated above, it is probably not advisable to modify markedly the basic building strategy for houses and kitchens. However, more of the construction should be assigned to contractors who proved to be efficient in 1986, and less or none to those whose work was inadequate.

On the other hand, serious consideration should be given to handing over at least some of the responsibility for the con-

struction of granaries to villagers. A part of the cost of these could be given to the villagers as additional food aid.

d. Encouragement of Fishing. The FRM should look into mechanisms by which the local population near the reservoir can be encouraged to begin fishing before this new niche is totally exploited by migrant professionals.

Long-Term Issues

In addition to short-term issues demanding immediate action, a number of issues with longer term implications have become clear at the end of this first year of the move. No immediate decisions need to be made for these, but they are areas of concern which should be followed by the monitoring unit, especially through the various studies being done by ISH and IDA Field Research Assistant Curt Grimm.

Economic Changes

Great economic changes have come to Manantali in the wake of the economic boom engendered by dam construction and by the employment generated in land clearing and new village construction associated with resettlement.

A small number of villagers found work directly with ECBM, the consortium building the dam. Others responded to new marketing opportunities opened by the population explosion of Manantali town, which had grown from a tiny village to approximately 15,000 in 1985/86. The market imports cloth and manufactured items, while being the locus for sale of a variety of local goods, including game, charcoal, and gathered foods (e.g., leaves), and agricultural products such as grain and groundnuts. There has been no systematic study of the market or of employment generated directly and indirectly from dam construction, and our observations derive from very brief examinations. We do not know, for example, how many resettlement villagers are involved.

The resettlement project itself directly employed villagers for land clearing, and contractors hired some villagers for house construction and brick making. In these latter activities, the exact number of local employees is not known, and the numbers vary widely among the several enterprises involved. In brick making, for example, there were relatively few locals; explaining their scarcity in this field, both villagers and others said they were simply not strong enough. On the other hand, villagers constituted the bulk of the labor in roof making because, as noted earlier, they were dissatisfied with the quality of the roofs made by the contractors using outside labor.

We have a good idea of how much money was injected into the local economy by land clearing where the project itself employed villagers from December 1985 through June 1986, when the clearing was completed (Table 5). Overall, the project paid out a little less than 48.5 million FCFA (or about \$138,000) in the 7 sample

villages that were moving this year. Approximately 299 people were employed, about 12% of the total population of these villages. If a person worked continually from December to June, he (all workers except a very few were men) could earn approximately 155,000 FCFA.

In Manantali, this is a good deal of money as can be shown in comparison with earnings from groundnut production, the major presettlement marketed crop. One of the biggest farmers in the region, known for his commercial orientation, is supposed to have sold 148 sacks of groundnuts at 3000 FCFA/sack, a total of 444,000 FCFA gross. His net was, of course, lower for he had hired labor and paid for fertilizer. On the indicator form, the highest groundnut sale was 21 sacks at 3500 FCFA/sack, a total of 73,500 FCFA for a late season sale. Within this context, money earned through project participation is important.

It is not entirely clear who controls this money or what is being done with it. Most of it is earned by younger men, who may or may not have to turn some over to the head of the household. A relatively young head of household of course gets to keep his own earnings. As noted earlier, one of the problems in getting cultivation started is that the young men who would normally work on the fields have been busy earning cash from PRM and dam activities. The use and control of money coming into the area needs to be more intensively studied by Grimm and ISH.

The long-term implications of greater cash availability are unclear and the villagers themselves are only beginning to perceive problems accompanying the rapid influx of extra cash. They are struck with both advantages and disadvantages. It is of course convenient to have money for things you must or want to do: pay taxes, buy food and consumer goods, pay bridewealth for marriages. The converse however is that others increase their demands on a person with cash. In addition, older men complain that they no longer have a sure claim on the labor of the younger men, who now prefer to earn cash more independently by working on project activities.

At this time, people complained about taxes, and were concerned with finding enough money to pay them (especially in April and May). They said they had therefore to sell their groundnuts or find paid employment with the project. At the same time, the administration is aware of the influx of cash in the region and is being more exigent about collecting taxes. Traditionally, people from this region often did not pay taxes until the very end of the year or the beginning of the next year, e.g., they would pay 1985 taxes in December 1985 or January 1986, the payment timed probably to coincide with the completion of the groundnut harvest. When the administration learned that people were earning money on project activities, they collected back taxes, and, it seems, have already collected 1986 taxes. Officials timed their visits to the villages right after payday to make sure that people still had their money.

It is to be expected that one of the longer term effects of the dam boom will be increased monetarization and commercialization of the region's economy. Even though the economic center of Manantali will likely shrink as dam construction ends, the region has been opened up economically. This offers economic options different from those which existed prior to resettlement, which is significant as the earlier principal cash-earning activity has fallen apart.

Before the dam, the main income earning activity in the region was growing groundnuts as a cash crop. The area was then and is still now in the territory of the Office de Developpement Integre des Productions Arachidières et Cerealiers (ODIPAC). A number of years ago when the groundnut market was good, ODIPAC had a working extension service which offered fertilizers, farm machinery and other inputs on credit, and came to buy groundnuts in a regular fashion at a fixed government price. Although the price was not terribly high, the system offered a relatively stable degree of income earning to the population in much of the ODIPAC area, including the Manantali region.

The system fell apart when the world groundnut market collapsed in the early 1980's, soon before dam construction and the regional boom began in earnest. ODIPAC is now trying to regain World Bank funding and re-organize itself in a more fruitful way, but this has not yet occurred. This year, farmers mentioned that the income earning activities of the project came just in time to allow them to pay their taxes. This was fortunate, they said, because groundnut earnings alone were insufficient.

Unless there are significant changes in the world groundnut market, or unless ODIPAC shows some truly inspired changes in taking other directions, peasants will not be able to re-establish (in terms of economic return) their old agricultural production system in their new sites, nor will they be able to rely on ODIPAC to show them a new production system. Purely coincidentally, the resettlement project is occurring when other factors have threatened region's traditional income earning activities. It is unclear what will happen as the resettlement project finishes and people try to find a place in this new economic system. However, the preliminary results of the first year suggest some possible coping mechanisms, which should be carefully monitored during the project's implementation phase.

(1) Availability of Funds: Purchases and Sales

The greater cash earned by villages may be used a variety of different ways. More time spent in wage earning may imply less time spent in agriculture, hunting, gathering, and craft activities, forcing people to spend some or all of their money on basic necessities they no longer produce. In essence, the standard of living may remain the same or actually decrease as life becomes more monetized. On the other hand, the standard of living may increase if the extra cash is used on more discretionary spending to increase the quality of diet, or to invest more in livestock

or consumer goods.

The household level questions on income and expenditures monitor this issue. Given the difficulties of a regular income/expenditure study (this is normally a full time study in itself), it was decided simply to ask about sales and purchases considered important. There is virtually no guidance in the question, so what is "important" depends on the respondent's own assessment. In fact, two villages may sell the same thing, with one regarding it as important and the other not. These questions allow us to identify major trends rather than providing detailed household accounting.

Table 6, which looks at the purchases and sales of movers and non-movers, shows distinctly different patterns between them. Non-movers showed many more significant sales than did movers. Non-movers sold large quantities of groundnuts, some tobacco and livestock. Movers sold only livestock, and did not mention sales of either groundnuts or tobacco. (We know that they did sell some groundnuts because trucks from Kita were observed buying the crop in at least one of the moving villages in the sample before we left.) Clearly, traditional sales of agricultural produce have declined in importance in these villages this year.

Buying patterns also differ between movers and non-movers. The former purchased a good deal more millet than did the latter, and non-movers purchased more rice. Overall the average mover family spent 4778 FCFA/month on cereal grains while the average non-mover family spent only 3540 FCFA. In addition, movers will begin to get World Food Program allocations as of June 1 although actual distribution had not yet begun as of early July (due to some now resolved problems between PAM and PRM). Thus, it seems that at least some of the extra cash earned may be going to purchase basic foods like millet.

On the other hand, the mover families also bought livestock. While many non-mover families sold livestock, none noted a livestock purchase. Consumer goods such as mobylettes and bicycles were bought in both sets of villages, and much more was spent on radios and cassette recorders in the non-moving villages. The ability to buy livestock and consumer goods suggests that major food needs have been satisfied.

Extended conversations with villagers suggest that there may be a bi-modal distribution among the movers. Some are successfully using the salaried work to increase the total range of resources available to the family (and converting some of the cash into more women, through marriages, and more livestock). Others have found the move to cause economic difficulties. Resettled villagers were seen walking cattle into Manantali to sell, apparently because they had to buy grain. One farmer told us that he had bought a plow for his new farm. The plow looked brand new. The farmer told us that the plow would cost 45000 FCFA in Mahina, but that he was able to buy it for only 30000 FCFA. It turned out he had bought it from a fellow villager, who

presumably needed money. Comparative experience with resettlement schemes shows that households with good resources of capital and labor are able to exploit the misfortunes of their less affluent neighbors. We do not yet have a profound enough understanding of the Bafing region to know clearly what circumstances cause socio-economic differentiation among villagers.

A few anecdotes and a few purchases and expenditures do not constitute a sure trend. But the issue of differentiation merits close monitoring. We need to know precisely what circumstances allow people to rebuild their economic base and take advantage of new opportunities. Then we need to look for some ways to create opportunities for those who have been closed off from them.

(2) Entrepreneurship

Some new economic opportunities are offered by the project, but people also make their own responses to changes created by the economic boom through engaging in a variety of entrepreneurial activities. One indicator of this is the extent to which people have undertaken various non-agricultural activities on a commercial basis (3). The movers showed distinctly more commercialized non-agricultural activities (Table 7) than did non-movers; these included artisanal production for sale, as well as wage labor and petty trade. Even if the wage labor is subtracted, the movers showed distinctly more commercial non-agricultural activity.

On the other hand, the non-movers were much more likely to engage in "traditional" non-monetary non-agricultural activities, such as the preparation of shea butter, and making cotton and cords. Both groups showed a certain amount of combined activity where an activity was done both to provide goods for the household, with a surplus being sold, but again movers were more likely to combine an activity for home consumption and sale.

It is impossible to know to what extent the increased activity among the movers is due to the move as such, and to what extent it is due to the fact that these villagers are much closer on the whole to Manantali village, and thus to markets. Among the women who go into the market to sell charcoal for example, many come from the village of Keniekenieko, which is within walking distance of Manantali.

Yet it is clear that some people have not responded to the pull of the Manantali market. One of the issues that should be followed in the various in-depth studies is who can take advantage of these different opportunities, and under what conditions. To what extent can conditions be created to make it possible for more individuals to take advantage of the new market?

This question of what kinds of entrepreneurial activities exist and who takes advantage of them is a major one. There seem currently to be divisions between the more and the less affluent, between older persons and younger, and among persons with differ-

rent degrees of education. The implications of these differences should be explored in greater depth.

Adequate access to the new villages through the construction of decent roads should enhance the relocatees' ability effectively to exploit new opportunities. The days when ODIFAC built roads to facilitate movement of groundnuts are gone. This is of course not the fault of FRM, but FRM is now the only organization capable of facilitating the local population's access to the outside world.

Although it is beyond the funding capability of the project to encourage any development activities which would have to extend over a number of years, the project might be able to pursue those activities which would provide a context to allow the local population to profit better from new opportunities. Although roads require maintenance, they give the people the chance to begin to overcome major problems of isolation and "enclavement."

The long term impact of the dam construction and resettlement on the Manantali region is only beginning to be felt, but it is already clear that simple reconstruction of the pre-resettlement economy is impossible. All of the basic conditions (enclavement, stable groundnut market) have changed. The re-establishment of a viable economy depends on the ability of the project to create a context where a variety of economic opportunities exist for different segments of the population (i.e., for women as well as men, for young as well as old). Assured access through decent roads is one part of creating this context.

(3) Market Price Survey

Another indicator of the economic viability of a village or region is the availability of a variety of consumer goods at reasonable prices. We are interested in price variability both among villages and seasonally. Clearly, seasonal variation can be tracked only as the survey continues over a number of months. However, price variability among villages, and between villages moving this year and in 1987 can also be followed.

Since the villages of the Bafing were isolated until the dam construction began, they were more or less self-sufficient. There were no regular market days in any of them. In many of the villages, however, individuals sell a few goods from their homes. Now that ODIFAC is no longer buying groundnuts, private traders have come to purchase them. Thus, while there is not a great variety of consumer goods sold in any village, there is some buying and selling in virtually all of them. Moreover, the availability of products clearly varies from village to village.

As Table 8 shows, in the larger villages, and in the villages closer to Manantali itself, a wider variety of goods is available than in the more isolated smaller villages. Keniebar-Bafing has the greatest variety of goods available (19 different

products) while Keniekenieko comes in second (with 18). Both these villages are fairly large and are among the villages most open to the outside. Kenieba has several retired civil servants, as well as the regional representative of the sub-section of the UDFM (Union Democratique du Peuple Malien, the country's political party). It has an active group of members working in Bamako who are interested in its development. It is also the largest of the resettlement villages.

Keniekenieko is not quite as large, but has also been open to outside influences. American missionaries lived there for the past 15 years; while they made few conversions, their presence brought benefits such as better health care to the inhabitants. Although the missionaries resettled in Bingassi, with the resettlement project, the SSS of the PRM has had temporary quarters in Keniekenieko, and the people have been relatively quick to respond to new commercial opportunities.

At the other extreme are very small villages, hamlets more appropriately, like Konkorma and Bantandioke where very few goods are sold.

Kola nuts are the only product sold in all villages. Consumer goods such as tobacco, "cubes Maggi/Jumbo", tea, sugar and salt were common, although not as universally available as kola; millet, sorghum, and groundnuts are also found widely.

Table 9 shows the prices of basic commodities sold in the sample villages from April to mid June. There was an initial attempt to show these prices by month, but there was little clear month-to-month variation during this period. Prices might go up in one village at the same time as they fell in another. It seems clear that there needs to be longer term study to see the extent to which prices change seasonally and with resettlement.

There was little price variation across villages, especially in imported goods. I expected to see price levels vary with proximity to Manantali, the more isolated villages paying higher prices. Since many of the movers were working for PRM or the contractors, they were often travelling between new and old villages. In all but one case, this meant going from up to downstream, through the big market of Manantali town. In addition, these villages had more cash available because of these jobs. Thus, one might expect that basic products sold there would be less expensive. This proved not to be the case. Although the resettlement villages clearly had access to a greater variety of products, the prices of such goods as cubes Maggi/Jumbo, tea, sugar and batteries showed little variation.

There was more variation in the price of other products. Millet/sorghum, shelled groundnuts, fonio, some cigarettes, salt, rice, red wine and palm wine all were more expensive in the non-moving villages, while groundnut oil, kola nuts and other cigarettes were more expensive among the movers. The significance of some of these differences is not always clear: why for example

should there be widely varying prices for locally grown fonio? Only in the case of salt is the price difference clearly linked to Manantali access. In the villages close to Manantali, villagers jointly buy bulk salt in Manantali; cost comes to 50 FCFA/kg. Otherwise the price of salt in a village may reach 150 FCFA/kg.

It is also difficult to assess price variations in basic commodities sold in small quantities, such as millet/sorghum, fonio, rice and tobacco, since these products are sold by volume, using various traditional measures. Estimates were made of the extent to which traditional measures approximate weight measures, but I am not convinced that these reflect true differences independent of measurement. The animateurs will need to do some more systematic measurement comparisons if we really wish to follow the prices of these staple products. It would also be useful for the in depth studies to look at sources of some of the more important goods sold in Manantali, and track the path from wholesaler to retailer.

There are no immediate issues raised by these initial market prices. However they will provide a baseline to see how the price and availability of goods changes as the resettlement continues. If access to the villages continues through the existence of decent roads, one would expect to see more goods become available in at least some of the more centrally located villages.

Demographic Trends

It is not only the economic life but also the human life of the region that must continue. To this end, indicators follow the demography of the sample households, including in- and out-migration, births and deaths. In effect, we have this information for the last year, since the question asked was about people who entered or left the concession since the last inquiry. The first time that the interviewers passed they inquired about the preceding year when the original census was done. This pattern was most clear in terms of births, where ages of children up to 1 year were mentioned.

While some demographic patterns seem to be similar across the whole population, others differ between movers and nonmovers. Non-movers showed nearly twice as many births as did the people moving this year, 23 to 12. The major difference was males born to the movers, of which there were only two. This is so odd that the animateurs will need to gather further information. We do not now know whether this pattern shows poor recall on the part of informants, animateur mistakes, or an actual demographic pattern.

A second question on births, supplied by the health team, was asked at the end of the questionnaire. This shows the same number of total births, but with a slightly different distribu-

tion: 14 in the moving villages and 21 in the non-moving villages. The sex of the children born was not queried. It was clear from an initial control of questionnaire that the information on these two separate questions did not match and that supervisors needed to exercise more careful surveillance.

Since these figures are good for a year, a crude birth rate can be calculated. If 35 births were observed during the year among the 60 families and the total sample population is 8104 and contains about 507 families, this gives a crude birth rate of 36/1000 population.

It is not correct to multiply the size directly by the proportion of the sample population, since the sample is a stratified random sample, not a simple random sample. We will have to wait until the data are computerized and the sample properly weighted, to establish the actual birth and death rates. However, the data do suggest a relatively high rate of population increase which may cause future land availability problems if it continues unarrested.

Deaths were also greater in non-moving than in moving villages. Movers showed two deaths, and non-movers showed nine. Again there is no obvious reason for this. In fact, one might expect death rates to increase in the moving villages because of added stress. This does not yet seem to be the case.

Note however the assumption that rates among these different villages were more or less the same before resettlement. This is an inherently untestable hypothesis. Insofar as villages had differential access to medical care, especially to the mission dispensary at Keniekenieko, and had different wealth levels, it is reasonable to assume associated differences in demography.

It is also clear that the process of resettlement has had an impact on village chiefs. Five chiefs have died since the resettlement project began, the last just several weeks ago. But, since the chief is the most senior member of the founding lineage of the village, he is an old man. We do not know what an average mortality pattern of chiefs would look like in a population of this size.

Patterns of in- and out-migration more nearly approximate expected values. The number of young men who chose to "rejoin their family," come for a visit (and not leave again), and come to look for work was much higher in the moving villages than in the villages that were not moving in 1986. This is probably a result of the availability of work in those villages which were moving.

Patterns of marriage and divorce show similar numbers of immigrants due to marriage among the two groups, with more immigrants due to divorce in the group moving and more women moving out due to marriage in the non-moving villages. Supposedly a significant part of the cash earned by the moving villagers was

going into marriages, but this is not reflected by the sample, where the number of women moving into the moving villages because of marriage was not much higher than that in non-moving villages.

The general pattern is that women marry out of their villages and move into that of the husband. The ISH Domestic Economy study promises to look into alliance patterns of the villagers to see if women from a particular village regularly contract marriages with men of specific other villages. This will help us interpret, for example, whether the women leaving because of marriage in the non-moving villages may be moving into some of the other moving villages in the region.

The abundance of divorcees returning in the moving villages is not clearly linked to the move. Since these women are coming from other villages back to the resettlement village, it was stress in their husband's village, not their own natal village, that was more likely instrumental in the divorce.

Finally, no clear pattern of people leaving the non-moving villages to go into the moving ones to look for work was picked up on these initial forms.

Over the resettlement period, the pattern of in- and out-migration should serve as an indicator of the extent to which a viable economic system is re-established. Availability of work and a reasonable standard of living will help keep villagers in the region, but if they are unable to re-establish productive economies, we would expect to see increased out-migration after the construction boom ends.

Women and the Move

The role of women in the move is one which has not been given enough attention. The animatrice who was supposed to follow women's issues and was instrumental in the formation of the women's committees in the villages has been sick for the last several months, and much of this work has been left undone. The rest of the male field staff is not particularly aware of women's problems, one claiming, for example, that women's fields were not "real" fields. There are several issues that affect women particularly, but not exclusively, that ought to be closely followed. The most important of these are access to water and access to wild products.

Water

In order to assure that each village has a stable and reliable water supply, the resettlement project is putting boreholes equipped with pumps in every village, the number varying with population. This is meant to solve a major problem in some of the villages: water availability, especially at the end of the dry season.

Table 11 shows the various water levels of traditional hand dug wells (a maximum sample of 10 per village), including both the average depth and the average level of water. Both vary a good deal from village to village. Well depths range from an average of 4.68 meters to nearly 3 times as deep, 12.8 meters. Table 12 ranks the villages by the average amount of water available in their wells. Clearly, as mentioned earlier, some villages have acute water problems. An average of 1/4 meter or less per well is very close to no water at all. In villages such as Bamafele, or Keniekenieko, however, which are directly on the river, the lack of water in wells causes little if any problem.

Some villages, such as Dugoudinko, seem to have dug much deeper and have a better water level, than do other villages. Marena, which has a real shortage of water, also seems to have relatively shallow wells. This presumably has something to do with the quality of earth in which the wells are dug, but it is not something about which we presently have information.

Firia, which moved this year because of lack of water, is an instructive case. Firia is situated far inland from the Bafing river course. The water problems of villages which now are far from the river suggest that those which move inland (especially on the eastern side of the Mahina-Manantali road, upstream, right bank) may have a significant dependence on the tube wells and cisterns built by the project. This raises two issues: reliability of the pumps and whether over the long run, the wells will be sufficient to provide for water needs.

Pump reliability is essential when a village relies on boreholes for its water supply. In Firia, the only village about which we have information, there are two boreholes. Over the first two months of resettlement use, one of these pumps broke down, and was out of commission for 10 days before the project repaired it. Clearly the project needs to get its training program underway so that the local population can learn how to maintain their pumps. And consideration needs to be given to how and where spare parts will be kept available after the FRM itself no longer exists.

A second issue concerns whether the wells will provide sufficient water over the long term. At present the villagers seem quite impressed by their new wells. These are a symbol of modern life for them, and in villages such as Firia and Sobela where water supply was very questionable, these wells do indeed bring a more reliable supply. The question is will the villagers remain satisfied in over time.

Experience from Selingue is illustrative. The resettled village of Benco had been provided with two boreholes, yet one had not been working for a long time. This left only one pump for some 1500 people. The result was not enough water and half the village left.

It was clear that supplies for domestic use (i.e., for

drinking, cooking, etc.) do not exhaust water needs. Water is required to mix the cement-like plaster covering for their house walls, without which houses have a rather decrepit look. Cattle and small stock also need to be watered, and most importantly, hand dug wells are crucial for the watering of vegetable and tobacco gardens. Villagers in Benco mentioned that women used to have gardens in the village but had to go a long way to have them now, because there was not enough water in the village. Extensive pre-settlement orchards have not been reestablished.

In Manantali, a quick perusal of gardening in the pre-resettlement villages shows that villages not on the river lacked a regular supply of water for gardening unless they happened (as in the case of Nigui-Farabanding) to be located on an extensive *bas-fonds*. Since gardening is important both as an income earning activity and as a source of fruits and vegetables for subsistence, villages need to be watched closely to see how their water supplies hold up, particularly for subsidiary activities. It is important for the monitoring unit to monitor the construction and depth of hand dug wells in the new villages.

Obviously, the wells situation affects all villagers, but insofar as women are responsible for ensuring the domestic water supply, it affects them particularly. In addition, their gardens supply many of the family's vegetables, adding diversity and nutrients to the diet. Finally, if people cannot reestablish gardens and orchards, this would cut off yet another important component of subsistence and income earning.

Wild Food Products

A second issue touching women particularly, but not exclusively, is the availability of wild food products. One thinks of the people from Manantali as farmers, which means that they rely primarily on cultivated food. But they also depend heavily on wild food products, both gathered and hunted. While men are the primary hunters, both men and women also gather a variety of wildly occurring products, from firewood to palm wine.

The question of whether all these wild products will be available in the new sites has never been addressed directly. Yet for various reasons, one can expect that indeed some of the products will not be available. Some of the gathered products depend on well-watered environments, for example, shea butter nuts and ronier palms (for wine). The distance farther north is short, but it may be enough drier for there to be some difficulty in getting these things. There are noticeably fewer ronier and shea trees in many of the sites farther north.

The other problem that may impact on the availability of these products is population density, as populations fill up available land and cut down or otherwise get rid of naturally occurring products. For example, hunting out may occur in the densely populated area around Bingassi-New Bamafele.

If these changes cut out diversity in the diet, they may have negatively impact on nutritional levels unless the gap is met by other foods. For example, loss of hunted game could be compensated by fish taken from the reservoir. This exchange could be facilitated by encouraging the development of fishing as suggested above.

The ISH study promises to get some data which will look at this problem more directly. They should be encouraged in this, as well as to offer suggestions about the substitution of products that may not be available in the new environment.

Long Term Issues : Conclusions

The following long term issues need to be followed by the monitoring team, and the two intensive studies (Grimm and ISH) should look into some of these problems in more detail.

1) The problem of economic changes, including the effects of monetarization of the economy as well as the study of new entrepreneurial activities. The questions of who can benefit from these changes and who will suffer should be followed, and suggestions should be made to increase the size of the benefiting population. In addition, overall economic patterns (e.g., sales, purchases, market prices) should be followed to see the general economic effects on production, consumption and marketing in the region.

2) General demographic trends should be followed to understand patterns of in- and out-migration. Effects of economic changes and resettlement on birth and death rates over the next several years should also be followed.

3) The effect of changes on women should be followed. In particular, water availability and changes in the availability of naturally occurring wild products used by the population should be watched. The ability of women to take advantage of new opportunities opened by the resettlement should also be examined.

NOTES

1. The analysis and recommendations put forward in this report are the results of many people's contributions. Foremost as the members of the SSS in Manantali: Yacouba Konate, Salif Danyoko, Mohamed Andre Diallo, Fanta Diallo and all the amateurs who provided much of the field information. Curt Grimm, IDA's field researcher on the project was equally informative. Finally, Thayer Scudder's contribution, based on 30 years experience with resettlement, came with probing questions and down to earth recommendations. The inputs of the various individuals are not separately acknowledged in the text, but they are important. However, I bear responsibility for the final form in which the report is presented.

2. In theory these children were to be randomly chosen from among all the children in the village fulfilling these criteria. However there was a bias toward those who were willing to be measured (presumably ignoring the most sick ones) and toward the older children in this age group (i.e., those who could already walk and stand up). However, with this in mind, in 10 of the 12 villages, the sample was chosen randomly at a village level. In 2 of the villages however, the sample was chosen uniquely from the sample households chosen for the household level indicator study. Despite these problems, the sample is probably chosen well enough to meet our criteria.

Because of these problems however, it would be useful to compare our results with those of the epidemiology study, whose sample was more rigorously chosen. Despite sampling problems, our sample will benefit from being followed in a regular fashion over the life of the project, while theirs will be two single studies during the same period. However if our baseline results are similar to theirs, we can have a greater confidence that the results are truly representative of the large population.

These initial results should also be looked at with extreme care because the scales used are not of the highest quality. (They are ordinary bathroom scales.) Nor are they totally synchronized. Therefore I would suggest rotating scales at intervals among the amateurs to compensate for a tendency of any single one of the scales to overweigh or underweigh individuals.

3. Obviously, one can also enter commercial agricultural production, for example, of cereal grains. This will be followed by other questions.

Table 1
Progress of House Construction - Villages Moving 1986

Village	 Needed	Walls		Roofs	Need for
		Completed	Completed		
		15 June	25 June		Completion
Tintilla	180	45	55	41	43
Firia	181	85	116	94	8
Dialakoto	75	71	75	61	0
Kouroukondi	104	58	79	59	2
Nigui-Farabanding	375	90	110	69	115
Keniekenieko	270	225	261	234	0
Kenieba	173	109	135	115	3
Bamafele	212	162	199	156	0
Soukoutali	192	105	119	92	13
Barlakourou	118	65	76	59	14
Sekhokoto	86	35	44	20	7
Konkorma	104	59	69	53	9
Madinading	124	55	70	60	14

50% Completion means 50% of houses in each concession are completed. This is often more than a 50% completion rate overall, since many contractors started by finishing all houses in one compound before starting another.

Table 2
Nutritional Status of Children
Percentage of Sample at Certain Percentages of Normal Weight for Height

Village	Date	100% or Greater	90 - 100%	Under 90%	Total
		of normal weight for height			
Kenieba	23 April	50%	30%	20%	100%
	30 May	50%	50%	0%	100%
Keniekenieko	14 June	50%	50%	0%	100%
Marena	30 April	30%	30%	40%	100%
	20 May	30%	30%	40%	100%
	6 June	10%	50%	40%	100%
Tondidji	18 June	60%	40%	0%	100%
Konkorma	21 June	70%	30%	0%	100%
Firia	26 April	10%	20%	70%	100%
	30 May	40%	20%	40%	100%
	29 June	50%	20%	30%	100%
Nigui	31 May	40%	40%	20%	100%
Bamafele	29 April	50%	20%	30%	100%
	18 May	50%	20%	30%	100%
Bantandioke	10 June	70%	10%	20%	100%
Ougoudinko	5 May	30%	30%	40%	100%
	5 June	50%	10%	40%	100%
	28 June	30%	40%	30%	100%
Badioke	28 June	40%	50%	10%	100%
Overall Mean		43%	31%	26%	100%
By Month	April	34%	26%	40%	100%
	May	43%	31%	26%	100%
	June	37%	40%	23%	100%

Table 3
 Illnesses Suffered - April through June
 By Sex and Movers vs. Non-Movers
 Number Claiming to Have Been Ill

Disease	Movers		Non-Movers		Total
	Male	Female	Male	Female	
Malaria	2	1	5	4	12
Stomach Ache	0	5	1	5	11
Diarrhea	3	3	2	3	11
Leprosy	0	0	2	4	6
Fever	0	1	1	2	4
Wounds	2	1	1	2	6
Lack of Vision	2	0	0	0	2
Hurt Foot	0	1	0	0	1
Broken Arm	1	0	1	0	2
Swollen Stomach	0	1	0	0	1
Headache	0	1	0	0	1
Cramp	0	0	1	0	1
"Pheronole"	0	0	0	1	1
Toothache	0	0	0	1	1
Miscarriage	0	1	0	1	2
Bachache	0	1	0	0	1
Inflammation	0	1	0	0	1
Injection Reaction	0	0	1	0	1
Dog Bite	0	0	0	1	1
Measles	0	0	1	0	1
Nosebleed	0	0	2	0	2
Fatigue	0	0	1	1	2
Cough	0	0	1	0	1
Bone Problems	0	0	0	1	1
Constipation	0	0	2	0	2
Chancre	0	0	0	2	2
Gonorrhoea	0	0	1	0	1
Tetanus	0	0	1	0	1
Itching	0	0	0	2	2
Jaundice	0	0	1	0	1
Onchocerciasis	0	0	1	0	1
Total	10	17	26	30	83

Movers Sample includes 9 village months; non-movers include 10 village months.

Table 4
Numbers Reporting Disease by Age and Sex

Age Range	Movers		Non-Movers		Total
	Male	Female	Male	Female	
0 to 5	4	4	4	5	17
6 to 15	1	0	3	4	8
16 to 30	0	9	8	6	23
31 to 50	1	1	1	6	9
51 to 65	3	1	2	1	7
66+	0	1	2	3	6
Total	9	16	20	25	70

Movers sample includes 9 village months; non-movers include 10 village months. Total sample includes only those cases where age and sex are mentioned, making this sample smaller than for preceding table.

Table 5
Land Clearing Earnings by Village

Village	Month December	January	February	March	April	May	June	Total
Bamafele Workers=	1194000 52	1873500 52	1360000 52	1050500 51	1333000 60	1566000 76	914500 54	9291500 57
Kenieba Workers=	1174500 51	1920500 51	1344000 51	1095000 51	1318500 50	1265500 51	387000 51	8505000 51
Keniekenieko Workers=	931500 52	1595000 51	1362000 52	1086625 51	1331000 51	1911500 81	351500 14	8569125 50
Konkoroma Workers=	201000 68	1318500 66	15000 5	745000 83	2070000 81	1235500 51	221000 41	5806000 56
Kouroukondi Workers=	312000 26	1057500 26	715000 30	657000 26	712000 26	611500 26	163000 19	4228000 26
Firia Workers=	312000 37	1462500 41	974000 36	787500 36	1011500 36	1091000 36	284000 35	5922500 37
Nigui Workers=	765000 51	1204500 32	888750 33	710500 33	806000 33	961000 33	728500 34	6064250 36
Monthly Total	4890000	10432000	6658750	6132125	8582000	8642000	3049500	48386375
					Average Number Workers/Month			312
					Average Income/Worker For 7 months work			155014

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Table 6
Important Purchases and Sales - as recounted
Movers vs. Non-movers

Goods Purchased	Movers		Non-Movers	
	Total	Per Fam Per Month	Total	Per Fam Per Month
Millet	117500	2611	37500	750
Rice	80000	1778	122000	2440
"Cereal Grain"	17500	389	0	0
Maize	0	0	17500	350
Peanuts	13000	289	10000	200
Salt	0	0	7000	140
Sugar	0	0	10000	200
Cattle	67500	1500	0	0
Sheep	6750	150	0	0
Goats	8950	199	0	0
Radios	35200	782	137000	2740
Bicycles	128000	2844	62500	1250
Bulk Kola Nuts	35000	778	0	0
Wedding Expenses	72500	1611	0	0
Dowry	155000	3444	0	0
Ramadan Gifts	0	0	Unknown	Unknown
 Goods Sold				
Unshelled Peanut	0	0	353000	7060
Shelled Peanut	0	0	35875	718
Tobacco	0	0	50000	1000
Livestock	119400	2653	414000	8280

Table 7
Non-agricultural Activities
Persons per Month Reporting

Activity	For Consumption	For Sale or Salaried Work	Sale & Consumption	Total
Movers				
Hunting	1	0	2	3
Weaving	0	4	0	4
"Griot(te)"	0	2	0	2
Spinning	0	0	1	1
Work for FRM	0	7	0	7
Gardening	2	0	12	14
Trading	0	3	0	3
Charcoal	0	7	0	7
Blacksmithing	0	2	0	2
"Guardien"	0	1	0	1
Pottery	0	2	0	2
Other Artisanal	1	4	1	6
Total Movers	4	32	16	52
Non-Movers				
Leaf Gathering	0	0	2	2
Gardening	0	0	1	1
"Marabout"	0	1	0	1
Blacksmithing	0	0	1	1
Hunting	3	0	0	3
Trade	0	1	0	1
Cords	1	0	0	1
Spin Cotton	2	0	0	2
Peanut Products	0	1	0	1
Shea Butter	2	0	1	3
Honey	1	0	0	1
Fish & Hunt	1	0	0	1
Total Non-Movers	10	3	5	18

Table 8
Availability of Goods - by Village

Village	Number of Things Available
Kenieba	19
Keniekenieko	18
Nigui	15
Dugoudinko	14
Bamafele	14
Marena	12
Firia	11
Tondidji	10
Bantandioke	8
Konkorma	5

Table 9
Market Prices - Movers vs. Non-Movers

Product	Movers		Non-Movers	
	Mean Price	# Village Months Found (Max=9)	Mean Price	# Village Months Found (Max=6)
Millet/Sorghum	97/kg	8	175/kg	2
Tea	500/kg	7	500/kg	4
Sugar (granular)	500/kg	7	500/kg	5
Sugar (cubes)	2.5/cube	2	n/a	
Peanut Oil	506/liter	9	453/liter	3
Unshelled Peanuts	50-83/kg	6	59/kg	4
Shelled Peanuts	113/bowl	3	124/kg	4
Peanut Other	70/kg	2	n/a	
Kola Nuts	33/nut	9	29/nut	6
Tobacco (powder)	13/spoon	9	n/a	
Tobacco (rolled)	225/roll	3	n/a	
Tobacco (unknown)	n/a		4/g	3
Cube Jumbo/Maggi	25/cube	8	25/cube	4
Fonio	100/kg	3	130/kg	3
Meat	371/pile	6	n/a	
Cigarette-Marlboro	317/package	2	n/a	
Cig-Camelia	125/package	2	132/package	2
Cig-Liberte Simple	125/package	2	n/a	
Cig-Liberte Filter	142/package	3	138/package	1
Cig-Gauloise	200/package	1	n/a	
Cig-Unknown	125/package	2	125/package	1
Batteries-Hellesens	125	3	125	1
Batteries-Mazda	175	2	n/a	
Batteries-Unknown	150	2	148	3
Salt	97/kg	6	127/kg	3
Rice	200/kg	3	225/kg	2
Alcoholic Beverage	700/liter	2	n/a	
Red Wine	700/liter	1	754/liter	3
Palm Wine	250/liter	1	300/liter	2
Milk	160/liter	2	n/a	
Soumbala (condiment)	25/ball	1	25/ball	1
Inner Tube (bicycle)	n/a		1025	2
Cloth	n/a		1750/pagne	2
Soap	n/a		135	2
Shea Oil	n/a		1100/kg	1

Table 10
Demographic Information
People Entering and Leaving Survey Families

Reason Additions	Movers		Non-Movers		Total
	Female	Male	Female	Male	
Births	10	2	13	10	35
Marriage	3	0	2	0	5
Rejoin Family	1	6	0	1	8
Look for Work	0	4	0	0	4
Visit	3	14	6	0	23
Medical Treatment	0	0	1	1	2
Pass Rainy Season	0	0	1	2	3
Divorce	3	2	0	0	5
Other	1	0	1	0	2
Total Additions Other than Births	11	26	11	4	52
Subtractions					
Deaths	1	1	4	3	9
Marriage	1	0	4	0	5
Look for Work	1	2	0	2	5
Studies	0	1	0	0	1
Rejoin Family	0	1	6	0	7
Visit	4	0	1	0	5
Medical Treatment	0	0	1	1	2
To Manantali	0	0	0	2	2
Total Subtractions Other than Deaths	6	4	12	5	27

Table 11
Average Well Depth - in Meters

Village	Date	Number Wells Measured	Number Dry	Mean Depth	Mean Level Water Present	Mean Level All
Kenieba	23 April	1	0	7.7	1.24	1.24
	30 May	1	0	7.7	1.36	1.36
Keniekenieko	14 June	0 all water taken from river				
Marena	22 May	10	5	6.66	0.44	0.22
	6 June	10	1	6.66	0.27	0.25
Tondidji	18 June	10	2	11.8	0.78	0.63
Konkorma	21 June	10	7	4.68	1.4	0.42
Firia	26 April	10	0	12.8	0.21	0.21
	30 May	10	0	12.71	0.19	0.19
Nigui	31 May	10	0	6.34	1.25	1.25
Bamafele	29 April	10	2	5.51	0.61	0.48
	18 May	10	2	5.51	0.59	0.47
Bantandioke	10 June	10	2	10.29	0.94	0.75
Dugoudinko	5 May	10	0	12.63	0.77	0.77
	5 June	10	1	12.63	0.84	0.75

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Table 12
Comparative Well Depth by Village

Mean Well Depth	Villages Number	Names
More than 1 Meter	2	Kenioba Nigui
.5 to 1 Meter	3	Tondidji Bantandioke Ougoudinko
.26 to .5 Meters	2	Konkorma Bamafele
.25 Meters or less	2	Marena Firia