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The Nemow Case

Case Studies of the Impact of Large Scale Development Projects on Women: A Series for Planners

Working Paper No. 7
September 1979

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series*

Agency for International Development
Washington, D.C. 20523

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DEVELOPMENT PROJECTS ON WOMEN:
A SERIES FOR PLANNERS

Ingrid Palmer

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This document is one in a series of International
Programs Working Papers of the

THE POPULATION COUNCIL
ONE DAG HAMMARSKJOLD PLAZA
NEW YORK, NEW YORK 10017

974.

POPULATION COUNCIL LIBRARY CATALOGUING-IN-PUBLICATION DATA

Palmer, Ingrid

The Nemow case. Case studies of the impact of large scale development projects on women: a series for planners Ingrid Palmer. -- New York : The Population Council, 1979. p. -- (The Population Council. International Programs. Working paper, No. 7)

1. Women in development. I. Title. II. Series.
HB881.P62 no.7 HQ1381 9.79.hnz

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THE NEMOW CASE: EXECUTIVE SUMMARY

Ingrid Palmer

PREFACE

The question has been raised, why should development planners be concerned about women?

No project which expresses its goals in terms of production gains or distribution of benefits can fail to ignore the economic potentials and needs of one half of the population. Guidelines for the design and evaluation of development projects sensitive to women's roles have often been applied only to a narrow range of "women's" projects. Our view at the Population Council is that all development efforts could benefit from an analysis with regard to their impact on women. To both elucidate how such analyses could be done and their contribution to an understanding of development programs, we have sought to develop specific case studies of how attention or inattention to women's roles have effected the outcome of those projects.

For our first case we chose not to do an actual field study. The reason for this is that gaining access to projects of sufficient scale and duration would have taken more time than was really necessary to present what we have presented here: The Nemow Case. The Nemow Case is an amalgam of two actual development cases for which there are data bases available. The information available in both these was consolidated into a single case so that the reader could see in specific terms the interdependence of women's roles and development. It explores a real and reasonably typical data base.

The purpose of the Nemow Case is to (1) demonstrate how a concern with women's roles is intrinsic to a concern with development, (2) to show that it is not unusually difficult to find out how projects would affect women, and (3) finally to suggest that such analysis, based on existing levels of information and supplemented by short field visits of 2-3 weeks by an experienced observer, might provide significant practical guidance at the design and implementation phases of development projects. A summary of the case follows.

Judith Bruce
Associate

Background and Objectives of the Project

Ever since the government came to be concerned about rising food imports, the valley of the Nemow River and its surrounding area had been regarded as a potential food bowl for the country. Damming the Nemow and harnessing its waters for irrigation would facilitate greater rice production while modernization of the local fishing fleet would increase the off-shore fish catch. As planning of the Nemow Project proceeded, and the requirements for resettling the population were discussed, the idea of an integrated development project with a range of sectoral components emerged. The concentration of scattered homesteads into centralized villages would enable the government to deliver and administer basic services efficiently to a population of over 70,000. Thus the area would receive the benefit of both economic and social programs.

The objectives of the project were set out in official documents:

1. To conserve and improve water and soil resources in the area of the Nemow valley.
2. To raise the output of rice in the area by 130 percent.
3. To raise the off-shore fish catch by 75 percent through the use of modern fishing technology.
4. To increase the incomes and standard of living of households through the supply of irrigated water and other farm inputs.
5. To reduce landlessness through land reform and resettlement on the irrigated land.
6. To reduce rural poverty by raising the productivity of agricultural labor and creating more jobs.

7. To improve nutritional levels by raising incomes and increasing the local supply of rice and fish.
8. To overcome constraints on the supply of public amenities, so that health and educational programs could be made available to all residents.

The original objectives of the Nemow Project provide one set of criteria which properly should be incorporated in this evaluation, but it can be seen that, as expressed, they make no mention of women as a specific target group. The objectives relate to production and welfare aggregates, and assume that when benefits from these accrue they would be felt in some comparable way by both men and women. The official objectives as they might differentially affect men and women are usefully summarized below:

1. To create employment.
2. To counter poverty.
3. To improve nutrition.
4. To improve health.
5. To raise levels of literacy and education.

The supplementary objectives applied are:

6. To reduce the work load and drudgery of women to free them for education and community activities.
7. To give women equal access with men to more resources and income.
8. To bring women into social and political affairs.
9. To improve the social and legal status of women.

The principal economic justification of the Nemow Project was the improvement of rice and fish yields to increase a marketable surplus from the area. To that end, credit and production inputs were channelled to rice farmers cultivating newly irrigated land. A land reform was also undertaken which enabled male heads of households to become amortizing lessees, and in time, full owners of rice plots. Additional plots of red soil for women's cultivation of subsistence crops were loaned to households by project management. Modernized fishing boats were introduced to coastal settlers and a fish processing factory was established to take the enlarged catch. A Farmer's Association was organized in each village to cater to the needs of rice production alone, and village Residents' Associations were founded under the leadership of the most prominent men to act as the beginnings of local government and to transmit requests and complaints to the project management. Two health centers, ten health clinics, and eight maternal and child health centers were originally proposed. A primary school was planned for each village and eight secondary schools were planned for the whole project area. Adult literacy classes were to be organized by the Residents' Association with official government assistance.

The population was resettled in the villages by 1972. After initial heavy expenditures during the construction and resettlement stages, finances became tight. Consequently, the production sector pushed ahead while social sector implementation was delayed. This means that it is premature to assess the final impact of the project as

an integrated economic and social scheme. Nevertheless, the impact of the project on women is already evident. With higher household cash income and public welfare services available, women should have found it easier to meet the basic physical needs of themselves and their families. However, due to women's lack of access to resources in their own right, it can not be said that women have enjoyed a net benefit.

Evaluation

In this evaluation we are essentially concerned with the impact of the project on women, and in turn, how attention or inattention to women's roles affected the overall project outcome.

1. To create employment:

Summary: Because of the enlargement of the small owner-cultivator class and the decline in landless people, the greater agricultural work requirements did not result in a proportionate rise in wage employment. Women in landed households worked more intensively due to the new technology while the majority of landless women found work for more days of the year than formerly, in spite of a much reduced number of jobs for women in harvesting and rice processing. The irrigation cycle allowed for more exchange labor for women's transplanting but not for their weeding. Women in fishing villages have lost opportunities to earn money from the sale of fish. There are hardly any women in the modernized rice and fish processing industry, and there has been no local generation of non-agricultural employment as a result of higher incomes. Women are occupied more than ever in unpaid family labor in agriculture and landless men have made more gains in wage employment than landless women.

2. To counter poverty:

Summary: Household income in real terms undoubtedly increased among owner-cultivators and among the vast majority of the landless. But relative improvements in living standards and the satisfaction of basic needs have not been commensurate with increases in household cash income due to constraints on women's economic authority in the household and their lack of effective access to all resources. Higher income came at a cost of harder work in women's already fully committed labor and this had a negative impact on their role of delivering the basic needs of their families.

3. To improve nutrition:

Summary: The new production base has brought about a degree of uniformity in nutrition over the whole site, with general improvement in caloric supply and a greater supply of fish to most residents, but a sharp decline in fish in the diet of coastal villagers. Variation in per capita food supply is due to variation in household size and to the presence of some polygamous households. The seasonality of the agricultural cycle imposed strains on women which led to the premature weaning of infants and sharp falls in standards of nutrition. Landless households have done less well than landed households in nutritional gains. Further nutritional benefits from both the existing levels of output and income, and from better use of land and labor must await corrections to women's economic authority in the household and recognition of the productive potential of food crops other than rice.

4. To improve health:

Summary: In areas where health services have been established there has been a clear reduction in the incidence of cholera and tuberculosis, but malaria has persisted. Dysentery is still serious, especially at the lower end of the irrigation scheme, where it may well have increased. In spite of better developed health services at the lower end of the site, there is

evidence that health is generally superior at the upper end, which can be attributed to the prevalence of several water-borne diseases that are transmitted through the irrigation system. While family planning is obtaining a good response, medical staff have not recorded any change in birthweights, which is an important statistic on women's general health.

5. To raise levels of literacy and education:

Summary: Too short a time has elapsed since the establishment of educational services to judge their impact. Despite this, the existing data suggest that the wide difference between men's and women's literacy rates is not being narrowed. Demand for child labor, especially girls' labor, on the farms and in the house means that effective education, even after enrollment in schools, will be poorer for girls. Far fewer women than men have joined the existing adult literacy classes, and the reason again can be seen in their work schedules.

6. To reduce the work load and drudgery of women to free them for education and community activities:

Summary: Given the traditional sex-typing of agricultural tasks, the effect of new labor requirements has been the continued year-round work of landed women accompanied by greater intensity of daily work schedules at seasonal periods. For men the effect has been more days of the year worked, through double-cropping, but no greater intensity of work than previously. With no change in agricultural implements used, neither sex's hourly productivity can be presumed to have risen, but their fuller employment has led to a rise in annual productivity. Women face conflicts between work on the subsistence and rice crops, and between child care and productive work at seasonal peak periods. Women are unable to use exchange or hired labor to ease their burden (except for planting) because they have insufficient influence on either the organization of labor or the use of the profits from rice. Women in polygamous households and landless women probably do not work as hard as other women, but even landless women have a greater work load than men when household and child care responsibilities are taken into account.

7. To give women equal access with men to more resources and income:

Summary: The land reform and exclusively male membership of the Farmers' Associations have weakened women's legal entitlement to land and excluded them from direct access to credit, extension advice, marketing information, and the returns to their own labor on the rice crop. Their greater labor contribution to rice production has failed to give them much more cash, and in many cases women could no longer earn income from other sources. At the same time their need for money, to purchase supplementary foods and fuel, has risen. In polygamous landed households women even undertake casual wage labor in order to raise cash. Women expressed themselves forcefully on the issue of access to resources and some stated that they wanted rice plots of their own. It is difficult to see, given the present inflexibility of the production structures, how this problem can be rectified without radical intervention in land allocation and in institutions.

8. To bring women more into social and political affairs:

Summary: Population resettlement, the confirmation of a new village patriarchy through the leadership of the Residents' Associations and the related leadership of the Farmers' Associations, and the economic undermining of women's traditional kinship groups have all contributed to a weakening of women's social visibility and access to channels of communication. Their complaints about the conditions of their lives and work have been voiced informally to project staff. Improvement could come through the establishment of a women's caucus in the Residents' Association with guaranteed rights of public expression or a quota of women in its leadership.

9. To improve the legal and social status of women:

Summary: The weakening of land inheritance by women is seen as a major disabling factor in their future legal and social status. With women's new land inheritance situation, dowry practice can be expected to strengthen, but education and/or greater demand for daughters' labor in agriculture might be raising the age at marriage of women. Although the incidence of polygamy appears to be unchanging in general, it might be on the increase in coastal villages where cash income has risen most. The net effect of these factors on demographic behavior is not yet predictable.

Women's Interests and the Real Trade-Offs

The study of the impact of the Nemow Project on women reveals that women's interests need not be viewed as a consumption item in the total plan budget. There is no necessary trade-off between achieving development goals and raising the economic, social, and legal status of women. Indeed, women's interests and development goals are interdependent. Many of the weaknesses in the project's performance of production, income distribution, education, health, and nutrition can be traced back to women's lack of access to resources in their own right. Production goals may have been achieved more successfully had greater consideration been given to women in the original project plan. Rice yields and surpluses could have been improved had women's work load and their resentment over it been modified, and had women-headed households been granted ownerships of rice plots. Likewise, no justification exists, in terms of trade-offs with food production goals, for denying women ownership of red soil plots for cultivating subsistence crops, which could have led to a greater supply of other nutritional foods and

more cash for women. It is also doubtful that the production goals of the project would have suffered had landless women enjoyed equal access with landless men to the full-time wage employment in the rice and fish processing mills and in the various jobs provided by project management. That opportunities for incorporating women's interests into the project were missed must be put down to a combination of ideological bias, lack of information, and a desire for expediency among planners and administrators.

Comparison of Actual and Alternative Project Designs: Population and Development Impact

From the above, it can be concluded that there was more than one way of achieving the production goals of the Nemow Project. That women had an important role to play can not be questioned, but the terms on which they were obliged to fulfill that role left much to be desired. Women's role in the project and the subsequent effect on production goals and the satisfaction of basic needs is illustrated by the diagram on the following page. On the right-hand side of the diagram is an alternative allocation of productive resources and set of production relations between the sexes. Not only are the impacts of women on the project, and of the project on women, more beneficial, but the more equal economic and institutional authority of men and women allows the project manager a greater role in acting on matters such as land substitution, specialization of crops, and sources of labor for all sex-typed tasks. The economic enfranchisement of the whole adult population should not only lead to a better informed management but also empower it to intervene on a wide range of issues.

The alternative project design could have at the same time improved benefit levels, the distribution of benefits, and improved population outcomes. Under the actual design, the pressure on women's time increased while their need for income for basic provisioning also increased. Thus, despite increased production and the enhanced access to health and family planning services, there were limited positive effects on the spacing of births and health of infants and children. Women's economic and social authority was supported neither at the family or the community level, hence the base of their status may have been unnecessarily narrowed to child bearing and rearing. The demand for female child labor was not diminished, consequently girls' educational level remained low and male/female differentials in literacy over time may increase. In summary, no incentives to limit family size were introduced.

As the Nemoz Project stands now, some improvements can be made by making health services more relevant, by introducing a women's caucus in the Residents' Associations, and by placing controls on individual men's accounts at the Farmers' Associations. But if something more than this patching-up is to be done, full government commitment to a drastic correction of land allocation between the sexes is required.

THE NEMOW PROJECT

Part I: Description of Project Design and Objectives

Background and Objectives of the Project

Ever since the government came to be concerned about rising food imports the valley of the Nemow River and its surrounding area had been regarded as a potential food bowl for the country. Damming the Nemow and harnessing its waters to facilitate higher yields and double-cropping of rice became a major target of the Ministry of Agriculture. At the same time the Department of Water Resources in the Ministry saw in the plan a means of stemming the movement of landless families up the sides of the mountain containing the catchment area of the Nemow, a movement which had led to deforestation, soil erosion, and the consequent threat of flash floods in the valley. If farmers could be concentrated on the low-lying land and provided the means to higher yields and incomes, then the future viability of the catchment area could be secured.

Farmers working on the coastal alluvial soil, forty miles from the catchment area, had also been part-time fishermen, but their fishing boats were driven by sail and normally did not venture beyond eight miles from shore. Since 1950 there had been a noticeable decline in the fish catch, and officials in the Ministry of Agriculture had long argued that motorized fishing vessels, which could go further afield, would increase the catch substantially, thereby providing a larger quantity of marketable fish in the country.

As the early discussion of the project proceeded the idea of an integrated development project with a range of sectoral components emerged. Resettlement of the population from scattered homesteads into villages would enable other government departments to deliver and administer basic services easily and cheaply. Thus the area would receive the benefit of both economic and social programs.

The objectives of the project were set out in official documents:

1. To conserve and improve water and soil resources in the area of the Nemow valley.
2. To raise the output of rice in the area by 130 percent.
3. To raise the off-shore fish catch by 75 percent through the use of modern fishing technology.
4. To increase the incomes and standard of living of households through the supply of irrigated water and other farm inputs.
5. To reduce landlessness through land reform and resettlement on the irrigated land.
6. To reduce rural poverty by raising the productivity of agricultural labor and creating more jobs.
7. To improve nutritional levels by raising incomes and increasing the local supply of rice and fish.
8. To overcome constraints on the supply of public amenities, so that health and educational programs could be made available to all residents.

The Area And Its People

The River Nemow Irrigation Project covers a population of 70,000 and an approximate area of 300 square miles. It extends 12 miles along the coast at its widest point and runs 25 miles inland through the Nemow Valley. The project area was formerly served by a single bituminous road running parallel to the river for a distance of 10 miles inland and leading off from the coastal highway. A network of dirt tracks also existed, but many of these were rendered impassable during rainy seasons. Settlement had long been densest on land closest to the river in the lower portions of the valley, where a high incidence of tenancy prevailed and a reputed 25 per cent of the population was landless.

Formerly there were three economic cultures in the area. In the inland hills leading to the catchment area of the River Nemow, established farmers and illegal squatters cultivated a single crop of rice accompanied by extensive vegetable growing and the raising of chickens and goats. In the Nemow Valley most of the fertile land had been owned by large landholders (some with several hundred hectare plots) who had allowed share-croppers and a few fixed-rent tenants to farm strips of about four to five hectares each. Here, near-monocultural rice cultivation existed with a lower-yielding second crop and some vegetables grown on low lying land near the river. Coastal villagers combined rice cultivation with fishing.

Among upland farming households little or no rice was marketed, but along the river, owner-cultivators marketed up to a third of their crop, large landowners a great deal more, and tenants only modest quantities. Cultivating the former low-yielding rice varieties had produced the sharpest labor demand peaks at rice planting, harvesting and processing times, during which between 2,000 and 3,000 migrant laborers arrived regularly from neighboring areas. In the more densely populated areas, there was a small amount of exchange labor for planting and harvesting, principally female and male-typed tasks, respectively. In between these peak labor demand periods little work was performed on the standing crop so that the female-typed job of weeding was done leisurely and allowed time for subsistence crop cultivation where land permitted. In the coastal area the women had been allowed about one-third of the fish catch for household consumption and for their own processing and trading. Thus with the low degree of commercialization of the staple cereal and the ability to trade a little in subsistence crops and fish, women enjoyed a large measure of direct access to food and cash resources. In the coastal area, at least, some women had formed credit unions of their own for purposes of meeting special expenses and modest household and productive investments.

Women's
traditional
roles

Under Moslem law women enjoyed the right to inherit one half of the amount of land inherited by their brothers, although in the presence of a dowry system it is not clear how strictly this law was applied.

Women and
traditional
laws

Marriages were customarily arranged and polygamy was in evidence among the owners of land. Kinship groups tended to be localized in the three main areas of upland settlements, river settlements and coastal settlements. Together with women's access to income in cash and food items in kind, the local presence of their kinship groups had provided women with real support in meeting their material and social needs, albeit at a low standard of living.

Before evaluating the impact of the Nemow Project on women, its design, data base, and process of implementation are examined in order to appreciate the significant changes which were planned.

The Design of the Project

The area of the project covers land which gently undulates even close to the river. On the low ground which was to come under irrigation, the soils are black alluvial clays which are appropriate for rice growing. On the crests of small hills and on higher ground there are red soils which, together with the black soils, are suitable for the cultivation of beans, vegetables, and in some places, maize. At the identification stage of planning, the black soils were earmarked for cultivation of the main commercial crop (rice) while the red soils were to be distributed to households for the production of their own subsistence foods. Thus at this first stage of planning an arbitrary allocation of soil types and irrigation facilities between commercial and subsistence crops was made which precluded later possibilities for the household to alter its crop-mix to maximize its own real income, or to

optimize its sources of food. This decision was certainly conducive to organizational simplicity from the viewpoint of project management. It was very likely assumed that the comparative, though possibly not absolute, advantage that irrigated black soil had for rice meant that the value of all food production would be maximized if the black soils were devoted exclusively to rice cultivation. A deficiency in household (self-provisioning) subsistence food production could be made up from purchases with the greater cash earnings from rice. Whether this would prove to be valid in the event was going to depend on decisions taken later at the feasibility and appraisal stages of project design.

The red and black soils are located such that rice and the subsidiary crops can be cultivated by each household without members having to walk very far. But the size of the villages was determined by the degree of interdigitation of the two types of soil, as well as by the availability of black soils alone. In the event the population of the 47 villages ranged from approximately 400 to 2,000 with a mean of 1,480 and a median of 1,580.

Under the auspices of the project one dam was built from which one main canal extended 40 miles, passing through the project area to the coast. From this canal a system of lateral canals was built terminating in distributaries servicing the paddy fields. The controlled water supply, which facilitates two rice crops a year, takes three weeks to pass from the uppermost end of the site to the coastal areas, which means that transplanting and harvesting, and to some extent the peak periods of weeding, can be staggered.

The resettlement of farming households involved not only the physical transfer of people to the new villages but also a comprehensive land reform. The land closest to the river had always been relatively more densely populated and subject to high rates of tenancy. At the feasibility stage of planning it was determined that as many households as possible would ultimately become owner-cultivators of rice land. For the sake of administrative convenience the size of the household rice plots was to be the same throughout the site. Each household was to be allocated two hectares of irrigated black soil. Land which had not been farmed before or whose title was unclear was requisitioned by the Government. Owner-cultivator land and tenancies in excess of the decreed farm size were reallocated. This reallocated land and existing tenancies were converted to owner-cultivator farms in two stages. Stage I converted the new holders into amortizing lease tenants who purchased their land by paying a fixed rent (some to former landowners) not exceeding one-quarter of the average normal harvest of the three years preceding the transformation. Stage II was to come after the lessee had made 15 annual installments of this rent at which time the lease would be converted into full ownership rights. If the lessee should die during the period of amortization the lease could be inherited by one son only. The amortizing lease tenants were identified as male heads of household and there was no provision for granting land to women-headed households.

It was decided that, unlike the black soil plots, there would be no security of tenure and ultimate ownership of the red soil plots. Subsistence plots would be "on loan" from the project for the duration of the life cycle of the household, which could be interpreted as the life time of the male head. Although the word "women" was never mentioned in the production aspects of the feasibility study, it was easily deduced from this document that subsistence crops were to be the exclusive province of the household women. Questions of divorced or widowed women's access to land of any kind were not raised at any stage of planning.

The identification and feasibility stages of planning thus settled discriminatory terms of women's access to land at least through the first generation of the life of the project. It was left to the appraisal stage, when new rural institutions were incorporated in the design, to determine women's legal rights to household rice income.

Farming households, once settled, were immediately to become members of village Farmers' Associations for purposes of rice cultivation. This meant that male heads of household only were to be members. There appears to have been no intention of using the facilities of the Farmers' Associations to assist in the cultivation of the household's subsistence crops.

In spite of awarding rice lands only to men, there was the option, at the appraisal stage, of incorporating women in the Farmers' Associations in some way. But failure to do this pre-empted the possibility

of women's direct access to extension services and to the income of the main commercial crop, rice. Thus, it can be seen how the options taken at the identification, feasibility, and appraisal stages progressively narrowed any later options of project management to facilitate women's access to the returns to fixed resources without radical alteration of land allocation and institutional structures.

The two objectives of modernizing the coastal fishing industry were the improvement of the diet of project residents and the expansion of the local fish processing industry. To that end motorized fishing boats were to be purchased on credit by a cooperative of fishermen from whom a state enterprise would buy the catch and divide it between the enterprise's fresh fish marketing agency and its nearby fish processing factory. At the start of the project it was not made clear how the men were to divide their time between rice cultivation and fishing, each of which would now require more labor. As it was known that family labor was utilized in rice production, and in subsistence crop production, it was assumed that if there were lower yields on these farms they would be only slightly lower, and that this would be more than outweighed by the increase in the fish catch. How women would allocate their greater labor commitment between the two crop sectors appears to have escaped the attention of the planners.

Moderniza-
tion of
fishing

As an integrated program of rural development, the project included welfare components which were designed to compliment the production structure. In the nearest large town there was a well-equipped

Health and
Education
Facilities

hospital which was shared by project residents with people in neighboring areas. Within the project two health centers, each with a doctor, midwife, and nurse, were to be established. These health centers were planned to have 25 beds between them for in-patients in addition to an out-patient service. Ten rural clinics were planned with a nurse or midwife in permanent attendance. Medical personnel were to average one doctor to 35,000 people, and one nurse or midwife to about 4,000 people. Each clinic would serve an average of about four to five villages. Attached to 8 of these clinics would be maternal and child health centers, staffed by a nurse or midwife and including family planning services and a small dispensary. Six extension workers were to move among the maternal and child health clinics, holding classes in nutrition and general home economics. The content of this extension work was not devised in consultation with the women in the project area, nor did it include an appraisal of the effects of the new production and work structures on household demographic behavior.

Because of the poor ground water supplies there was no provision in the plan for installing wells in the villages. The housing provided for the residents consisted of two-roomed structures made of brick and clay with windows but no chimney. Residents were to be allowed to add another room by their own efforts if space permitted.

The plan included primary schools in each village and eight secondary schools distributed throughout the site. An adult literacy program was designed to eventually cover the whole site.

The plan also included the goal of establishing village-based Residents' Associations which could raise any non-farming issue with project management. All adults in the village were assumed to automatically be members. These Associations were intended to form the basis of village government and to constitute the local channel of communication to project management.

Residents'
Associations
as village
governments

At no stage of the planning process were the future residents, of either sex, incorporated among the staff, or consulted. It was left to the future village government institutions to initiate any corrective intervention at a later date.

The Data Base of the Project

Most of the data utilized to justify and delineate the project were nationally based and/or economic: per capita food consumption, the national food import bill, technical data on rice yields from experiments, estimated production and profits. As a result of calculations based on these data the average net household income from all farm sources was predicted to rise from U.S.\$358 to \$838; an increase of 134 per cent, largely due to an expected average increase in annual paddy yields from 1.8 to 4 tons per hectare. The previous level of household income was obtained from a sample survey in the region in

Household
income

which the project was located.¹ From the same survey it was known that among the upland farming households little or no rice output had been marketed but that lowland owner-cultivator households had marketed as much as 30 per cent of their production. There was no baseline information on household income from fishing but the project appraisal stated that the total fish catch was expected to increase from 30,000 tons to 80,000 tons a year.

The preparatory stages of planning were marked by an absence of data on household and wage labor, and on the sexual divisions of labor. Official national data had indicated that, in the region, the labor force participation rate of women was only half that of men, a statistic which seems to have been contradicted, at least, by the assumption that future mixed rice cultivation and fishing could depend on women's historical role in the former. Moreover, whereas the additional labor effort required by the new rice technology was described in the appraisal in some detail, no attempt was made to break it down between men's and women's work effort. An additional 400,000 man-days of work was said to be needed by the new crop technology and level of output, equivalent to 2,000 new jobs (averaging 200 days a year). While this was offered as evidence of future reduction of poverty among the landless, it was never clearly stated in the appraisal how much of this extra work effort would be realized by the creation of new jobs and how

Labor
patterns

1. See The Nemow Project: An Appraisal, Ministry of Planning, 1963.

much by additional family labor. The appraisal merely noted that there would be sufficient "surplus labor" on the site to meet peak labor demand periods. It was widely known by the planners and had been confirmed by a field researcher in the past¹ that between 2,000 and 3,000 migrant laborers from neighboring areas had been employed at planting and harvesting times, but no mention was made of the sex composition of this labor. The assumption was made in the appraisal that this labor, whether male or female, would be no longer required. Since no explanation of this assumption was given the observer is left free to conclude that it was taken for granted that family labor would be utilized more intensively on rice production after the land reform, since the proportion of residents who would remain landless would be much reduced.

Although new rural industries based on the processing of the larger rice harvests and fish catch were also expected to benefit the remaining landless, no figures on the anticipated employment creation were given in the appraisal.

The principal economic justification of the project was established in the estimated high internal rate of return (26.1 per cent). But this return was only a measure of the financial profitability of the first wave of commercial production. It excluded returns to non-marketed production. Nor did it incorporate measures of income

1. J. Clark, "Sources of Seasonal Labour in the Nemow Valley," Journal of Labour Statistics, October 1960.

distribution, external economies and diseconomies, second or later generation effects, or welfare gains and losses. Above all, it could not differentiate between the economic returns to men and women.

The baseline data on the welfare status of project residents, meager as it was, suggests some weaknesses in the design of the project. Although even good statistics on health disabilities are usually not broken down by sex or age, they still hold special significance when looking at women's issues since mothers bear the main burden of sickness in the family. Most of the quantitative information on health was drawn from national averages since there was no pre-project survey of particular health disabilities in the area. But the Ministry of Health knew from past local medical experience that most of the diseases found in the area were water-borne: dysentery, cholera, gastroenteritis and malaria. These communicable diseases were mentioned in the project appraisal without any accompanying data. The high infant mortality rate in the region, 129 per 1,000 live births, was of major concern to the planners of the health sector and was a principal motivation for allocating resources to the maternal and child health clinics.

Health

Other known common illnesses included respiratory infection, some tuberculosis, and skin and eye diseases. Skin and eye diseases, together with poor healing ability and strong susceptibility to the severe results of influenza, are always closely associated with poor nutrition. One of the main objectives of the project was to improve the nutritional status of the people, and to that end increases in the

food crop, allocation of approximately 20 per cent of the cultivated area to higher food value subsistence crops on red soils, and a greatly enlarged fish catch, were written into the design. As far as those health disabilities were concerned it can be said that preventive measures were inscribed in the project design. However, while the descriptions of vitamin-deficiency diseases in an anthropological study on traditional medicines,¹ dating back a quarter of a century, were mentioned in the social sector of the project appraisal, it was not noted that the anthropologist had found these diseases to be moderate among households farming up the rainfed slopes, most notable among households near the River Nemow about 15 miles from the coast, and least notable among the coastal households. There was not therefore a contiguous pattern in nutritionally-based disabilities and a closer examination might have revealed the relative nutritional deficiencies of three quite distinct food crop cultures. The same study also showed, not surprisingly, that upland residents had suffered least from most of the water-borne diseases. As is discussed later, this is one example where a more thorough review of the existing socioeconomic literature could have helped in anticipating future results.

The only statistic of special reference to women's health status mentioned in the appraisal was the total fertility rate (the average number of children born to a woman in her lifetime). But this was the official national rate of 5.8. On this basis the integrated program

1. A. D. Brown, "Traditional Medicine Practices in the Nemow Valley," Journal of Tropical Nutrition, July 1953.

for the Nemow Project included a concentration of family planning services which was greater than that seen in any other rural area of the country.

During preparatory discussions of the project, it had been recommended that data collection should be undertaken on household welfare and time budgets before the project was finally appraised, but it was quickly agreed that it would require too much time and effort to undertake these surveys. Along with that decision there seems to have been no attempt even to review socioeconomic articles about the area, the sexual division of labor, decisionmaking in the household, sources of food for the household, or the pattern of expenditure of household cash earnings. A published article¹ on the sexual division of labor in agriculture in the region of the Nemow Valley was not mentioned in the appraisal. Thus no base-line socioeconomic data pertinent to women's status, from which later comparisons could be made, were gathered.

1. W. Ennismore, "The Sexual Division of Labour in Agriculture in the District of the Nemow River", Review of Development Issues, June 1955.

Implementation

The history of the Nemow Project can be usefully separated into three phases:

Phase One (from 1964 to 1968) irrigation and settlement construction;

Phase Two (from 1968 to 1972) population resettled in the new villages and new cropping patterns established concurrent with construction completion; and

Phase Three (from 1972 onwards) production and welfare sectors advanced and new social structures confirmed.

The first phase of implementation was marked by an air of financial permissiveness encouraged by the large capital investment of the International Development Bank and the contribution of food subsidies from the International Food Programme.

Landless labor (including some off-site labor) was mobilized to construct the dam and irrigation works over a four year period. Labor-intensive methods were deliberately selected in order to provide as much employment as possible. An estimate 4.3 million man-days (or 3,666 jobs a year) of unskilled labor was required. About one-third of labor used was female. Each worker was paid in cash and in food rations from the International Food Programme, but the cash component for women was only 50 per cent of that for men. The equal food rations appears to have been in response to the need for administrative convenience as well as to the International Food Programme's concern over ensuring that mothers obtained

Labor for construction

as much direct access to food as possible. The cash component came through government accounts and the discrimination against women can be seen as an attempt to use the alleged lower productivity of women in manual work to save on costs.

Phase Two, which lasted almost four years, saw the resettlement of households and the maturation of production plans aided by the formation of Farmers' Associations as well as the work of agricultural extension personnel. For their first year of residence on the project, most of the households were heavily supported by free food distributed by the ^{International} Food Programme to women of the households.

The method of distribution of the red soil plots was never made explicit. Inquiries made of project personnel during field investigation for this evaluation leads to the conclusion that there were "general rules of thumb" followed by the Residents' Associations, whose task it was to allocate the red soil, which took into account the available quantity or quality of the red soils in the vicinity. In cases where a man had more than one wife, additional red soil land was awarded the household although it did not always double the household's supply of subsistence crop land. The black soil plots never varied with the number of wives or household size. Because women were not granted black soil plots and because in this phase of implementation red soils were only allocated with black soils for administrative convenience, women-headed households received no land at all. However, when their plight came to light in later years, some of these women, along with newly divorced women, were allocated red soil plots by the village Residents' Associations.

Red Soil
Distribution

A similar problem concerning women-headed households occurred over housing. Those who were already living in densely populated areas remained in their old houses, sometimes at a distance from the new village location. But there were cases, which project personnel still dwell on, of these households being moved with others from upland areas only to find that no housing had been provided for them. They were eventually housed but only after unnecessary hardship.

Housing

Phase Three began with high visibility of personnel from the Ministries of Agriculture, Health and Education, many having arrived on the site in the last year of Phase Two. But it was also a period when a much higher proportion of costs was being borne by the government and when inflation since 1973 had played havoc with the available resources from both external and national sources. This had several effects on implementation.

During the planning period it had been argued that if more money was spent on welfare amenities at the start, then less money would be available to develop productive capacity and raise household incomes; and that the slower the arrival of economic returns, the slower would derived employment and social benefits occur. In the new mood of austerity in Phase Three this argument was reinforced, resulting in supplementary funding for the Ministry of Agriculture to counter inflation; the health and education sector plans were rescheduled to make implementation slower. In the original plan, clinics, health workers, and schools were to be established throughout the site by 1975, but most of these services were not established until late 1977.

Welfare
Sector

In some of the remote villages, health services are still being established, while village schools and adult education facilities have not yet appeared. The comparison of the rates of implementation of the economic and welfare sectors can be shown in the following table:

Rate of Implementation of Economic & Welfare Sectors

<u>Economic Sector:</u>	<u>Planned</u>	<u>Realized</u>
Resettlement of population	1972	March 1973
Establishment of Farmers' Associations	mid 1973	100 per cent, November 1973
Establishment of Residents' Associations	mid 1973	90 per cent, mid 1973, 100 per cent, September 1974
<u>Welfare Sector:</u>		
Establishment of 2 health centers	1973-4	June 1974
Establishment of 10 rural clinics	end 1974	Five mid 1976; six end 1977; nine December 1978
Fielding of six welfare extension workers	1975	Begun early 1977; completed end 1977
Establishment of village primary schools	end 1975	60 per cent, early 1978; 90 per cent, December 1978
Establishment of eight secondary schools	end 1977	None yet
Establishment of adult literacy programs	end 1975	70 per cent of villages had some facilities by December 1978

By 1972 settlers were expected to be ready to manage their own affairs through the Farmers' Associations and the Residents' Associations. The Farmers' Associations became responsible for collecting credit repayments and rice deliveries, as well as channelling

Institution-
building

inputs to farmers, while the Residents' Associations began to exercise their role of passing on general requests and complaints to project management. Unlike the Farmers' Associations, the village Residents' Associations included all adult residents, not only male heads of households, in its membership. However, the project manager appointed a "headman" to lead the Residents' Associations and three "head cultivators" to assist him. With all these officers invariably men, the early establishment of the Residents' Associations confirmed and strengthened traditional patriarchy. The first task given the Residents' Associations was to assist in the allocation of the red soil acreage among households. This issue was of specific concern to women, and yet they were not consulted at any time. If women were to appeal to compel corrective action on the basic economic structures or the functions of the welfare sector, their appeal would necessarily go through a channel dominated by a reinforced patriarchy which had little interest in women's concerns.

The coordinating and soliciting roles of the project manager and his staff commenced upon the withdrawal of the construction personnel in 1969. The project manager authorizes and monitors any changes in the project's design and its institutions. The project manager is also responsible for receiving complaints from residents, and for trying to resolve their problems and pass on their requests. But the nominal power of the manager could be frustrated by problems of coordination beyond his control. For instance, Phase Two was a critical time for raising the issue of labor patterns among men and women and for planning new employment creation for the landless before the period of austerity

emerged. But so much time and effort was consumed by the management of forging a single chain of command among staff of various ministries receiving separate instructions from their head offices, that the opportunity to discuss such issues was missed. Had the project manager's energies not been dissipated in efforts to keep the project moving, he might have been able to follow up sooner on his stated concern for monitoring impacts on different groups of people and to offer detailed revisions to the original plan. As the project settled into the routine of its functions, the manager had more time to review progress and particular programs. But he no longer commanded the same attention in government departments and was continually reminded that the project had to start paying for its capital costs through its economic performance. Thus the principal independent source of intervention on women's behalf was effectively silenced.

PART II: The Evaluation of the Project

Sources of Information for the Evaluation

The sources of information for the evaluation include the annual progress reports of the project manager; the annual progress reports of the Farmers' Associations; the periodic summaries of the work of the Residents' Associations; the annual reports of the project's fish authority; records of family planning acceptors and of health clinics; and school and adult education enrollments. These reports relied heavily on quantitative data which represented the visible end-products of change. In order to examine what their achievement involved as far as women's participation was concerned, and to gauge errors of omission due to non-representation of women's voices, field work was undertaken on the site. Due to constraints of time and funding only three weeks could be spent in the field by the evaluator.

Apart from a sample of women residents, the project manager and some of his staff, including medical workers and home economics extension workers, and a sample of Residents' Association leaders were interviewed. Six villages were visited: two in the upper end of the project, three in the central valley area, and one coastal village which combined rice cultivation with fishing. An average of six women (including one or two landless women) were interviewed in each village, the majority of them at the location of the health clinic and the remainder in their homes. Medical workers and home economics extension workers assisted the investigator in drawing up a sample of women

respondents based on household size, age of women, and attendance/non-attendance at the family planning and maternal and child health clinics.

The women residents were asked questions about their general view of life on the project compared with their previous lives, their problems of early adjustment, their opinions on the division between subsistence plots and rice fields, as well as on the distribution of land by household size, and change in their work patterns. They were also asked about their use of family planning and health services and educational facilities. They were invited to give examples of changes in decision-making patterns in their households, changes in the sources of food they cooked, and changes in the cost of food. At the end of each interview the women were asked what role they had played in the village Residents' Association. The questions were open-ended in the sense that the women respondents were encouraged to add comments which related one issue to another and to express their satisfaction and dissatisfaction. All project officers were asked questions concerning the difficulties of their tasks over the life of the project so far and the revisions they would like to have seen in the design and implementation of the project.

Criteria for the Evaluation

The original objectives of the Nemow Project provide one set of criteria which properly should be incorporated in this evaluation, but it can be seen that, as expressed, they made no mention of women as a specific target group. The official objectives relate to production

and welfare aggregates, and assume that when benefits from these accrue they would be felt in some comparable way by both men and women. In order to overcome this limitation, those official objectives which are deemed relevant to this analysis are retained, but re-phrased to form more direct criteria for evaluation. Moreover, new objectives are added which reveal changes in women's absolute or relative (to men's) condition. While these additional objectives were not intended by the project planners, they can be regarded as objectives which should have been incorporated. In this evaluation, we are essentially concerned with the impact of the project on women, and in turn, how attention or inattention to women's interests affected overall development goals. The official objectives as they might differentially affect men and women are usefully summarized below:

1. To create employment.
2. To counter poverty.
3. To improve nutrition.
4. To improve health.
5. To raise levels of literacy and education.

The supplementary objectives applied are:

6. To reduce the work load and drudgery of women to free them for education and community activities.
7. To give women equal access with men to more resources and income.
8. To bring women more into social and political affairs.
9. To improve the social and legal status of women.

The Findings:

1. To create employment:

Summary: Because of the enlargement of the small owner-cultivator class and the decline in landless people, the greater agricultural work requirements did not result in a proportionate rise in wage employment. Women in landed households worked more intensively due to the new technology while the majority of landless women found work for more days of the year than formerly, in spite of a much reduced number of jobs for women in harvesting and rice processing. The irrigation cycle allowed for more exchange labor for women's transplanting but not for their weeding. Women in fishing villages have lost opportunities to earn money from the sale of fish. There are hardly any women in the modernized rice and fish processing industry, and there has been no local generation of non-agricultural employment as a result of higher incomes. Women are occupied more than ever in unpaid family labor in agriculture and landless men have made more gains in wage employment than landless women.

Under this objective it is necessary to examine how changes in labor requirements have led to changes in employment of women: absolutely and relative to men, among the landed and landless classes, and in agriculture and non-agriculture.

The first wave of employment creation came with irrigation construction. Because this was labor-intensive and because most of the farming continued during this phase, it employed quantities of off-site migrant labor. About one-third of this total labor force was female. A total of about 3,700 jobs were created over a continuous four year period. Being paid in both food and cash this employment brought in a substantial amount of additional purchasing power. Although some of this

Phase One
employment
creation

labor transferred to farming at peak demand periods and was supplemented by migrant labor, it had the effect of pushing up seasonal farm wages, which in turn provoked farmers to apply family labor more intensively during this construction phase. During a field investigation in 1978 farming women remembered this time as a difficult period as far as their work schedule was concerned, particularly during planting and harvesting when they felt the strain of adjustments to household routine and child care. Landless women gained in terms of more wage employment but also have memories of the very hard work and their desire for greater food intake.

The new agricultural technology, the introduction of double-cropping, and the organized processing of greater outputs of rice and fish have all contributed to providing more regular work for those who are in employment. But job creation has not increased by the extra amount of labor required. For instance, the new rice technology and the land reform have brought about fuller employment of the labor of the landed households, especially women, but has had a variable influence on the quantity of casual and seasonal jobs for the remaining landless. In the absence of benchmark data on pre-existing employment, under-employment, and unemployment, any assessment of net job creation must inevitably depend on qualitative explanations.

Technological
influences

Together with the effect of gravity flow irrigation, the new rice technology introduced new labor patterns and altered the sexual division of labor (although not necessarily the sex-typing of jobs).

Although this imposed a new uniformity of agricultural tasks over the whole site, the felt changes varied by area. First, two crops of rice became the rule, though this had previously been practiced among only one-third of the farming households. Second, women's transplanting required more care as it had to be performed in straight rows; women's weeding became more intensive as the application of fertilizers increased the amount of weeds; and harvesting (by both sexes) required more hands. Third, the fact that the irrigation water takes three weeks to pass from the uppermost end of the site to the coastal area has meant that planting and harvesting, and to a very small extent weeding, are staggered, allowing for mobility of the labor force between households. This has led to an increase in exchange labor and to a longer period of seasonal employment for the remaining landless who did find farming employment. Previously, exchange labor had only been practiced by households for harvesting in the more densely populated areas near the river.¹ In general, it was men's tasks of ploughing and (their share of) harvesting which benefitted both from exchange labor by easing the intensity of work. But landed men in newly double-cropping households worked more days of the year than previously. With two crops a year, and with extended periods of transplanting and harvesting, most of the smaller number of landless women (after land reform) found they had more regular employment throughout the year, although the real value of the average daily wage was less than they had commanded at

Increase
in exchange
labor

Hired
Labor

1. W. Ennismore, "The Sexual Division of Labour in Agriculture in the District of Nemow River," Review of Development Issues, June 1955.

the former peak labor demand periods. In spite of the greater amount of necessary weeding, very little wage labor was hired for this task because farming households attempted to save on wages by utilizing female (adult and child) family labor more intensively. Consequently, instances were cited by agricultural extension workers of this task not being performed as well as it should have been.

With the regularization of exchange and hired labor, farming households settled down to employ the same workers on the rice plots every year. Those landless women who were fully incorporated in this system clearly gained by the fuller laboring calendar. But there were still some landless women who, for reasons of later arrival in the village or of chronic illness, were unable to gain entrance to the new system. With attention being concentrated on the successful points of rice production, nothing appears to have been done for these women and they have become almost completely dependent upon their husband's earnings. Sometimes they obtain harvesting work or casual labor, such as helping landed women with the extra cooking necessitated by exchange and hired laborers, but in general they seem to have been left in waiting for the creation of off-farm employment.

The impact on off-site migrant labor would appear to be serious since both men and women from neighboring areas had depended on seasonal work in the Nemow Valley for part of their income.¹ There is now

Migrant
labor
reduced

1. J. Clark, "Sources of Seasonal Labour in the Nemow Valley," Journal of Labour Statistics, October 1960.

little or no work for them. The net effect of longer but staggered harvests has been that some extra labor for harvesting is required from off the site, but this is almost entirely satisfied by male labor.

Three large mechanized harvesters arrived in the form of aid to the project, but it was found that they could not negotiate the narrow bridges over the irrigation streams and so had to be discarded. Until now there had been no further attempt to introduce mechanized harvesting, although smaller two-wheel harvesters are being experimented with. Should they be eventually introduced over the whole area it can be expected that migrant labor will be totally eliminated, along with the largely male exchange labor.

No
mechaniza-
tion
effect

The results for women of more work effort required by the new rice technology appear to be that: female household labor (including exchange labor) is utilized more fully and intensively throughout the year, landless women who do find employment are more regularly employed, and a minority of landless women have less employment than before.

In the coastal villages the impact of the new uniform rice production technology and the modernized fishing industry have altered women's labor participation in yet another way. Previously the women had met the returning fishing vessels on the beach, had helped to pull the boats up, and had been allowed to take part of the catch for immediate consumption, for drying or curing, and for later sale. The modernization of fishing and the much larger catch have led to the establishment of a project fishing authority with its own processing factory and trading outlets, leaving the women with no role to play in

Women
in
fishing
villages

this sector. The longer absence of husbands at sea has had some minor effects on the households' rice farming: the weeding does not appear to be done so well in coastal villages and yields are slightly lower as a result. The men are present at harvesting time to hire and direct labor. Any exchange labor for transplanting is usually managed by the women, whereas elsewhere on the site men make these arrangements.

Processing the paddy had been exclusively women's work with hired labor supplementing family labor. The introduction of mechanized milling (which is said to take about 85 per cent of the whole crop) has eased the workload of landed women but virtually eliminated this source of wage employment for landless women. With many former landless women now in farming households the effect on the incomes of the landed is not as great as would otherwise have been, but it represents a loss of wage employment of the remaining landless women relative to landless men.

Impact on
rice
processing
work

Secondary and tertiary employment creation was expected as a result of the expansion of primary production. The rice mills that have been established provide 650 jobs in wage employments, but 90 per cent of this is male labor. The fish processing plant created 74 wage jobs of which 5 were taken by women -- all clerical workers hired from off the site. The administrative complex and the health and educational establishments employ approximately 151 caterers, laundry staff, cleaners, and gardeners, most of them landless men who also undertake seasonal harvesting work. The Ministry of Works and the Department of

Sex
composition
of various
new sources
of
employment

Forestry employ an entirely male regular labor force of about 200 to maintain the main canals and laterals and to work on reforestation. Very few residents are involved in transportation and trading of the rice and fish output since this has been modernized and utilizes public service personnel from outside.

Of the expected off-farm employment generated through higher incomes little has so far appeared. There is an apparent cleavage between the produce from the red soil plots (which is overwhelmingly household self-provisioning) and the produce of the black soil plots (which is absorbed into the modern complex of regulated and private deliveries of paddy to the mills). The increased purchasing power is mainly spent on the purchase of urban manufactured goods such as clothes, household effects, bicycles, and radios, as well as food. Handicrafts and the sewing of wearing apparel have often been touted as new employment opportunities, but these activities, which would normally employ women, have fallen victim to the period of austerity which prevailed after implementation of the primary producing sector. It has also been pointed out by opponents of investment in these lines of production that even though the women have requested more income-gaining employment, the evidence is that the new rice technology has occupied women more fully than hitherto. This is certainly true, but these requests by women reveal that they are not happy about the form of their additional "employment."

No income
generation
for off-farm
employment

On the other hand, work by both men and women on simple wood products has now been curtailed by forestry restrictions and by the movement of residents into villages far from sources of wood. This loss of income-gaining employment has to be added to that lost through modernization of rice and fish processing and trading in order to gain any assessment of net income-gaining employment creation.

Unfortunately the lack of baseline data precludes any attempt at direct measurement of the net result, while the transformation of some landless households and illegal squatters into landed households makes it difficult to draw conclusions on which class of women gained or lost most. For most of the women the principal issue confronting them was that work creation had not provided them with more direct income, but the implications of this are more suitably raised under other objectives. Because of the lack of conceptualization, in all the plan documents, of the social relations of household labor allocation and of the sexual division of labor, the optimistic assumptions on diverse employment creation appear to have been highly conjectural. Moreover, it can be stated that a minority of the remaining landless women faced a form of exclusion from main line activities along with a loss of access to their former means of livelihood.

2. To counter poverty:

Summary: Household income in real terms undoubtedly increased among owner-cultivators and among the vast majority of the landless. But relative improvements in living standards and the satisfaction of basic needs have not been commensurate with increases in household cash income due to constraints on women's economic authority in the household and their lack of effective access to all resources. Higher income came at a cost of harder work in women's already fully committed labor and this had a negative impact on their role of delivering the basic needs of their families.

The most eloquent indicator of a reduction in poverty is an increase in real income or purchasing power. It is an enormous problem to measure all items of welfare, including those that emanate from the natural environment and from free government services, thus, real income is the only ^{feasible} measure. /However, real household income alone presents a very incomplete picture of living standards which depend heavily on the use made of income and the distribution of benefits among individual recipients. Furthermore, the work input of the income should also be included in any overall assessment of a reduction in poverty, for the marginal disutility of extra work can be greater than the marginal utility of extra income - again distributed among individuals. These reservations as they affect women will be dealt with under other objectives to follow, but here some qualitative comments are added regarding the observed rise in household real income.

The project manager's annual reports included estimates of household cash income derived from rice production, fishing and off-farm employment. The range of increases was, as expected, wide, but a clear

upward trend was easily discernible. The reported average income of residents before the project was \$358 per household. This included estimates of self-provisioning products. In the first five years of implementation, cash income alone had risen to a range of \$390 to \$480 (at constant pre-project prices).¹ The highest cash incomes were recorded in the fishing villages; the lowest in the upper end of the project area where extension services and input delivery systems are weakest. Unfortunately no estimates of the value of production on the red soil subsistence plots were available.

The land reform had increased the economic assets of the vast majority of the households, and had given them a secure productive base for their livelihoods. This was obviously the most important single measure in countering poverty and both sexes benefitted (though very unequally) from this asset distribution. The much higher yields and financial returns to rice production raised cash incomes to a new plateau, and unless land is fragmented in the future it can be assumed that this bulwark against former levels of poverty is permanent.

The most significant reductions in poverty (as measured by cash income) were obviously experienced by those households which had formerly been illegal squatters on the slopes of the hills, those which had formerly been small share-croppers on land close to the River Nemow, and those which had formerly been landless but were now owner-cultivators. Fuller year-round employment among most of the remaining land-

1. Annual Progress Reports, 1973-1978, Project Manager, Nemow.

less undoubtedly has meant a reduction in poverty among these households too.

3. To improve nutrition:

Summary: The new production base has brought about a degree of uniformity in nutrition over the whole site, with general improvement in caloric supply and a greater supply of fish to most residents, but a sharp decline in fish in the diet of coastal villagers. Variation in per capita food supply is due to variation in household size and to the presence of some polygamous households. The seasonality of the agricultural cycle imposed strains on women which led to the premature weaning of infants and sharp falls in standards of nutrition. Landless households have done less well than landed households in nutritional gains. Further nutritional benefits from both the existing levels of output and income, and from better use of land and labor must await corrections to women's economic authority in the household and recognition of the productive potential of food crops other than rice.

In this section we are concerned not only with women's gains and losses in nutritional status, along with men's, but with the ease or difficulty they face in delivering an adequate diet to their families. Since rural nutrition is rooted in the production base and in women's access to resources, it is necessary, in the absence of hard quantitative data, to seek an explanation of nutritional changes in new economic structures and the position of women in them.

There had been no official comprehensive survey of nutritional deficiencies prior to the project. The only information of patterns of nutritional status in the area was Brown's comment,¹ following her

1. A. D. Brown, "Traditional Medicine Practices in the Nemow Valley," Journal of Tropical Nutrition, July 1953.

anthropological study of traditional medical practices, that nutrition had been best in the coastal villages, average in the upper end of the site, and worst in the low-lying river area. Interviews during field investigation¹ confirmed that this was the distribution of nutritional status among newly settled residents at the start of the project. The explanation for the coastal nutritional status must lie in the product-mix of rice and fish of which substantial quantities were consumed by the producers, while those who had resided in the inland hills had produced a wide range of foods, especially vegetables, and many had kept chickens and goats. The low-lying river area had been more rice monocultural and heavily tenanted under share-cropping arrangements.

Field investigation elicited the fact that while calorie deficiencies could be said to have been virtually eliminated there are still manifestations of protein and vitamin deficiencies.² The incidence of blindness, though no higher than the national average, is persisting. No increase in birth weights has been noted over the last seven years. Children's sores are still slow to heal and recovery from bouts of influenza continue to be protracted. Medical personnel believe that nutritional status is now quite uniform over the whole site, although variation is noticeable by size of household, the larger ones appearing to exhibit more of the signs of nutritional deficiencies.

Variations
in nutri-
tional
changes

-
1. These were with personnel at the maternal and child health centers.
 2. Interviews with health personnel at the clinics and the maternal and child health centers.

Interviews with the women residents themselves confirmed the geographical distribution of nutritional changes. The women of former share-cropping households tended to agree that their diet is now better, notably due to their own supply of subsistence crops and the small purchases they make at the village shops. But women in the coastal villages complained bitterly that they cannot afford proper food any more, and that a few years ago there were frequent marital quarrels when wives were unable to include fish regularly in their husbands' diets.

Nutrition is most appropriately examined in terms of effective access to food, and the starting point must be an examination of the foods produced by the residents. The land resources for food crops are now equally distributed, with the exceptions that landless and particularly women-headed households are discriminated against and that where there is more than one wife in a household the quantity of red soil land for subsistence crops does not always increase proportionately with the number of wives. Moreover, the quantity of black soil available for rice production, which is supposed to satisfy household rice consumption requirements before being a source of money income, is fixed regardless of household size and can therefore be seen as a cause of variation in per capita land availability. Another source of difference in per capita rice production is the variability of labor input. In the coastal villages the women tend to be left more on their own to cultivate the rice crop (as well as their subsistence crops) while the men go fishing. Their resulting hostility to this work burden, the income of

Production
base for
nutrition

not control, may have contributed to the slightly lower rice yields observed in this area. It is in the coastal villages that the incidence of polygamy is perceptibly on the increase and this must be affecting the per capita output from the subsistence foods and rice.

The annual reports of the project manager provide supporting evidence to such a conclusion. Recorded yields are much the same over the whole site except that they are slightly lower in coastal areas and in the upper end. (Yields were measured by random spot checks of the standing crop just before harvest, and therefore should be free of the error of under-reporting of harvests.) The reports of the Farmers' Associations include data on delivery of paddy to the mills both for repayments of credit and for private sale. An examination of these records showed that total deliveries tend to be smaller in the coastal villages.¹ In addition, some of the commentary in the reports of later years refer to the difficulties of large households even to meet credit repayments with paddy deliveries, since after retaining enough rice for their own consumption there is scarcely enough to repay credit.

Where, before, part of the fish catch was passed to the wives of the fishermen to cook, cure or trade, today the entire catch enters a processing and marketing complex outside the control of the fishermen's families. The fishermen themselves receive their entire earnings in the form of cash wages. Quantities of fish are sold in shops at a

1. Annual Progress Reports, 1973-1978, Project Manager, Nemow.

standard price which provides fairly uniform access to this source of protein for all the project's resident households.

With people in the coastal areas consuming no more fish than people in other areas there can be no doubt that the protein content of the coastal diet has declined, but elsewhere it should be possible to conclude that protein intake has risen, especially in households that were formerly share-croppers concentrating on rice production.

The beans, green vegetables, and (in small quantities) lentils and maize grown on the subsistence plots, are almost entirely consumed by the producing household. Women interviewed during field investigations stated that very small quantities are traded between households for cash, in barter exchange, or sometimes repayable in terms of women's labor on another household's rice land. This trade in subsistence foods is the most direct evidence of the effect of the allocation of red soil land between households of varying size, and indicates that for the larger households the allocation has not been adequate to fulfill its primary purpose of self-sufficiency in subsistence crops. Since agricultural extension workers take little interest in these crops, and there is no reporting on their yields, it is not possible to draw hard conclusions on the efficiency of the division of women's labor between subsistence crops and rice cultivation, and in particular whether women's labor obligations on their husbands' rice lands means that they cannot spend sufficient time on the subsistence crop plots. However, comments by the women during field investigation to

the effect that they preferred to work on their subsistence crops because they have complete control over the produce suggests that, wherever possible, they give these crops priority and that this is a perfectly rational strategy from their viewpoint, if not from the planners'.

Landless households purchased their food from shops located in the project area. Prices in these shops have given rise to numerous complaints and some landless women said they purchase as much outside the project area as time permits. Medical personnel are of the opinion,¹ which is not substantiated with any concrete evidence, that the diet of the landless households is inferior to that of the farming households.

Landless
households

In spite of the limitations of the production and institutional structures to improving further nutritional levels, the nutritional extension workers believe they have enjoyed successes with their educational programs on better cooking methods and weaning practices, and in providing guidance on food purchases. Most of the women interviewed agreed on the value of this extension information, and it was noticeable during field investigations that these extension workers were among the most popular of all management staff because they had interested themselves in the women's lives. During interviews the nutrition extension workers volunteered the information that the women do not always have the time and resources to implement the nutrition advice offered, and that during periods of planting and harvesting many

Nutrition
extension
levels

1. Interviews with nutritional extension workers.

of the cooking and diet improvements are dropped, either because of temporary crises of cash availability or because of lack of time. Medical personnel interviewed also expressed some concern over cases of premature weaning when the agricultural cycle imposes an extra seasonal work burden on women.

The new production base serves to create greater uniformity of nutritional levels over the whole site with the majority of residents benefitting slightly. However, the system of land allocation and the institutional emphasis on maximizing the marketable surplus of the project, which weakened women's control over the family's labor and income resources meant that the best nutritional use of the project's capital investment had not been achieved. One could go further. Given the production and institutional design of the project, there has been an unnecessary trade-off between production and nutrition achievements.

4. To improve health:

Summary: In areas where health services have been established there has been a clear reduction in the incidence of cholera and tuberculosis, but malaria has persisted. Dysentery is still serious, especially at the lower end of the irrigation scheme, where it may well have increased. In spite of better developed health services at the lower end of the site, there is evidence that health is generally superior at the upper end, which can be attributed to the prevalence of several water-borne diseases that are transmitted through the irrigation system. While family planning is obtaining a good response, medical staff have not recorded any change in birthweights, which is an important statistic on women's general health.

It is essential to this study to see how women have benefitted from the official health services through their attendance at clinics and their acceptance of the facilities. Quantitative medical information usually records the incidence of serious diseases, but other indicators, such as birthweights, can inform more on the basic health status of women.

Together with being primarily responsible for nursing sick household members and caring for young children, women's own problems of biological reproduction make them much more important beneficiaries of any available health services than men. Thus, although any data on the incidence of diseases cannot be expected to be broken down by sex, observations on the population's health are an important aspect of women's lives.

The project's health centers were established by mid-1974, but the spread of the smaller clinics has been much slower, and the last two were yet to be established when a field investigation was undertaken in December, 1978. Because of this, and the number of villages per clinic varied over the project area, there has been an uneven distributional impact of the health services. The mobile health extension workers have tried to make up for this by spending proportionately more time in villages where it is known that residents are unable or unwilling to travel distances to the clinics.

Those parts of the health sector fully in operation have undertaken some regular data collection. This includes numbers of in-

Attendance
at clinics

patients and out-patients and average time of bed use.¹ The figures for attendance at the maternal and child health centers are separated from visits to the health centers by women. The former reveal figures approximately two-thirds of the latter, but the former are also showing the more rapid upward trend. It must be recognized that the division of the two kinds of statistics leaves an ambiguity since visits to the maternal and child health clinics can be used to raise general health issues as well. Since most of these services have been operating for no more than two or three years, and the rest even less, it is too early to comment on the meaning of these data.

Other regular data collection includes figures on the major diseases as reported: cholera, malaria, and tuberculosis. Because there were no baseline data on these diseases for the area, comparisons of a before and after situation are not possible. However, in areas near the two main health centres there has been a sharp decline in cholera and tuberculosis in the last four years. But the incidence of malaria has been reduced only slightly.¹

Serious
diseases

Unfortunately quantitative information on dysentery, blindness and skin infections is not yet available, and reliance on health workers for general observations had to be made during field investigation. Dysentery has remained high, especially in villages at the lower end of the project area. The women residents who were interviewed in this area expressed a degree of alarm about dysentery, claiming that it

Dysentery

1. Annual Progress Reports, 1970-1978, Project Manager, Nemow.

had greatly increased. They may well be correct, in spite of the doubt shown by health staff, since this would be in accord with environmental changes. Dysentery is particularly acute here among very young children and, on closer questioning, a few health workers agreed that there seems to be a peak in reported dysentery just after harvesting, which is thought to be associated with premature weaning. Dysentery is seen by health workers not so much as a killer but as a chronic disabling factor. Blindness has so far remained high, but it is early yet for any trend to be discernible. Health personnel are relying on the greater quantity of green vegetables in the diet to reduce the incidence of loss of sight. Likewise there is optimism about reducing the incidence of skin infections. Residents at the upper end of the project area seem to be much freer of infections than the average.

Even when it is in full operation, the usefulness of regular collection of health statistics must be limited by the fact that they indicate disease rather than health. However, one statistic, birthweight, is a revealing measure of women's general health status. Despite overall improvements in nutrition, there has been no noticeable increase in birthweights recorded in any of the maternal and child health clinics over the few years they have been operating. But there is already evidence of seasonality in birthweights which may indicate seasonality in women's energy balance (and insofar as this is associated with intensified peak harvesting periods, women may seasonally have less time for childcare and may terminate breastfeeding). When asked by the field investigator whether there was a noticeable seasonal variation in premature birth dates themselves, medical staff replied that they

Birth-
weights

were unaware of it. The staff of the maternal and child health clinics have campaigned vigorously for better childbirth practices and infant hygiene. To that end a significant addition to the health sector has been the training and incorporation of traditional midwives into the health service. This has also contributed to better communication between the women and the clinics.

Family planning has so far been regarded as generally successful where this service has been made available. Almost two thousand women have accepted IUDs and approximately 450 are on the pill. It is expected that the pill will supercede the IUD in the next few years. Condoms are available but few have come forward to make use of them. There are ten family planning field workers who undertake house-to-house visiting and they are reputed to have been responsible for almost 60 percent of the IUD and pill acceptors.

Family
planning
acceptance

The reduction of cholera and tuberculosis, but the persistence of dysentery, malaria and skin infections, and constant birthweights, demonstrates that the overall health measures are curative rather than preventive. It is an inescapable conclusion that the lack of safe supplies of domestic water imposes a burden on both residents and health workers since most of the water-borne diseases are showing resistance to home extension work and drugs, and their incidence is highest in the more populated downstream areas. Washing and bathing is performed in the irrigation streams, and water for home use collected in tin drums and cans and carried to the houses. Whatever the balance between the factors of downstream location and population concentration,

Water-borne
health
hazards
persist

it can be deduced that water from the irrigation system is cumulatively polluted as it moves to the coast. The provision of safe water supplies never reached the planning agenda. One well was sunk in 1973 but when water-borne diseases did not appear to decline in the village and it had become obvious that the well was polluted within a year, there was a reluctance among project officials to sink any more. No attempt seems to have been made of finding a way of securing wells against pollution. With the cost of tap water beyond the resources of management, women continue to rely on obtaining domestic water from the irrigation system. Extension workers continue to impress upon the women the importance of boiling water and this exercise might well have lowered the incidence of dysentery from what it would otherwise have been.

Before the project there was no refuse problem because there was less waste and this was burned off or left in the forest to rot. However, the advancement of a cash economy has meant that quantities of tins and softer packaging have accumulated and cannot so easily be disposed of. A system of refuse collection has been organized in about half of the villages and it is hoped to extend this to all villages in the next few years. However, between collections the refuse dumps at the edge of the villages remain a health hazard, especially for children seeking room to play.

Sanitation

Health, or rather the incidence of disease, does not appear to be closely related to the production base of the residents' livelihoods. Rice yields, household cash income, agricultural extension work are

all somewhat inferior in villages at the upper end of the project area, yet the evidence gleaned from the various health clinics during field investigation indicates that diseases are less and general health better here.

5. To raise levels of literacy and education:

Summary: Too short a time has elapsed since the establishment of educational services to judge their impact. Despite this, the existing data suggest that the wide difference between men's and women's literacy rates is not being narrowed. Demand for child labor, especially girls' labor, on the farms and in the house means that effective education, even after enrollment in schools, will be poorer for girls. Far fewer women than men have joined the existing adult literacy classes, and the reason again can be seen in their work schedules.

In any assessment of progress made in literacy and education it is necessary to review the facilities available, women's absolute and relative effective access to them, and obstacles in the conditions of work and social life to their attendance.

With no matching baseline data on levels of literacy and school enrollments, no quantitative comparisons can be made about education before and after implementation. Moreover, along with other public facilities, establishment of the schools was delayed and only 60 percent of the primary schools were operating by early 1978. The last project manager's annual report quoted official estimates (from surveys) for literacy rates for all men and all women of 20 and 12 per

1. Annual Project Reports, 1978, Project Manager, Nemow.

cent, respectively, with much higher rates among fewer residents near the coast. For the age group 16 to 25 years the rates were 25 and 16 percent.

The same report stated that 46 percent of primary-aged boys and 32 percent of primary-aged girls were enrolled in schools. None of the planned secondary schools are functioning yet. However, enrollments are a poor measure of effective education or of graduation. The drop-out rate and absenteeism come between these figures and any proper assessment of their meaning. With the reduced dependence on male children's labor and the greater dependence on female children's labor, absentee rates for girls has been much higher than for boys. This means that the difference between rates of enrollment and "graduation" is likely to be greater for girls than boys.

Enrollments

That there is a preference on the part of parents for educating sons is apparent from the data on enrollments, even though education costs parents very little, involving a small nominal fee and the cost of exercise books. When women were asked if their daughters and sons helped on the farms they all gave the same answers: daughters from the age of eight years assisted women at transplanting time, on weeding the rice crop, and looking after smaller children, while boys helped during the rice harvest. But daughters also helped their mothers in the houses. Demand for daughters' labor in particular can be expected to keep them away from school even when the schools are functioning and the girls are enrolled.

Obstacles
to
enrollments

Adult literacy also fell victim to the mood of austerity, although since it is less costly it has been developed ahead of secondary schools. Inevitably the enrollment rate for men has been much higher than for women, due to women's lack of time and the male orientation of the Residents' Associations' channels of communication. Among the adult female population in the villages, enrollments have never exceeded 6 percent, while male enrollments have varied between 9 and 28 percent.

Adult
literacy
classes

6. To reduce the work load and drudgery of women to free them for education and community activities:

Summary: Given the traditional sex-typing of agricultural tasks, the effect of new labor requirements has been the continued year-round work of landed women accompanied by greater intensity of daily work schedules at seasonal periods. For men the effect has been more days of the year worked, through double-cropping, but no greater intensity of work than previously. With no change in agricultural implements used, neither sex's hourly productivity can be presumed to have risen, but their fuller employment has led to a rise in annual productivity. Women face conflicts between work on the subsistence and rice crops, and between child care and productive work at seasonal peak periods. Women are unable to use exchange or hired labor to ease their burden (except for planting) because they have insufficient influence on either the organization of labor or the use of the profits from rice. Women in polygamous households and landless women probably do not work as hard as other women, but even landless women have a greater work load than men when household and child care responsibilities are taken into account.

It is crucial to an examination of women's work load to understand how changes in labor requirements and any forms of mechanization are distributed between men and women. In addition, it is necessary to see whether women's work is affected by the assistance or withdrawal of other family labor, by changes in exchange and hired labour, and by their own freedom to organize a more rational allocation of their time between tasks.

The new rice technology, the staggered arrival of irrigation water, the balance between subsistence and rice plots, and the uniform allocation of land per household had the effect of altering work patterns and labor relations between households. With no change in sex-typing of agricultural tasks, except in the case of some men assisting with the weeding and men appropriating more of the work in the fields at harvest time (while women had a heavier work burden of cooking meals for the harvesters), the more labor-intensive rice technology committed women to a great many more hours in the year and much longer days at seasonal peak periods in rice cultivation. It should be remembered that child care and housework must be added to this regimen of productive labor. Changes in men's work schedule were confined to ploughing and harvesting rice twice a year, with exchange labor extending those periods but not making them any more intensive than previously. Thus while women work more intensively on a greater number of days and perform agricultural work of one kind or another almost every day, men work more days of the year but no more intensively on any of those days. It might be said that while men are less underemployed, women are more fully employed.

New work
patterns
of landed
women

On the face of it the staggered planting and harvesting times, the facility of exchange labor, and the greater cash profits from rice cultivation -- which could be used to hire additional labor -- made for a rational allocation of labor on the site. Had women's work commitments been determined by and limited to this framework, the design of the production aspects of the project could be considered moderately gratifying to women, even if they were applying more hours a year to the rice plots than the men (a situation they were used to). But there were two factors which caused women stress and conflict.

The first was the allocation of their time between subsistence and rice crops. The conflict between these two food sectors occurred mainly at the time of weeding the rice crop, because whereas the women were prepared to forego work in their subsistence crops at rice transplanting and harvesting, they were keen to return to their subsistence crops in between. Much depended on the movements and cooperation of husbands. It has been seen that when husbands were absent on fishing expeditions the women took the opportunity to be slack in weeding. Underlying this conflict was a measure of resentment on the part of women of their obligation to a crop to whose cash returns they had no direct access (since this was governed by the arrangements between men and the cooperatives). From the viewpoint of the project, given the constraint on mobility of labor imposed by sex-typing of tasks, the allocation of women's labor between subsistence and rice crops might be seen as approximating some optimality, but from the viewpoint of

women it appeared very differently. They were bound to arrange (as far as they were permitted to do so) the substitutability of their labor on subsistence crops and rice in accordance with the resources it brought them directly. In this way it can be shown that the trade-off between one kind of "household" activity and another was different for women, on the one hand, and for project management (and men) on the other.

The second factor was that greater household cash income was not used to ease women's extra weeding or their very long days at planting and harvesting times. Women interviewed during field investigations complained that they had to spend up to three hours a day in additional cooking at harvest time if they had only two pots to cook from. They were also expected to join the harvesters in the fields for some hours of the day. The stress that this produced showed up in less time spent on housework, child care, and breastfeeding. There has been no introduction of any household technology; cooking and washing methods are as before. Nor do there appear to have been attempts made at collective child care, perhaps due to the declining percentages of women among harvesters and to the fact that labor organization was appropriated by the husbands. Three instances were quoted during interviews of women being hired to assist in the cooking tasks, but the other women interviewed claimed this to be unusual. Had women been in control of the cash returns to rice production there might well have been a more rational use of hired labor and no need for premature weaning of infants.

Child labor had always been drawn upon during heavy labor demand periods and female child labor had supplemented women's labor in housework and weeding, but with the introduction of new production patterns there was a marked divergence in the use made of girls' and boys' labor. The staggering of planting and harvesting, and the concomitant expansion of exchange labor have sharply reduced the amount of children's labor in the fields at this time. However, girls are now performing more weeding and assist their mothers in preparing meals for the exchange labor. They can also be seen working on the subsistence plots. Boys, on the other hand, are now freer of labor commitments than previously. This has had a recognized effect on the relative attendance of boys and girls in the schools.

One period of the agricultural cycle has been eased for farming women. The quantity of paddy retained for manual processing is less than it used to be, in spite of the greater harvest. This is due to the new rice milling facilities and the Farmers' Associations' system of taking delivery of paddy as credit repayment.

Two other tasks that women have traditionally performed have also undergone change. Fetching water used to account for up to 1 1/2 hours a day, but now, with access points as close as the irrigation streams, all the women interviewed claimed they spend only an average of half an hour a day fetching water for domestic purposes. Fuel for cooking used to be obtained from nearby forests and from the preparation of bullock dung cakes. Sometimes it was purchased. Today, very little is obtained

Water and
fuel
collection

tained from the forests since resettlement distributed the population at a distance from this source and most areas of woodland are now under protective restrictions. Bullock dung processing continues. But a much higher proportion of fuel is purchased in the form of wood and coal. This new development has reduced time spent by women in obtaining fuel but has created another problem: finding the cash from their small sales of surplus subsistence crops or from their husbands. During field investigation each woman interviewed was asked if she experienced difficulty in purchasing fuel and all replied affirmatively that finding the money was the problem.

It could be assumed that the burden of work in polygamous households is easier since land per adult woman is less and child care can be shared. Over the range of household and agricultural tasks on the household's land this was confirmed during field investigations. But women in polygamous households felt the pinch of low per capita income at their disposal sufficiently to occasionally join landless women in working for wages at transplanting and harvesting. Even so, given the limited employment opportunities for all landless women, it is reasonable to conclude that women in polygamous households did not average as much work as other women.

Women in
polygamous
households

Landless women now have greater regular employment throughout the year, yet are probably under less stress in productive work, even at peak labor demand periods, than landed women. But their incomes

Landless
women

are also less and this in itself contributes to additional effort in another area. It was landless women who complained most about the high prices in shops and they explained to the field investigator that they walked further afield to find cheap sources of food, fuel, and clothes. They also found that child care problems were acute at certain periods of the agricultural cycle, but some of them complained that it was a general problem throughout the year.

It is difficult to see how women find time or energy to join in the adult literacy classes or in communal activities. With effort a woman could attend some meetings, but her evenings are generally taken up with household tasks of which her husband is free. It is also not clear, and presumably is not to her, how literacy would benefit her, given that her days are committed to household maintenance and to a disproportionate share in supporting the economic base of the project.

7. To give women equal access with men to more resources and income:

Summary: The land reform and exclusively male membership of the Farmers' Associations have weakened women's legal entitlement to land and excluded them from direct access to credit, extension advice, marketing information, and the returns to their own labor on the rice crop. Their greater labor contribution to rice production has failed to give them much more cash, and in many cases women could no longer earn income from other sources. At the same time their need for money, to purchase supplementary foods and fuel, has risen. In polygamous landed households women even undertake casual wage labor in order to raise cash. Women expressed themselves forcefully on the issue of access to resources and some stated that they wanted rice plots of their own. It is difficult to see, given the present inflexibility of the production structures, how this problem can be rectified without radical intervention in land allocation and in institutions.

It is important to study the means of women's direct and indirect access to land, credit, extension information, marketing outlets, technology, and the returns to household labor. In particular it is relevant to see where they have made gains or losses, absolutely and relative to men.

The Nemow Project plan followed the usual custom of confirming male heads of household as the new class of landowning small farmers. A woman's "access" to rice land is not as farmer in her own right, nor even as a sharecropper. It is akin to bonded service labor in a special relationship to the farmer with benefits depending on individual character rather than institutionalized rights and guarantees. There is no equality of access to rice land between the sexes. Furthermore, it was suitable to the aggregate production targets that households should grow a large part of their own foodstuffs on subsistence plots. This subsidized the production of rice by contributing to the maintenance of the landed labor force and freed the project planners to organize the production and marketing of the staple commercial crop. That it was no real concession to women is confirmed by the fact that whereas the rice plots could be inherited (and inheritance by sons was officially encouraged) the subsistence plots were on loan. The women who were interviewed were asked what they thought of this kind of land allocation. All but one expressed anger. Two pointed out that if they "lost their husbands" they had nowhere to go - which essentially means loss of access to a livelihood. Two women volunteered the unexpected statement that "all the women wanted rice plots of their own."

The land reform as an obstacle

Non-access
to extension
services

In the future it is expected that some rice plots may be exchanged in sale, but clearly, capital for any off-farm enterprise cannot be raised through the sale of subsistence plots. The land reform also means that woman-headed households and women on their own through divorce or widowhood have no right of access at all to land. The service nature of this bonded labor is reinforced by the fact that women perform most of the work in the rice fields, but they still do not have access to agricultural extension assistance, waiting instead for their husbands to pass on relevant technical information. Agricultural extension workers who were interviewed stated that there had been discussion on directing these services to women, but this was voted down on the grounds that it would mean doubling the extension effort. There appears to have been no attempt made to select specific technical information relevant to women's agricultural tasks and to find channels of communicating it to them. Moreover, since the subsistence crops which women were granted charge over were not included in the project's marketable surplus and therefore did not achieve the status of a "bankable investment," there were no grounds in the prevailing logic for providing extension information for them. During the field investigation one member of the agricultural extension team went into great detail about the technical possibilities of extending subsistence crop acreage to black soils as these crops would do equally well there, and of applying different packages of fertilizers according to the quality of all subsistence plots. When asked whether this would be profitable on a credit basis he said he was convinced it would be for many parts

of the site, but that the technological arguments were confused by the fact that the subsistence plots carried a variety of crops with their individual responses to the soil. He claimed that specialization and the application of agricultural science could create large marketable surpluses but that it required planning, research and organization, and "nobody was interested." When asked whether the Farmers' Associations or Residents' Associations had ever raised the issue, he shrugged his shoulders and said, "The men are happy with what they've got."

Some of the consequences of women's lack of control over the income from rice production have been discussed. Their frequent complaints of high food prices in the shops can be seen in relation to the purchasing power at their disposal as well as to off-site prices. Perhaps the most eloquent testament to the sexes' unequal access to household income is the appearance of bicycles, transistor radios, and even watches and motor scooters (largely utilized by men) alongside the slight improvements in the average diet. Most revealing of all, the contrast between essential and non-essential consumer goods appears strongest in the coastal villages where there have been large cash injections from both rice cultivation and fishing. At the same time as women have suffered a weakening of their traditional access to household cash income through the institutionalized promotion of their husbands' rights, some in the former monocultural tenanted areas have gained the ability to control income in kind through access to subsistence plots. The new uniformity of this self-provisioning section per household made for a variable pattern of gains and losses. It is not possible to gauge

Institutional
lack of
access
to house-
hold
income

how women have gained overall in absolute terms from higher household income. That the average diet has improved is one indication. That more clothes have been purchased is another. But this was achieved by a more intensive application of women's labor, and one indicator of women's general health and strength - birthweight of offspring - suggests that an increased work load has literally "eaten up" the nutrition gains. It seems that any net benefit that they did win was not in proportion to that won by men.

The major household budget decision regards the amount of rice income which will be passed on to women, and it is very clear that this decision lay entirely with men. But women continue their traditional responsibility of making essential purchases. Thirty-one women interviewed were asked a variety of questions about financial decision-making in the household. Their responses are shown in the Table on the following page. The two landed women who stated that they earned more now came from former share-cropping households. The failure of landed women to have any direct expenditure in "other" items in contrast to landless women is due to rent paid by the latter, but also reveals the confinement of women to handling only the minimum essentials. The difference between the responses of landed and landless women to the questions " Do you get enough money for . . ." is interesting since the latter were poorer by any standard of measurement. There is, of course, no objective yardstick of what is enough. But these responses can be seen in the light of felt deprivation in relation to the amount

Changes in
household
financial
management

ISSUES OF HOUSEHOLD FINANCIAL MANAGEMENT

(N = sample size)

QUESTIONS	LANDED WOMEN					LANDLESS WOMEN						
	<u>N</u>	<u>Yes</u>	<u>No</u>			<u>N</u>	<u>Yes</u>	<u>No</u>				
Do you earn money yourself?	27	16	11			9	9	0				
If "yes," do you earn more now?	16	2	17			9	9	0				
If "no," did you used to earn money	11	11	0			-	-	-				
	<u>N</u>	<u>food</u>	<u>clothes</u>	<u>fuel</u>	<u>educ.*</u>	<u>other</u>	<u>N</u>	<u>food</u>	<u>clothes</u>	<u>fuel</u>	<u>educ.</u>	<u>other</u>
Do you always spend your own money on certain items?	16	16	3	16	0	0	9	9	9	9	0	9
Do you ask your husband for money for individual items?	27	27	27	27	0	0	9**	-	-	-	-	-
	<u>N</u>	<u>Yes</u>	<u>No</u>	<u>Special seasonal shortages</u>			<u>N</u>	<u>Yes</u>	<u>No</u>	<u>Special seasonal shortages</u>		
Do you get enough money for food?	27	4	27	27			9	3	6	9		
Do you get enough money for clothes?	27	8	19	0			9	2	7	9		
Do you get enough money for fuel?	27	0	27	0			9	0	9	9		
Does your husband give you money regularly for household needs?	27	15	12	-			9	0	9**	-		
Is this amount supposed to be for all your purchases?	27	0	27	-			-	-	-	-		

* N = 3 here. Education is discussed in the family, but expenses are paid by the husband.

** These proved to be irrelevant questions, since income was pooled and was not regular.

of money women knew was available to the "household." Replies to the last question are revealing as they indicate that the landed women understood that they had to keep asking their husbands for more money.

It is difficult to see how women can be granted greater access to household cash income without radical institutional changes, principally in land reform and allocation, and in the structure and functioning of the Farmers' Associations. But the moment when these changes might have been relatively easy to make is long past. There remains the possibility that women can devise their own cooperative arrangements to seek income-gaining employment. Credit-savings unions of women existed in coastal areas before the project, and these might have been seen as an embryonic form of such an institution. But they have been undermined by women's loss of money income in the new production structures, so that once again we see how early options taken by the planners pre-empted choices for later corrective action.

Magnitude
of required
reform

Traditional women's exchange labor groups, where they had existed for transplanting rice, were another possible association on which something might have been built. But the obvious extension of them, to rice processing, has been precluded by the establishment of the mills. Furthermore, the social relations between women in these exchange groups have been seriously weakened by the new practice of the men making all the labor arrangements.

Institutional
obstacles
to reform

If new off-farm income-gaining employment were to be promoted for women to give them equal access to cash income, it would have to come about largely on the initiative of a government department. Any light manufacturing based on the produce of the project would require inter-departmental coordination. With a history of poor coordination, the mood of financial austerity, and counter-arguments (such as already increasing household income and women's present full occupation), it is unlikely that anything will be done. With a structure of village patriarchy installed through the Residents' Associations, new ideas about opportunities for women's equal access to income have a poor chance of coming from the residents themselves through constituted channels of communication.

8. To bring women more into social and political affairs:

Summary: Population resettlement, the confirmation of a new village patriarchy through the leadership of the Residents' Associations and the related leadership of the Farmers' Associations, and the economic undermining of women's traditional kinship groups have all contributed to a weakening of women's social visibility and access to channels of communication. Their complaints about the conditions of their lives and work have been voiced informally to project staff. Improvement could come through the establishment of a women's caucus in the Residents' Association with guaranteed rights of public expression or a quota of women in its leadership.

Involvement in social and political affairs results from a number of factors, but evidence of women's involvement comes from the sexual

composition of the leadership of accepted institutions, the conditions of women's access to them, and the existence of alternative ways in which women can express their interests.

Population resettlement in more densely concentrated grouping has inevitably led to new socio-political relations for many of the residents. But everywhere on the site the focal point for community expression has been the new village Residents' Associations which were planned as the primary unit of government. However, the leadership of these Associations is dominated by men appointed for their prominence in rice cultivation. In the six villages visited there was no instance of women being elected. When asked about other villages, project staff could not call to mind any women who have been elected. It appears that these Associations are the civil counterparts of the Farmers' Associations, and that together they form a formidable village patriarchy.

The subject of safe supplies of domestic water probably best illustrates the failure to voice women's interests in this patriarchal institution. Some of the Residents' Associations initially asked for local wells to be built, but once they received a negative response they abandoned their request. In the last three years the management has heard of further requests for wells only through complaints made by many individual women to health personnel. Two years ago the management proposed to the "brother institutions" of Farmers' Associations that they impose a levy on their profits to finance wells, but this was vehemently rejected by all of them.

The Residents' Associations remain the sole duly constituted channel of requests and complaints for all residents, but women have shown a preference for voicing their problems of work and lack of purchasing power to various project staff with whom they came into contact. An official change in the leadership of the Residents' Associations to include a quota of women would be an improvement. But there remains the problem that women have less time than men to attend meetings or that the meetings are scheduled at inappropriate times for them. A separate "women's caucus" within the Association with direct access to the project manager might be more effective; and preferable to the traditional association of women in savings/credit unions or exchange labor groups whose bases have already been eroded by production changes. Such a caucus could be guaranteed a hearing at all general meetings of Residents' Associations so that women's collective recommendations and complaints would be heard by men collectively and not confined to individual household discussions.

9. To improve the legal and social status of women:

Summary: The weakening of land inheritance by women is seen as a major disabling factor in their future legal and social status. With women's new land inheritance situation, dowry practice can be expected to strengthen, but education and/or greater demand for daughters' labor in agriculture might be raising the age at marriage of women. Although the incidence of polygamy appears to be unchanging in general, it might be on the increase in coastal villages where cash income has risen most. The net effect of these factors on demographic behavior is not yet predictable.

How is women's legal and official status affected by their relative ownership of the means of production, by their position in the social relations of production, determinants of marriage customs, and by the strength of supportive kinship groups?

The economic base to the social and legal status of women in the Nemow Project is weak. Their rights to land inheritance are now very uncertain, while their rights to the returns to their labour in agriculture are more restricted than before. The inheritance situation is bound to affect women's future legal and social status. During the current period of amortization of new leases only one son can inherit if the father should die. From the tone of discussions with the project management during field investigation, it was deduced that there is likely to be pressure in future for son-only inheritance in order to restrain land fragmentation. Because daughters do not inherit as many productive resources as sons under Moslem law, parents bestow dowries on their daughters in order to marry them well, and the increased monetization of the local economy may well reinforce this practice, in turn confirming daughters' exclusion from land inheritance.

Causes of
a decline
in status

There has been no obvious change in the incidence of polygamy over most of the project area, although it may decline due to the restricted availability of red soil plots. However, in the coastal villages greater cash income from the combination of agricultural and fishing livelihoods appears to have encouraged a slight increase in polygamy

Polygamy

according to the project manager. Health extension workers commented during interviews that they believe the age at marriage has risen for women. They base this on their discussion with families. It is not easy to see why this should be so with the dowry system and polygamy being maintained. Schooling may be having an effect, while the usefulness of female family labor in farming could mean that older daughters are being retained in the family until younger daughters reach their full working capacity. If this is true it might lower total fertility rates in the future, but the demand for family labor may counter this. It is too soon in the life of the project to make any observations on changes in the incidence of divorce which is assumed by project personnel to have been the same as for other rural areas in the country. But it might be surmised that, with their more precarious legal basis to a livelihood, women at least would try harder to avoid divorce. There is no reason to believe that men's greater cash income would lead them to discard their wives, particularly if family labor is needed more and the issue of child custody creates a struggle. Taking second wives might be seen by men as an easier option.

Resettlement, as well as the aggressive promotion of the individual household as a separate profit-making enterprise, has weakened kinship ties at a time when the threats to women posed by divorce or widowhood are greater. When asked about visits to their parental homes the general reply from women was that they see less of their relatives now. When asked specifically about contact with their brothers, they claimed that they hardly saw them at all now. It is reasonable to conclude

that brothers would be less inclined to provide women with a home in the case of such need; especially since women are less likely to bring productive resources with them. Corrections to women's reduced power and greater dependency are difficult to envision against the backdrop of the new, seemingly monolithic patriarchy. Any countervailing institutional reforms would have to be strongly supported by officialdom.

Finally, the new legal and social status of women cannot be seen as encouraging any desire on their part to assert control over their fertility. Their greater dependence must mean that part of their minimal strategy is to go along with their husbands' ideas on the household's demographic behavior.

CONCLUSION

Summary of Findings

The program of resettlement and land reform had the effect of creating a high degree of uniformity of income, patterns of consumption, work commitments and living styles between households. Those who were formerly hired in upland sites or were tenants on low-lying sites enjoyed the greatest improvements in real household income and access to facilities. Nutrition improved marginally for everyone, but in coastal villages protein consumption appears to have declined due to the modernization of the fishing industry. It is too soon to comment on whether final production targets will be achieved, but there is no reason to doubt their success. In spite of this it cannot be said that women have enjoyed a clear net benefit. Landed women are working more intensively than before and still work much harder than their menfolk. The majority of the reduced numbers of landless women have more wage employment around the year although they have not gained as much in wage employment as landless men. A small minority of landless women including women on their own with children, have clearly failed to benefit in straight economic terms. With higher household cash income and public welfare services, women should have found it easier to meet the basic physical needs of themselves and their families. However, the sexual division of land ownership, of access to production and civic institutions, and of access to household cash income; the greater health hazards from greater population concentration without safe water supplies, and the greater demands on women's time and bodily resources

must be seen to offset many of the gains made from greater household income and health services. The failure to secure for women equal access to household cash income, and in many cases the loss of their personal income from trading surpluses of subsistence crops and fish, led to common complaints. Resentment over working on their husbands' rice plots sometimes led to women declining to work on rice plots when their husbands were absent, or to women in polygamous landed households seeking wage employment instead. Most revealing of all was the statement of two women that the women wanted rice plots of their own. With implementation of the welfare sector being held up through later financial problems, and with the early confirmation of male control over commercialized agricultural production and all new institutions, it was inevitable that provision for dealing with matters of special concern to women and of receiving their complaints in an organized manner was quite inadequate. Yet even had that provision been guaranteed, proper intervention could not have been made while the basic sex bias in land allocation and control, and in access to production markets continued. Unless these structures are changed any intervention can only be modestly ameliorative.

The weakened inheritance rights of women and kinship support systems, and women's de facto exclusion from consultation and village decision-making results in making women legal and social minors while holding them responsible for the bulk of the productive work.

Implications for Household Demographic Behavior

There can be some justifiable apprehension over the consequences of the project for population issues. While the addition of health and education facilities and welfare extension services can be assumed, all other things being constant, to be positive elements of the program to encourage the use of family planning for spacing and limiting purposes, the project does not necessarily facilitate its potential impact on health and fertility. This is so because other elements of the project - the production sector - have increased the demand for family labor, encouraged girls' absenteeism from school (now and in the future), not released the family's ability to make full use of health services or meet basic nutritional needs, and in general lowered the self-determination of women.

Girls' regular assistance in the home and in agriculture varies closely with work pressures on their mothers. The increased work pressures on mothers has an impact on the educational prospects of daughters, and encourages their absenteeism. If this continues, differentials in male and female literacy may tend to increase in the next generation. Age at marriage may be increasing, but with the education sector not fully established the cause of this can hardly be attributed to rising expectations of young females. It is more likely that the demand for their labor on the family holdings is the cause. While this demand may reduce the years of potential active reproduction, it does not reduce the overall demand for family labor and hence desired family size. Thus one would tend to expect the total fertility

rate among the landed to remain the same. This is not necessarily the case for landless women whose children are used much less intensively in agriculture, working only casually at peak seasonal times. But we have nothing to indicate that landless households view the situation as having been changed much and we are not seeing a change in their demographic behavior.

In spite of the heavy concentration of health services in the Nemow Project, birth weights are constant and the persistence of infant diarrheal disease arising from polluted water or ongoing malnutrition does not motivate lowered family size. The intensification of the seasonality of women's work loads and their general nutritional status could have an important bearing on fertility outcomes. One outcome mentioned above is the premature weaning of infants at harvesting time, leading to increased infant morbidity and mortality and a likely reduction of post partum amenorrhea - hence, shortened birth intervals.

The principle of selective intervention and seasonal concentration of family planning and health services could be applied whenever premature weaning was anticipated, and extended to counter peak periods of general illnesses, such as dysentery or malnutrition, to protect vulnerable-aged children. The interventions required to achieve long-term reductions in fertility may rely on a restructuring of the production sector of the project along the lines suggested in the section entitled "Comparison of Actual and Alternative Project Design". In brief, by expanding women's access to resources - land especially -

and including them in the political process that makes production decisions, there might be beneficial reductions in their work load and support for their status. This might lead to more positive role models of women, reduced labor demand for female children, and strengthened decision-making powers in the home, all contributing to expanding the base of women's status beyond the bearing of children. A final area for investigation in evaluating the demographic impact of the project would be to examine the impact of women's direct access to land and cash on the family's consumption of food, use of clean water, improvements in shelter, use of health and other social services, and investments in children - such as freeing them for primary education and prolonging their education. At this point we do not have enough information about male and female roles in the disposition of income in the Nemow Case, but it is worth speculating that the positive relationship between a favorable income distribution and declining fertility extends into the distribution of income within the household.

Women's Interests and the Real Trade-Offs:

Before embarking on the subject of how the Nemow Project might otherwise have been planned, it is helpful to identify the trade-offs between women's interests and development goals, and to distinguish between trade-offs arising from the particular design of the project and those which appear as irreducible, inevitable ones. In doing this we are implicitly asking: "When are women's interests a production item and when are they a consumption item on the agenda; do some women always have to lose; and do all women always have to lose some-

thing?" Finally, it is important to understand whether a trade-off occurred due to an ideological bias in the plan, due to lack of base-line information, or due to administrative convenience.

There is no reason to believe that the project's marketable surplus of rice would have been in jeopardy had landed women's work load been eased. The farming household's use of exchange and hired labor could have extended to transplanting, weeding, harvesting, cooking meals for harvesters, and collective child-care had control over labor arrangements and over rice profits been more democratically distributed between the sexes. The problem lies not in technical or commercial non-viability of less arduous work loads for women, but in the convenient and non-disputable power of patriarchy to allocate family net income between physical relief and items of consumer expenditure. It could be suggested that rice yields and surpluses might have even improved had women's work load and resentment over it been modified.

Production goals and easing women's work load

In this way, women's benefits from development can be seen as a factor favoring a higher economic internal rate of return. Likewise, even greater nutritional improvements could have been achieved at no cost to rice surpluses had (a) women more control over the returns to their labor, and (b) women been given access to extension services and to technical help on their subsistence plots (which would have led to a greater supply of other foods and more cash for women). But would rice surpluses have been jeopardized on account of men's resentment to women

Production goals and improving nutrition

Production goals and women's access to rice income

having equal access to rice profits? It is difficult to see why since men stood to improve their position in absolute terms with the new rice technology anyway.

It is doubtful whether the production goals of the project would have suffered had landless women enjoyed equal access with landless men to the newly-created full-time wage employment in the rice and fish processing mills and in the various jobs provided by project management. A small minority of landless women, mostly single mothers or women in families handicapped by ill health, failed to gain regular access to agricultural wage labor and were dependent on casual work. That women failed to obtain these positions must be put down to an ideological presupposition that men are the more important providers for the family.

Production goals and women's wage employment

As production structures are arranged at Nemo there is bound to be a trade-off between developing marketable surpluses and kinship ties. Commercialization and the encouragement of private profit accumulation can be expected to weaken traditional gift exchange and kinship ties, especially sibling relationships. With these factors diminishing the possibility for divorced "landed" women to find a decent alternative livelihood, women are likely to try hard to avoid divorce. One result could be the persistence of the present incidence of polygamy, particularly since family labor is more useful now to the male head of household. This makes it all the more imperative that women's individual access to resources be guaranteed.

Production goals and kinship ties

No justification exists, in terms of safeguarding food production goals by avoiding trade-offs, for denying women ownership of red soil plots for subsistence crops. This practice must be seen as being rooted in the notion that subsistence plots should be "attached" to husbands (that is, to owners of rice plots) and to their life cycle, and that wives are potentially a "floating or substitutable population." This says something about the planners' view of women's legal and economic status and the expendability of the lives of widowed and divorced women, not to mention their regard for the survival of women-headed households. It is a fact that women do all the work on the subsistence crops and therefore have some "comparative labor advantage in subsistence crop production." But in addition they spend more hours per year on the rice plots than do their husbands, so having an "absolute labor advantage" over men on rice production. Had they, rather than men, owned the rice plots, there might have been greater societal benefits accruing from the expanded use of exchange and hired labor, increased girls' school attendance, and the satisfaction of basic needs. The bestowal of ownership rights of rice plots to men only has to be seen as essentially an ideological bias based on an image of what a modern farming household should look like regardless of traditional inheritance rights and the legal status of women. Doubtless, existing patriarchy would not have tolerated men being excluded from land ownership, however rational could be the case for that on other grounds, but separate men's and women's rice plots, or joint ownership, would not have offended the spirit of traditional laws. Sex-typing of particular

Production goals and women's ownership of land

tasks would no doubt have continued, but women would have been in a far stronger position to enforce a more rational use of all sources of labor and of all income.

The trade-off between irrigation and population concentration, on the one hand, and continued or worsening malaria and dysentery on the other, appears to be unavoidable unless the government is sufficiently concerned about health to spend part of its profits from the project on the "consumption item" of health. It can be argued that this is a consumption item only in the short term. If the government recognized the extra burden on society of family sickness and of infant mortality, then the long-term benefits of health expenditure would be more efficient agricultural labor and more stable demographic behavior. If health services are more selective and strategically concentrated, and if safe domestic water supplies are developed in downstream areas, the benefit-cost ratio of this expenditure could be high.

Production goals and health

The loss of coastal women's rights to part of the fish catch was inevitable as this was a case of an industry being appropriated by extra-household powers. Likewise the diminution of the protein diet of coastal villagers was an unavoidable trade-off with promoting a greater marketable fish surplus for the benefit of the whole project and other areas.

Modernization of fishing and coastal district

The study of the impact of the Nemow Project on women reveals that women's interests and the basic needs of their families need not be viewed as consumption items on the total plan budget. There is no

necessary trade-off between achieving production goals and raising the economic, social, and legal status of women. Indeed, there are many potential instances of mutual benefits between the project's aims and women's interests. That these opportunities were missed must be put down to a combination of ideological bias, lack of information, and a desire for expediency among planners and administrators. The principal lesson of the Nemow Project is that many of the weaknesses in the performance of production, income distribution, education, health and nutrition can be traced back to women's lack of access to resources in their own right.

Comparison of Actual and Alternative Project Designs: Population and Development Impact

From the above it can be concluded that there was more than one way of achieving the production goals of the Nemow Project. That women had a full role to play can not be questioned, but the terms on which they were obliged to fulfill that role left much to be desired. Women's role in the project and the subsequent effect on production goals and the satisfaction of basic needs is illustrated by the diagram on the following page. The diagram shows how the initial option taken on the distribution of productive resources between the sexes determined the relative representation of the sexes in the Farmers' and Residents' Associations as well as the derived factor of unequal distribution of income within the household. Once this structure was laid down successive and cumulative consequences were inevitable. Some later ameliorative changes in the structure and functions of the Residents'

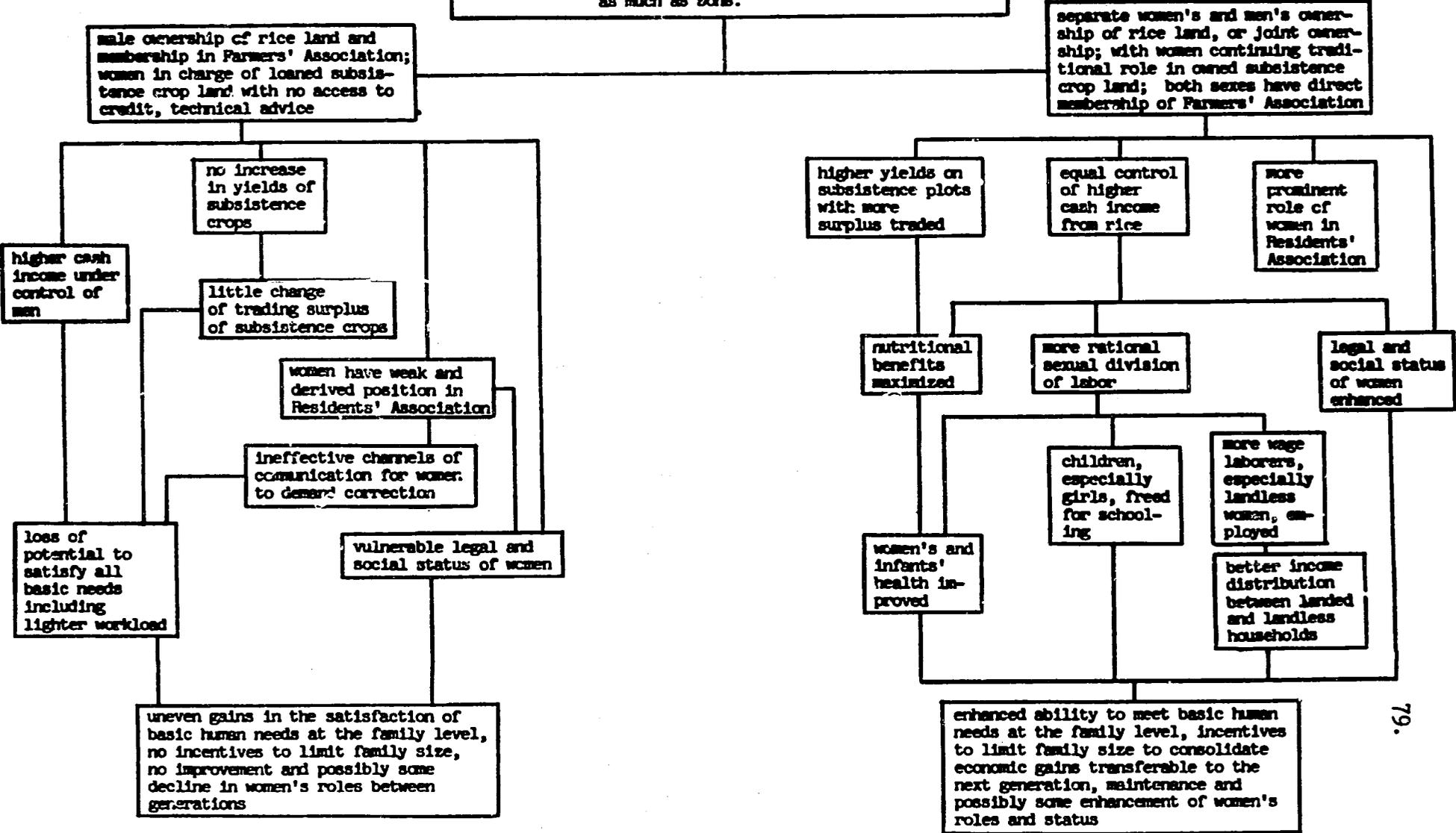
Environment: irrigated black soil good for rice growing, subsistence crops possible on both red and black soils.

Traditional sexual division of labor: women work subsistence crops, women and men work rice crop.

Traditional land inheritance: daughters inherit one-half as much as sons.

ACTUAL

ALTERNATIVE



Association could have been made, but it is difficult to see how the allocation of rice income and labor use could have been properly corrected by reform of the Farmer's Association without a change in the sexual division of authority over rice plots. And while the constraints on women's own choices were cumulatively strengthened, there was no remedial intervention by project management. On the right-hand side of the diagram is an alternative allocation of productive resources and set of production relations between the sexes. Not only are the impacts of women on the project and of the project on women more beneficial, but the more equal economic and institutional authority of men and women allows the project manager a greater role in acting on expressed tensions regarding matters such as land substitution, specialization of crops, and sources of labor for all sex-typed tasks. The economic enfranchisement of the whole adult population should not only lead to a better informed management but also empower it to intervene on a wide range of issues.

As the Nemow Project stands now some improvements can be made by making health services more relevant, by introducing a women's caucus in the Residents' Associations, and by placing controls on individual men's accounts at the Farmers' Associations. But if something more than this patching-up is to be done, full government commitment to a correction of land allocation is essential.

PART III: Methodological Discussion: How to Evaluate the Impact of Large Scale Development Projects on Women

In designating a format for an evaluation of the impact on women of a large scale rural development project, the following reference points were applied. The first reference point was consideration of the audience. The primary readership of this kind of evaluation is assumed to consist of aid donors and project planners and designers.

This means that:

- a. The format must, at the least, respond to the stated goals of the project planners;
- b. It should be educational in that it encourages planners to recognize women's special interests and needs and hence expand the scope of their customary objectives;
- c. The analysis should not be couched in the rigorous form of any or several particular disciplines;
- d. It should be sympathetic to the different actors and sectoral interests of project implementation;
- e. It should point out the areas of flexibility or rigidity in the project, and the stages when corrective intervention might have been made;
- f. It should describe alternative ingredients in the design which would have promoted women's interests while securing the main goals of the project.

The two main implications of the above are that:

- a. In deciding how to select and order the criteria for evaluating the success of the project, the criteria were presented in the form of the official objectives as well as additional ones which elucidate the particular impact of the project on women;
- b. A section on the phasing of implementation is included to demonstrate both the accretion of options taken which had an impact on women and the moments when options were still reasonably open.

The second reference point was identification of what women ought to have gained or secured from the project. This was difficult to establish because project designs and appraisals rarely indicate a wide range of goals for women and because the subject of women's ultimate status can be seen as highly contentious. There is no normative image of the fruits of development for women or of women's ultimate emancipation. Moreover, a single project is limited in scope and can only act on the givens of the local situation. Nevertheless, it can be assumed that there are certain conditions existent among women which any project ought to attempt to improve upon, and there is a fairly wide consensus on what those conditions are: health, nutrition, workload, access to resources commensurate with responsibilities, roles in decision-making in the household, in the village and in the community, and in the planning of the project.

It is always necessary to be mindful of what women have lost, as well as what they have or have not gained. Inevitably women, like men, experience "trade-offs" during the development process, and it is important to recognize that there are numerous economic, social and political variables which undergo change in various directions. Hence, a degree of restraint is in order when trying to draw final conclusions on the net balance of accretions or subventions to women's overall situation. Since one of the functions of this format is to educate, the evaluation is written in such a way that it explains how certain results came about, so that planners and project staff are implicitly posed the question "Was this expected from the plan?"

The third reference point for the format is the need to illustrate an alternative plan on the assumption that there can be more than one way of achieving certain economic goals. The implications of this can be raised and given in a manner which offers alternative approaches.

Determining the Objectives to be Used as Criteria

Those official objectives of the project which reflect on women in a special way should be taken first (and the remainder discarded), although they might be appropriately rephrased. Each objective should be examined both as its benefits were realized by women and as it involved women's participation. In this way both the gains and losses, and the role of women in reaching those gains and losses, can be examined. The additional objectives should be selected on account of their inherent capacity to illuminate other gains and losses.

What to Look for in the Project's Design and Effects

- A. In the official design of the project (the identification, feasibility and Appraisal reports) the points to look for are:
- a. Are women singled out as a specific target group? Are women-headed households given specific mention?
 - b. Do the stated objectives allow for the potential contribution of women to the primary goals of the project?
 - c. Are the basic needs of the family for which women have responsibility mentioned, and how?
 - d. What are the stated benefits expected for women in the areas of:
 - land ownership,
 - acquisition of skills,
 - increased productivity,
 - opportunities for directly earning cash income, welfare amenities?

- e. What resources are earmarked for the stated benefits for women? (Training facilities, extension services, land rights, credit facilities, new income-earning employment.)
- f. Is it possible to identify other assumptions made in stating these expected benefits?
- g. Does the project envisage greater participation by women in production and marketing, and in decision-making both inside and outside the household?
- h. Is provision made for guaranteeing women's own access to new institutions?
- i. Did women and men play any roles in planning the project? Were they consulted?

B. When examining implementation and impact the points to look for are:

Economic

- a. Have women gained or lost:
 - access to land in their own right,
 - control over the sale of produce,
 - assistance from other household members in their work schedules,
 - opportunities for earning cash income directly?
- b. What effect on women's and girls' work load has resulted from:
 - new cropping patterns,
 - new agricultural implements,
 - mechanization,
 - changes in exchange labour or hired labour,
 - withdrawal of other household members' labour,
 - resettlement of residence,
 - re-allocation of land,
 - distance to supplies of water and firewood,
 - new hygiene and nutrition practices,
 - new household technology?
- c. Are there any probable implications for demographic behavior?

Training and Education

- a. How many women, relative to the numbers of men, have received training or extension advice directly?

- b. How many women, relative to men, have gained from any adult education facilities?
- c. What is the relative attendance of boys and girls at different grades of education?
- d. What are the special obstacles to women and girls receiving training and education?

Health and Nutrition

- a. How many women benefitted from different kinds of health facilities?
- b. Are there any obstacles to women reaching health facilities?
- c. What is the relation between sources of safe water for domestic use, women's work routine, and changes in the incidence of water-borne diseases?
- d. Which sources of food have expanded and which have diminished (household subsistence plots, shares of household commercial food production, purchased food)?
- e. What impact on the diet has resulted from changes in the sources of food?
- f. Are these any probable implications for demographic behavior?

Power, Dependence and Legal Status

- a. Are women more dependent on their husband's cash income for household food and necessities? Is there a new seasonal factor in the disposable cash income available to women?
- b. What roles do women play in the economic institutions?
- c. What roles do women play in the social and political institutions?
- d. Have there been changes in:
 - women's age at marriage,
 - incidence of divorce,
 - incidence of polygamy,
 - dowry or bridewealth practices,
 - inheritance practices,
 - size of households?

- e. Has the project changed the aspirations of the women?
- f. Are there any probable implications for demographic behavior?

When describing the implementation and the effects of the project on women, the interplay of forces and variables bringing about consequences should be explained.

Source Material for Evaluation and Field Investigation Methodology

Examining information on the progress of the project and its effects on women could well prove to be skilled detective work. Nevertheless, official documentation is likely to offer some corroboration of field investigation findings.

Official sources of information for evaluation will be progress reports of involved ministries, project management, clinics, cooperatives, and other institutions. They may consist of annual reports, ad hoc reports, or summaries of work undertaken. There may also be evaluations performed by ministries or international agencies.

Field investigation is likely to vary according to the size and nature of the project, the length of time that can be spent on the site, and access to project personnel.

A list of the topics that the investigator can be expected to look out for was provided above. No hard and fast rule can be set for the balance between quantitative and qualitative information to be obtained, but the latter is probably to be emphasized since commenting

on the position of women and the effects of the project entails investigating production relations between people, opinions of the women and project personnel on conditions and on forces that brought about those conditions, and the contradictions that remain latent. Quantitative data from health clinics and cooperatives should also be obtained. Even the shortest field visit should include interviewing a stratified sample of the women on the site. If field work is to take several months, a sample survey of women using a questionnaire on some of the topics raised above should be undertaken, as this would lend quantitative rigor to the qualitative information. When sampling, consideration should be given to stratification by location within the site and to class of woman.

Structure of the Study

- A. The study of the impact on women should commence with the main characteristics of the projects, including:
 - a. How it came about (usually production goals of government are the leading cause),
 - b. catchment area (population and environment),
 - c. an ethnological sketch of the society as it was, including the role of any off-site population in the economy,
 - d. stated objectives of the projects, and suitable supplementary ones,
 - e. whether the project is an integrated economic and social package, and what is included,
 - f. any restructuring of access to resources (population resettlement, land reform, remaining landless, new institutions established, irrigation design, and any peculiar characteristics of the irrigation as it might affect labor patterns).

A great deal of this can be written up in a way that makes the reader immediately aware of the implications for women. (There is no need to detail the expenditures given in the project appraisal, etc., unless a useful comparison can be made such as total irrigation costs and estimates of the costs of a safe water supply. But estimates of future increases in household income, or in employment creation - and where - can usefully be included.)

B. An Examination of the Data Base of the Project Plan:

With many projects (especially those in the past) it has to be expected that very little information on women's pre-existing work, production and general welfare will have been utilized, and in this event the lack of data should be commented upon. Project appraisals usually contain aggregate data (particularly on diseases and literacy) and these might not only be broken down by sex, but might apply to national or regional averages. Nevertheless, if these are the only data on the subject they should be mentioned.

Data on principal targets and predictions of variables (food supply, employment, etc.), of the project should be mentioned as they are part of the objectives against which evaluation must be made.

Apart from the official project documents, other baseline data might be extruded from any known special studies made on the area previously or on area which were similar to the project area as it was. Since data from this source will be scarce in most cases, and since the

project appraisal will probably mention national data, some liberty may be taken in quoting off-site data or other national averages if this is suitable to fill out what would otherwise be a very sketchy picture.

Baseline data which should be included in the description of the main characteristics of the project might be accompanied by a commentary on the adequacy of basic information for formulating the objectives and the design of the project. This would particularly apply to women's past and future family farm work, and expected new employment opportunities.

C. Implementation

Every project passes through stages which are characterized by changes in:

- a. availability of funds,
- b. source of directing and coordinating authority,
- c. role and influence of international agencies,
- d. relative emphasis on economic and social components,
- e. employment creation during the stage of construction,
- f. ease of operation of new institutions,
- g. teething problems and complaints.

The combined operation of these factors can present opportunities and problems specific to women. For instance, the early years might be characterized by financial largesse, emphasis on technical expertise, and control of any revisions to the project by production authorities; while the later years are characterized by financial restriction, more

control by project management staff and demands for more welfare amenities. Women's issues could emerge with varying force and consideration within these two periods. Comments on the stages of implementation could describe the forces at play in allocating funds, the opportunities gained or lost, and the points when intervention might have been made.

D. Assessing the Realization of All the Objectives Concerning Women:

Here commentary is presented not only on the gains and losses experienced by women, but how those gains and losses came about through the prevailing set of social relations. If meaningful, any likely implications for household demographic behavior should be drawn out. Whenever "pertinent to the exploration," it is useful to comment on the series of choices made in the design and implementation which had a cumulative impact on women, and the degree of likely difficulty in reversing the impact.

E. Conclusion:

Although the Conclusion should begin with a summary of the findings on the impact on women it ought to go much further to answer questions such as the following:

1. Were the trade-offs between women's interests and the primary goals of the project due to technical or environmental considerations, to ignorance emanating from the poor data base, to ideological preferences, to administrative convenience, or to bureaucratic mistakes?

2. What alternative design for the project, which was environmentally, economically and culturally feasible, might have had a more favorable impact on women?
3. How could such an alternative design have minimized or eliminated the trade-offs, and have created actual benefits between women's interests and the primary goals of the project?
4. In what ways would this alternative design make more positive the hidden factor of women's role in the economic internal rate of return?
5. How are active options on fertility control provided by alternative designs?
6. Do some women always have to lose out "on balance"?
7. Do all women always have to lose some particular things?
8. What can be done to the project at this late stage to improve it?

In this way the questions "What should have been done then?" and "How can women's position be improved now?" can be answered.

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