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P.L. 480 TITLE II
EVALUATION OF FOOD FOR WORK (FFW) IN INDIA

SUMMARY REPORT

by

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1. EXECUTIVE SUMMARY

In 1979, the Community Systems Foundation (CSF) of Ann Arbor, Michigan, was asked to conduct an interim evaluation of the India PL 480 Title II program. This evaluation was a first step in upgrading the overall India Title II program. The report made recommendations for future monitoring and evaluation of the India Title II program, including Food For Work (FFW).[1/]

As a follow-on to CSF's qualitative assessment, USAID/India determined that a quantitative assessment of the FFW program should be undertaken to document the most important results from the major project types, and provide a basis for efforts to improve FFW in India. Practical Concepts Incorporated (PCI) of Washington, D.C. was contracted to begin this work and was asked to develop an evaluation plan for the FFW program as well as a training plan for an improved project monitoring and evaluation system. [2/] PCI submitted its evaluation and training plan to AID in December 1980. The plan called for evaluating two sets of benefits: (a) the "recipient stream" of benefits to food recipients, i.e. workers on FFW projects, and (b) the "asset stream" of benefits, which are those accruing to users of the completed assets. A survey was proposed for evaluating the recipient stream of benefits. A series of case studies was proposed for evaluating the asset stream of benefits. The plan also proposed using Indian institutes to carry out the studies. The training plan envisaged a series of seminars that would follow the evaluation studies. The seminars were designed to provide to voluntary agency personnel who manage the FFW program instruction in an improved monitoring and evaluation system based, in part, on the lessons learned in the evaluation studies.

Using the PCI's plan as a basic guide, eleven evaluation studies were begun by USAID in late 1981 with the collaboration of Catholic Relief Services/India (CRS/India). These comprised five recipient profile studies, and six asset studies, selected to cover all CRS zones and major project types. These studies were completed in December, 1983. They were as follows:

1. Recipient Profile Study (RPS) Calcutta Zone (North Bihar)
2. RPS Calcutta Zone (South Bihar)
3. RPS Bombay Zone
4. RPS Madras Zone
5. RPS Cochin Zone
6. Delhi Zone tanks asset study
7. Madras Zone deepened irrigation wells asset study

8. Bombay Zone land levelling asset study
9. Calcutta Zone (North Bihar) land levelling asset study
10. Calcutta Zone (South Bihar) minor irrigation (wells) asset study
11. Cochin Zone low cost housing asset study

ASSET STUDIES

The asset study findings reveal that the CRS/India FFW program, most of which comprises small individual agricultural projects rather than larger community-based public works projects, is having a positive effect on development in rural India. Economic indicators, especially those relating to beneficiary income and agricultural output, show marked improvements.

Major FFW activities such as land levelling, and minor irrigation have led to increases in cropped area, increases in area irrigated, and to increases in the value of agricultural output per beneficiary. Total cropped area per beneficiary increased between a range of 11 percent to 32 percent. Similarly, area irrigated increased in the three irrigation studies in a range between 26 percent to 100 percent per beneficiary. Consistent with these changes in cropped area and irrigation, there was a change in value of agricultural output that spanned a range from 40 percent increase to 131 percent increase per beneficiary. Results also revealed that among the five agricultural-based asset studies, 68 percent of the beneficiaries were small and marginal farmers (see Table 2).

The fact that most of the assets built under CRS/India's FFW program are individual, privately owned agricultural projects is a major program strength. First, there appears to be a strong relationship between direct ownership and effective use of the asset. This dimension is underscored by the finding that the majority of beneficiaries are marginal and small farmers, owning under 2-1/2 and 5 acres respectively, and who are, in per capita income terms, at, or below, the official GOI poverty line; groups for whom marginal improvements in agricultural productivity translate into significant household income increases. Second, the Catholic Church diocesan structure provides CRS (and USAID/India) a decentralized, and highly personalized system through which to administer FFW. The sincere dedication of diocesan representatives to help their fellow man, especially the very poor, makes the CRS program effective in reaching remote rural areas, and addressing the needy often not reached by other poverty programs. Third, the dedicated, private, non-political position of diocesan representatives appears to be

effective in excluding the influence of local political interests, pecuniary interests, and bureaucratic interests from the project management process, thereby making it more likely that the truly needy benefit.

Lessons Learned:

1. The survey designs used in these evaluation studies were effective in quantitatively capturing the impact of FFW, but failed to capture qualitative aspects of the process that explain why the changes cited occurred. Case studies designed to complement the surveys would have helped tell the full story of FFW.

2. The CRS FFW program, up to now, has lacked a monitoring and evaluation system to identify and analyze the impact of the program. A monitoring and evaluation system that would provide an on-going indication of program performance is required so that program managers and other interested audiences are able to reflect on the worth of the program. The absence of such a system has resulted in CRS/India's FFW program being viewed by outside audiences as a widely scattered ad hoc endeavor whose parts (or sum of its parts) fails to provide meaningful development impact. Contrary to this popular view, the evaluation experience shows that the program is having a definite impact on the rural poor.

3. While the evaluation results show that the program is having a definite impact on the rural poor, study designs did not test other variables such as weather phenomena, or use of HYV seeds, etc, to which production increases could have been attributed. The implementation of a monitoring and evaluation system as a follow-on to these evaluation studies provides an opportunity to rigorously assess the role of all relevant independent variables, including FFW, in affecting change on dependent variables such as agricultural production. Therefore, when implementing a monitoring and evaluation system, care should be taken to adopt a system that can weigh all relevant independent variables.

RECIPIENT PROFILE STUDY

Recipient profile study findings show that the program is providing employment opportunities to the truly needy of rural Indian society. Broadly, the studies show that FFW is providing about 71 days of employment per recipient per year or about 21 percent of a household's annual employment. For the average FFW recipient, annual household income increased from Rs.2,619 during the year prior to working on an FFW project to Rs. 3,700 during the year in which he/she worked on an FFW project. Of the Rs.1,081 increase, Rs.780. (or 72% of the total increase) were attributed to employment on FFW projects. These figures track closely with official All-India rural household data. For example, for the latest year available (1970-71) the average household income in rural India for landless households was Rs.2,233 3/. If we factor in an annual wage increase of 1.6% 4/ compounded for 10 years, the household income for 1981 would be Rs.2,617.13, quite close to the pre-FFW annual household income of Rs.2,619. Nevertheless the average recipient household is still below the official GOI poverty line of Rs. 76 per capita per month in rural areas, with the average recipient household per capita income being about Rs.65 per month. Most recipients were found to be landless agricultural laborers and non-agricultural laborers (about 64 percent); 28 percent were small and marginal farmers and 8 percent were small traders or service workers. In addition to the employment and income indicators, the studies show that the overwhelming majority of recipients (about 78 percent) were members of Scheduled Tribes, Scheduled Castes, and other "backward classes", all referred to officially by the GOI as "the weaker sections" of Indian Society, groups targetted by GOI as the neediest in terms of economic and social development assistance.

Lessons Learned

1. The studies show that FFW contributed about one-fifth of recipient household employment. The studies did not attempt to determine if this was a one-time event, or a repeated experience from year to year. In future studies, an attempt should be made to capture the magnitude of repeated experience. This would help resolve concern among some food-aid critics about dependency on FFW, as well as provide insights into how repeated experiences may contribute to reduced migration and improved family stability.

2. The attempt to obtain weight and height measures of children was hampered by inexperienced data collectors and supervisors. Accurate data would have enhanced the recipient profile studies by demonstrating what, if any, nutritional impact FFW may be having on recipient households. It would be advisable to employ the expertise of the Nutrition Monitoring Bureau of the National Institute of Nutrition, Hyderabad, for any similar future studies in India.

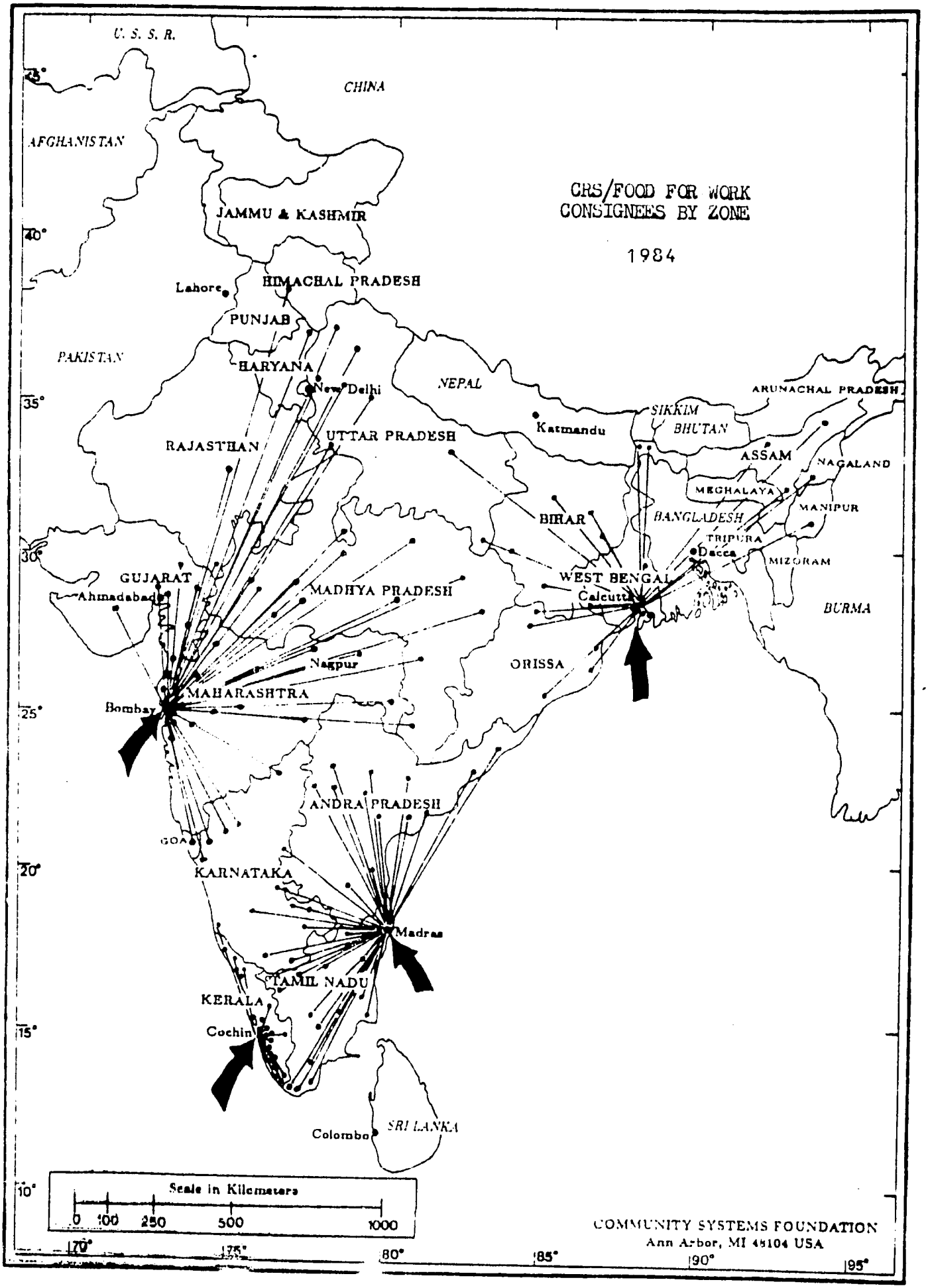
CRS/FOOD FOR WORK
CONSIGNEES BY ZONE
1984
U. S. S. R.
CHINA
AFGHANISTAN
JAMMU & KASHMIR
HIMACHAL PRADESH
Lahore
PUNJAB
PAKISTAN
HARYANA
New Delhi
NEPAL
Katmandu
SIKKIM
BHUTAN
ARUNACHAL PRADESH
ASSAM
NAGALAND
MEGHALAYA
MANIPUR
BANGLADESH
TRIPURA
Dacca
MIZORAM
BURMA
RAJASTHAN
UTTAR PRADESH
BIHAR
WEST BENGAL
Calcutta
GUJARAT
Ahmadabad
MADHYA PRADESH
Nagpur
ORISSA
MAHARASHTRA
Bombay
ANDRA PRADESH
GOA
KARNATAKA
Madras
TAMIL NADU
KERALA
Cochin
Colombo
SRI LANKA
Scale in Kilometers
0 100 250 500 1000
COMMUNITY SYSTEMS FOUNDATION
Ann Arbor, MI 48104 USA

Table 1: CRS FFW Project Profile: All-India Composite of FY 1982 Projects

ACTIVITIES	MANDAYS	% OF PROGRAM	ACCOMPLISHMENTS
Low cost houses	4,606,509	21	(Nos) 16,943
Land clearing/levelling	3,630,854	17	(Acr) 18,263
New irrigation wells	3,395,894	15	(Nos) 4,635
Tanks/Dams/Reservoirs	2,215,240	10	Nos) 926
Road construction/Repairs	2,196,688	10	(Kms) 1,553
Bund construction/Repairs	1,228,372	6	(Kms) 2,396
Training/Ed. Vocational/ Adult Literary classes	1,059,105	5	(Nos) 25,499
Irrigation wells/Deepening	1,033,817	5	(Nos) 2,313
School/Community centre/ Health Centre/Godown Construction	599,873	3	(Nos) 310
Irrigation Canals	356,005	2	(Kms) 351
Misc. Trainees	348,503	1.5	364
Bench Terracing	288,241	1	(Acr) 2,601
Drinking water wells	200,977	0.9	363
Reforestation	183,816	0.8	(Acr) 757
Fencing Agricultural Land	150,218	0.6	(Kms) 40
Construction of Drains/ Ditches etc.	110,683	0.5	(Nos 2,212
Fisheries Development	99,867	0.4	(Nos) 24
Pasture and Forage Development	45,426	0.2	(Acr) 203
Bridge construction	24,881	0.1	(Nos) 7
	21,774,969	100.0	

II. Introduction

The PL 480 Title II Food For Work program was initiated in India in response to the Bihar famine in 1967. The program was expanded throughout India during the famine years of 1972-73. At the outset, PL 480 Title II FFW programs were conducted by three U.S. voluntary agencies: Catholic Relief Services (CRS), Church World Service/Lutheran World Relief (CWS/LWR), and CARE. CARE discontinued its program in 1978 because further imports of whole wheat, the commodity used in CARE's program, were prohibited because India in 1977 had initiated exports of its domestically-produced whole wheat, and because the GOI decided to use its own stocks of foodgrains to support a national Food For Work program. The CWS/LWR program was discontinued in 1981, after its Indian representative agency the Church's Auxiliary for Social Action (CASA) determined that for administrative reasons, it no longer wished to utilize the Title II resources in its development programs. CRS' program has remained intact over the years, and is the only PL 480 Title II FFW program covered under this evaluation.

Apart from the PL 480 Title II FFW program, there are two other programs in India that operate as FFW programs. One is the National Rural Employment Program (NREP) of the Government of India. The NREP is essentially an outgrowth of the erstwhile CARE-assisted FFW program. The GOI initiated its FFW program in 1977, based on its accumulated stocks of 15.4 million metric tons of foodgrains. Foodgrain imports were curtailed during this time. 5/ The GOI's FFW program functioned well for four years and received wide national support and international recognition. However, with poor harvests in the successive years of 1981 and 1982, the program went into decline. The limited amounts of foodgrains now available from GOI stocks have brought the program to a virtual standstill at present.

The other FFW program is sponsored by the World Food Program (WFP). The WFP has a number of large multi-year projects, some of which are standard FFW activities wherein commodities are used to pay wages, e.g. the Maharashtra Social Forestry project with commodities valued at $18 million in which supplementary wages are paid to labor for clearing jungle and planting trees, and who volunteer 25 percent of their cash wages to a welfare fund for the workers and their families. Other projects are designed to make food commodities available at remote desert work sites at subsidized prices, e.g. the Rajasthan Canal project valued at $16 million, in which food is sold

at half the prevailing market price to labor working on the project as an incentive to retain their services on the worksite. WFP's current commitment to FFW in India is for approximately U.S. $68 million of commodities for six large multi-year projects. 6/

Neither the NREP program nor the WFP program, both of which are large-scale public works-type programs, are comparable to the CRS FFW program, which is characterized by small private and community-based projects. As will be seen below in table 1, and in the discussion to follow, over half of CRS/India's FFW program (in terms of manday allocations) is directed at individual farmers, most of whom are small and marginal farmers, for small-scale irrigation, and related land improvement projects. By contrast, the NREP is directed at public works projects consisting mostly of road construction and the construction of community based assets such as school buildings and community centers. An evaluation of the NREP conducted by the Program Evaluation Organization of the Planning Commission in 1980, assessed the mechanics and efficiency of foodgrain payment and delivery in the program, and the program's effect on employment and related employment matters.7/ The study, which covered 793 worker households in 80 selected villages in 10 selected states, also compiled the assets created in those areas. However, this evaluation did not quantitatively assess the development impact of completed assets.

CRS operates in India primarily through the Catholic Church diocesan structure, and a variety of Indian voluntary and quasi-governmental agencies. CRS administers the program through four zonal offices, and its New Delhi headquarters with 5 American staff and approximately 135 Indian staff. CRS' zonal offices are located in Calcutta, Madras, Cochin and Bombay (see Map). The FFW program is managed by each zonal office through its consignees and their project holders. There are approximately 220 active consignees currently throughout the four zones, and approximately 1400 project holders. Consignees are generally clergy, named by the bishop in each diocese. (There are 64 Catholic dioceses in India). Project holders are the individuals who implement projects, are also usually clergy, and are usually parish based. Project holders apply for project approval from and report to consignees. Consignees, in turn, consolidate project holder applications and progress/completion reports, and apply for projects and report on project progress and completion to the CRS zonal office. Consignees and project holders are not employed by CRS/India or the zonal office. More precisely, the relationship is one of CRS providing material support to the development efforts of the consignees and the project holders, and monitoring that support. At present program levels, there will be about 12,000 individual project sites

in a year throughout CRS' four zones, i.e. about 8 per project holder, 55 for each consignee, and 85 for each CRS staff person.

For U.S. fiscal year 1982, the latest year for which complete figures are available, CRS programmed 79,716 metric tons of PL 480 Title II commodities for FFW. These commodities were chiefly bulgur wheat and soybean oil, and were valued at $17,117,000. The program was designed to reach 535,000 recipients. For the current fiscal year 1984, CRS is expected to reach 366,000 recipients with 54,534 metric tons of bulgur wheat and oil valued at U.S. $10,676,000.[8/]

1. Asset Studies

Project types were selected for study under this evaluation based on their person-day magnitude. The project type utilizing the greatest number of FFW mandays in each of CRS' five zones in FY 80 was selected for study. The exception to this was in Calcutta zone, where two project types, the largest and second largest in manday terms, were selected. Calcutta zone warranted additional attention because it is where FFW orginated (Bihar State) in 1967, is the largest CRS/FFW zone, has the largest consignee (North Bihar), and appeared to have a very successful irrigation wells project in the Ranchi Consignee in South Bihar. The five project types selected for study accounted for over 60 percent of manday utilization in FY 82.

By zone assets selected for study were as follows:

Zone	Asset	Contractor
Delhi	Tanks	Centre for Research Planning and Action (CERPA), New Delhi
Calcutta (North Bihar)	Land Levelling	Lalit Narayan Institute of Economic and Social Change, Patna. Bihar
Calcutta (South Bihar)	New Irrigation Wells	Xavier Institute of Social Service, Ranchi Bihar
Bombay	Land Levelling	CERPA
Madras	Deepened Irrigation Wells	CERPA
Cochin	Low Cost Housing	The Research Institute, Rajagiri, Kalamasserry, Kerala

The project types are described in Section III below. For each asset study data were collected for two periods of time. The first period was the 12-month period preceding construction/implementation of the project, and the second period is the 12-month period preceding the date of interview. A sample of beneficiaries and non-beneficiaries was selected in each case. Sample selection was simple random sample, using as the sample frame all project application/completion forms available for the respective projects in the CRS zonal and consignee offices. However, results from the non-beneficiary responses are not reported in this summary report because the socio-economic variables for the two groups were different and comparisons provided are therefore misleading.

Benefit cost analyses for each asset studied were considered, but are not provided. The decision to exclude this information is based on the fact that all data required to attribute changes to FFW were not gathered. This made the application of benefit-cost analysis too problematic to be done at this time without undertaking additional data collection and analysis.

2. Recipient Profile Study

The recipient profile study was designed to measure benefits accruing to workers on FFW projects. The study was expected to provide: (a) A profile of workers that would include their family income, number of days employed per year, and days of employment per year provided by FFW; (b) insights on FFW commodity use and impact in the household; and (c) an indication of the value of FFW commodities.

A standardized recipient profile study designed for simultaneous implementation in four of CRS' zones produced five reports. Two reports were produced in Calcutta zone, and one each from Madras, Cochin and Bombay zones. Delhi zone was excluded because CRS was phasing down its program in that zone when the study was initiated and closed it out in FY 1984. The institutes implementing asset studies in each of these zones also implemented the respective recipient profile study. A standardized semi-closed ended questionnaire was drafted and tested. Experimental designs were drawn by each institute independently. Data collection was also conducted independently. A total of 2649 recipients were interviewed in the five studies. Sample selection was multi-stage simple random sample. Completed projects were ranked according to size, and the ultimate unit, the worker/recipient, was selected from daily attendance registers or muster rolls, for each project site maintained by the project holder. The analysis and report writing were provided by Centre for Research Planning and Action (CERPA).

Respondents were also asked to recall all foods consumed by the family in the previous 24 hours. These data were used to calculate mean per capita intake of protein and calories. However, only calories are reported here. A reflexive control group was used which was comprised of inactive eaters, i.e. those who worked on FFW projects which had been completed before the date of interview and therefore were not consuming FFW commodities. This group was compared to active eaters, i.e. those currently working on FFW projects and eating FFW commodities. For purposes of assessing adequacy of intake, a mean per capita calorie requirement was calculated by summing the India Council of Medical Research recommended intakes by age and sex for each family member and dividing the total household requirement by the number of family members.

Weight and height measures of children age 12 to 60 months were taken and analyzed using both American 9/ and Indian 10/ standards. We report only weight for age results using the American standard, because of difficulties noted in data collection with height measures. Inactive recipient were used here as a reflexive control group also, with measures being compared to measures of children of active recipients.

III. Asset Study Results

A. Delhi Zone Tanks Study

1. Description

Tanks studied under this evaluation may best be described as small irrigation reservoirs, having a surface area of approximately 100 feet by 30 feet, and a depth of 3 to 6 feet. They are of earth construction. A closed-ended questionnaire was employed in a survey of selected beneficiaries in project areas for all tanks completed in fiscal years, 1978, 1979, 1980 and 1981. Questions addressed in the survey attempted to: (a) profile the beneficiaries; (b) note beneficiary selection criteria; (c) assess level of achievement of intended project purpose; (d) measure creation of additional employment opportunities; (e) note changes in cropping pattern and yields. The study was implemented by the Center for Research, Planning and Action (CERPA), New Delhi.

2. Sample Frame

The study covered 37 tanks in three consignee areas of the zone. The tanks were used only for irrigation. A total of 825 farmers were benefitting from the tanks. There was an average of 22 farmers per tank. A sample of 444 beneficiaries was selected for direct interviews using a probability sampling scheme to select 12 beneficiaries from each completed tank.

3. Socio-Economic Profile of Beneficiaries

Beneficiaries canvassed were all male, most were between the ages of 21 and 50, and over half were illiterate. Ninety seven percent were Hindus, 1 percent Christians, and 2 percent Muslim. Fourteen percent of the beneficiaries owned between 0 and 2.5 acres; 21 percent owned between 2.6 and 5.0 acres; 65 percent owned more than 5 acres. Eighty two percent of the beneficiaries earned their livelihood primarily from agriculture. Eighteen percent earned their living from other sources including agricultural labor, dairy farming, and non-agricultural labor.

4. Income Change

Because incomes from the three fiscal years, i.e. FY 78, FY 79 and FY 80, were not corrected for inflation, we are reporting income only from one project year. We have selected FY 80, because it is the only project year in which such data were collected for all three project areas.

Prior to construction of the tank the average annual income per beneficiary household was Rs.17,238 (US Dols.1723.80 at the rate of Dols.1.00 = Rs.10.00). Following project completion, the average annual income per beneficiary in the zone was estimated at Rs.26,048 (US Dols.2,604.80). The average beneficiary household size in the zone was 7.48 members. The Government of India poverty line cut-off is Rs.76 per capita per month in rural areas (based on IFY 1979/80 monthly cost of purchasing 2,400 calories of food per capita daily in rural areas). Both before and after project completion Delhi zone beneficiaries were above the poverty line, e.g. Rs.192 per capita per month before, against Rs.290 per capita per month after. However, it is important to note that this average is pulled up by the influence of higher incomes in Mirzapur consignee area. Incomes in the other two consignee areas in the study were considerably lower. In Mariabad, both before and after project implemention, per capita monthly income was below the poverty line, e.g. Rs.46 before, increasing to Rs.69 per capita monthly, after the project was completed. In Majghai, the per capita monthly income was below the poverty line before the project at Rs. 61. The project, in this instance, helped families rise above the poverty line, to Rs.80 per capita per month after project completion. This was the only study of the evaluation in which the income level of one consignee area was found to be much different than others selected for study.

5. Long term beneficiary employment

Family employment as measured by mandays per household on agricultural operations on the family farm went from 537 mandays per household before the FFW project was completed to 627 mandays per household after the tank was completed, an increase of 17 percent.

6. Long term hired employment

The overall requirement of hired labor per beneficiary increased from 109 mandays before the project to 136 mandays a year after the project, an increase of 25 percent.

7. Temporary employment from asset construction

The construction of the 37 tanks studied provided 4608 manyears of work for agricultural laborers in the area. None of the beneficiaries or their dependents worked on the FFW projects themselves. The labor requirement in the construction of each tank was filled by agricultural laborers residing in the locality of the tanks.

8. Irrigated land changes

There is a relationship between construction of the tank, and increased use of irrigation by beneficiary farmers. Overall irrigated area in acres per beneficiary went from 4.68 acres to 9.07, a 94 percent increase. Specifically for the 29 tanks in Mirzapur the total irrigated area increased from 2,161 acres to 4,383 acres. During the same period of time, 1978 to 1980, total cropped area increased from 7,917 acres to 8,235. The irrigated area as percent of total cropped area doubled from 27 percent before the project, to 53 percent after project completion. For the other two consignee areas, the total irrigated area in Mariabad increased from 195 acres to 231 acres while the total cropped area declined from 247 acres before the project to 242 acres after. As percent of cropped area, the irrigated area increased 15 percent from 80 percent of total area before the project to 95% after the project. In Majghai, the total irrigated area increased to 303 acres from 92 acres before the project. Total cropped area increased to 424 acres from 409 acres before the project. As percent of cropped area, irrigation increased in Majghai from 47 percent to 71 percent of cropped area, an increase of 24 percent of cropped area.

9. Agricultural output changes per beneficiary

On a per beneficiary basis the overall cropped area for the combined summer and winter seasons increased from 19.64 acres before the project to 20.90 acres after the project, an increase of 6.4 percent.

Combined gross value of output for both winter and summer seasons per beneficiary went from Rs.16,072 before the project to Rs.22,549 after the project. On a per acre basis, the overall increase was Rs.1,079 after project completion, up from Rs.818 before the project, or an increase of 32 percent.

B. Madras Zone Deepened Irrigation Wells Study

1. Description

Deepened irrigation wells is an activity wherein existing dug wells are deepened because, (a) wells were not dug deep enough initially, (b) they ran dry due to drought or a drop in the water level, or (c) to enlarge capacity so that more area may be irrigated. All deepened wells studied were individually

owned. Owners were predominantly small or marginal farmers. The study was carried out by CERPA, New Delhi. Major issues addressed in the study included: (a) purpose for deepending the well, (b) changes in cropping pattern, (c) increase (change) in crop production, (d) increase (change) in employment opportunities.

2. Sample Frame

A sample of 308 beneficiaries was randomly selected from a population of 670 beneficiaries of deepened irrigation wells completed in fiscal years 1978 and 1981. One-time direct interviews of the beneficiaries using a semi-closed ended questionnaire were conducted.

3. Socio-economic profile of beneficiaries

In terms of socio-economic status, 60 percent of the beneficiaries fit into what is broadly known as the weaker sections of Indian society as described above in Section 1. All the respondents were male. Thirty six percent were illiterate, and the remaining 64 percent had either informal schooling, or some primary or secondary schooling. Most were between the ages of 31 and 65. Most were married. Seventy six percent were Christian, 23 percent were Hindu, and 7 percent Muslim. Eighty seven percent of the beneficiaries earned their living from agriculture. The other beneficiaries earned their livelihood principally as agricultural laborers.

4. Profile of deepened wells

Ninety six percent of the beneficiaries said that their well had struck water when originally dug. However, only 17 percent said their wells had been dug originally with the assistance of FFW; 80 percent had used their own resources. Wells were deepened in 44 percent of the cases to augment water supply for irrigation, and in 46 percent of the cases because the wells had gone dry. The other 10 percent were divided between wells that had not struck water, and non-responses. Ninety six percent of the beneficiaries reported experiencing drought conditions in their areas. The wells were probably deepened mainly in response to the effects of drought conditions. Well output in terms of hours of pumping time increased after the wells were deepened. For 1978 deepened

wells, 46 percent produced water continuously from 1 to 4 hours (the most common span of pumping time) before the project. After deepening, 74 percent produced water continuously for 1 to 4 hours. For 1981 wells, pumping time of 1 to 4 hours went from 62 percent before deepening, to 70 percent of the wells after deepening.

Area irrigated for 1978 wells went from 2.03 acres before deepening to 2.57 acres after deepening. This represented a change of cropped area irrigated from 84 percent of the total before to 89 percent after deepening. Area irrigated by 1981 wells increased 0.32 acres or 24 percent after deepening from 1.33 acres before the project to 1.65 acres after. Ninety one percent of cropped area was irrigated after deepening compared to 81 percent before deepening.

5. Income change of beneficiaries

Because incomes from the two project years, FY 1978, and FY 1981, were not adjusted for inflation, and because results from FY 1978 projects better reflect use of the asset, only FY 1978 income figures are reported.

The income for FY 1978 went from Rs.3,090 per household before deepening to Rs.4,285 after deepening, an increase of 39 percent. Seventy-seven percent of the increase is attributed to agriculture, i.e. the value of agricultural production in 1978 went from Rs. 2,286 per beneficiary before deepening to Rs.3,207 per beneficiary after deepening. Family size was determined to be 5.66 members average per beneficiary household. Before the project was completed, per capita monthly income was Rs.34, less than half the GOI poverty line cutoff of Rs.76 per capita per month. Following the project, the status improved somewhat, increasing to Rs.47, per capita per month, but remaining considerably below the poverty line.

6. Long term beneficiary employment

Beneficiary employment increased from an average of 365 mandays per year before FFW to 434 mandays per year after deepening their wells, or an increase of 19 percent.

7. Long term hired employment

Beneficiaries hired more labor after their wells were deepened than they had before. Before the project, beneficiaries hired an average of 52 mandays of help per year. After deepening their wells, they hired 64 mandays per year, a 23 percent increase.

8. Temporary employment from asset construction

The 670 projects from which the sample was selected represents temporary employment for 740 people for one full year, i.e. 52, 6-day work weeks. An average of 345 mandays were utilized in the deepening of each well.

9. Agricultural output changes

For wells deepened in 1978, output in kilograms per beneficiary increased from 1,218 kgs to 2,074 kgs. The increase for 1981 wells was from 900 kgs per beneficiary before deepening the well to 1,194 kgs. after the well was deepened.

C. Calcutta Zone (North Bihar) Land Levelling Study

1. Description

Land levelling and clearing is an activity which results, generally, in upgraded agricultural land. A typical project would be the clearing of brush or boulders from a field, or the flattening of a sloping field for improved irrigation, or the erection of bunds around a field to retain irrigation water, or all of these steps in successive order. The beneficiary would be a small, or marginal farmer. The studies attempted to measure long term benefits of completed projects including (a) increased crop production, (b) increased beneficiary income, and (c) increased employment opportunities. In Calcutta, the study was implemented by the Lalit Narayan Institute of Economic and Social Change, Patna, Bihar.

2. Sample frame

A total of 309 beneficiaries were selected from a population of 996 beneficiaries having had their land levelled under projects implemented in fiscal years 1978, 1979, and 1980. A sub-study of 53 beneficiaries selected from the original 309 was later conducted to provide data on the beneficiaries' entire land holding. The original study measured impact only on the parcel of land levelled.

3. Socio-economic profile of beneficiaries

Ninety nine percent of the beneficiaries were male. All were married, and family size averaged 4.47 members.

Eighty-two percent were from the "weaker sections" as defined in Section 1, above. Almost all the beneficiaries were Hindu, and a small number were Muslim. Average land holding per beneficiary was 3.2 acres. Average area levelled per beneficiary was 1.20 acres. Most beneficiaries, 61 percent, said their land before levelling was cultivable but sloping. Following levelling, 52 percent said it was perfectly level.

4. Income change of beneficiaries

We report income for the projects completed in FY 80 only, because incomes were not adjusted for inflation over the three project years, and because the effects of land levelling are judged to be fully maximized in one crop year following the project, rather than three or more as is the case in irrigation projects.

From the levelled parcel of land under cultivation, there was an increase in income of 332 percent, from Rs.329 to Rs.1,420. From the balance of the beneficiaries' land, there was also an increase, but only 4 percent from Rs.2,361 to Rs.2,458. Beneficiaries enjoyed an overall increase in income of 44 percent, from Rs.2,690 before levelling to Rs.3,871 after levelling. Average family size was found to be 4.47 members. In terms of the poverty line, the pre-project monthly per capita income level was well below the GOI Rs.76 per capita monthly. Pre-project per capita monthly income was Rs.50. After completion of the project, average per capita monthly income increased to just under the poverty line, at Rs.72, per capita.

5. Long-term beneficiary employment and hired employment

Household employment of a beneficiary on his own land increased from 206 mandays per year to 230 mandays, an increase of 12 percent. Beneficiaries also hired more help after levelling their land. Hired labor use went from 73 to 90 mandays per beneficiary or 23 percent.

6. Temporary employment from asset construction

Employment opportunities created in land levelling for all projects for the three years was 823,278 mandays, which is equivalent to 2,638 manyears of work, @ 52, 6-day weeks of work.

7. Agricultural output changes

Beneficiary farmers made effective use of improvements made on their land through land levelling by increasing their cropped area, and by planting higher value crops. Area cultivated per year per beneficiary increased as a result of land levelling from 4.0 acres to 4.30 acres. Commensurate with this change was an increase in the quantity and value of production. For all crops, in FY 80 the value of production increased from Rs.2,690 per beneficiary to Rs.3,871 per beneficiary. Crops grown throughout the year included rice, wheat, pulses, corn and sugarcane. There was a shift from the lower value corn and pulses, into the higher value crops of wheat, rice and sugarcane.

D. Bombay Zone Land Levelling Study

1. Description

Land levelling and clearing, as stated above, is an activity which results, generally, in upgraded agricultural land. A typical project would be the clearing of brush or boulders from a field, or the flattening of a sloping field for improved irrigation, or the erection of bunds around a field to retain irrigation water, or all of these steps in successive order. The beneficiary would be a small, or marginal farmer. The studies attempted to measure long term benefits of completed projects including (a) increased crop production, (b) increased beneficiary income, and (c) increased employment opportunities. In Bombay zone, the study was carried out by CERPA.

2. Sample frame

The study covered 610 projects implemented in U.S. fiscal years 1978, 1979, and 1980. Three hundred fifty six randomly selected beneficiaries were surveyed from among the 610 projects completed in those three years. A semi-closed ended questionnaire was used in a one-time direct interview format.

3. Socio-economic profile of beneficiaries

Ninety seven percent of the beneficiaries were male. An average of 73 percent of the beneficiaries were illiterate. In terms of caste, an average of 83 percent of the beneficiaries

were from the "weaker sections" as described above in Section I. Hinduism was the predominant religion, accounting for 65 percent of the beneficiaries. Christians accounted for 31 percent. The remainder were divided between Sikhs and Muslims. Thirty percent of the beneficiaries were marginal farmers owning from 0.01 to 2.5 acres of land. Another 51 percent were small farmers owing from 2.6 to 5.0 acres. Only 19 percent owned more. When asked what their monthly income was, 83 percent said they earned from Rs. 101 to 500. Most of the beneficiaries, 88 percent, said they earned their livelihood chiefly from agriculture. The chief occupation for most of the remaining beneficiaries was common labor. Amount of land levelled per beneficiary averaged 0.89 acres.

4. Income change for the beneficiary

We use only project year FY 1980, for reporting income, because incomes were not adjusted for inflation in all three project years, i.e. FY 1978, FY 1979 and FY 1980.

Average annual household income of beneficiaries showed a significant increase from before to after land levelling. Household income in FY 1980 went from Rs.2,734 to Rs.4,644 per year, an increase of 70 percent. Though this increase includes all sources of income, the greatest share of the increase, 70 percent, is attributed to agriculture. Average family size was determined to be 5.65 members per beneficiary household. The per capita monthly income of beneficiary households before land levelling was Rs. 40, well below the GOI poverty line cutoff of Rs.76 per capita monthly. Following the project, per capita monthly income of beneficiary households increased to just below the poverty line, to Rs. 68 per capita.

5. Long-term beneficiary employment

Average beneficiary household employment for the three project years increased by 6 percent, from 609 mandays per year to 644 mandays. Most significant, however, is the decline in the beneficiaries working as labor on other farms, which went from an annual average of 105 mandays per household to 93 after the project, a decline of 11 percent. With more work available at home, the need for outside supplemental work has been reduced.

6. Long-term hired employment

Forty nine percent of the beneficiaries used hired labor after levelling their land. Data before levelling was not collected. Beneficiaries hired an average of 79 mandays of labor per year.

7. Temporary employment

For 610 projects undertaken in the three project years covered in this study, temporary employment generated during construction totalled 4,183,000 mandays, or 13,407 manyears of work (@ 52, 6-day weeks of work).

8. Agricultural output changes

For the combined winter and summer seasons the per beneficiary cropped area went from 3.04 acres before to 3.95 acres after levelling, an increase of 30 percent. Area irrigated went from 0.24 acres to 0.45 acres per beneficiary after levelling, an increase of 91 percent. Average yield in kilograms per acre for major crops in FY 1980 for both winter and summer seasons went from an average of 275 kg. to 392 kg. per acre, an increase of 43 percent. In FY 1980 output was Rs.410 per acre before land levelling and Rs.747 per acre after land levelling, an increase of 82 percent. On a per beneficiary basis, the value of agricultural output went from Rs.1,010 to Rs.2,338, a 131 percent increase. Rice, millet (bajra) and sorghum (jowar) were major kharif (summer) crops. Wheat was the major rabi (winter) season crop.

E. Calcutta Zone (South Bihar) Minor Irrigation (wells) study

1. Description

New irrigation wells are open dug wells 10 to 15 feet in diameter, having a depth of 20 to 40 feet. Wells studied in this evaluation were usually lined with bricks or stone, which is called steening. Wells irrigated, on average, one acre. A survey methodology was used. In addition to profiling the beneficiaries, the survey attempted to measure: (a) changes in cropping patterns, (b) increase in crop production, (c) increase in beneficiary income, and (d) increase in employment opportunities. The study was implemented by the Xavier Institute of Social Service (XISS), Ranchi, Bihar.

2. Sample Frame and Description

The study covered 300 dug wells in one consignee area (Ranchi Catholic Charities) of the zone, out of a total universe of 4,014 wells dug in the fiscal years of 1973, 1976, and 1978. A sample of 300 beneficiaries was selected for direct interviews employing an open-ended questionnaire.

3. Socio-Economic Profile of Beneficiaries

Beneficiaries canvassed were all male, with 70 percent between the ages of 20 and 50 years. Ninety nine percent were tribals, of which 80 percent were Christian. The average landholding was found to 6.2 acres, thus the average beneficary would be classified as a medium sized farmer in India, i.e. a farmer owning from 5 to 10 acres (2-4 hectares) of land. Ninety percent of the beneficiaries reported earning their livelihood from agriculture. Only 10 percent earned their living from other sources.

4. Income change

We report only agricultural income because 90 percent of the beneficiaries earned their livelihood from agriculture. We also report income only from FY 1976 wells because inflation was not corrected for over the three project years, and we observed that 1976 wells better reflected maximized irrigation potential of the well, than a newer asset completed in 1980, or an older one, like 1973, for which data were not considered reliable.

5. Long-term beneficiary employment

Average beneficiary household employment for the three project years increased by 25 percent, from 406 mandays to 509 mandays per year. The use of hired labor was minimal.

6. Temporary employment

Temporary employment generated during construction of the 300 projects in the study was 298,000 mandays.

7. Agricultural output changes

Cropped area per beneficiary fluctuated within a narrow range of 98 percent to 100 percent of landholding, e.g. 5.34 acres before the project to 6.09 acres after the project for 1973 wells, against 5.46 acres before the project to 6.26 acres after the project for 1980 wells. Prior to the construction of wells, there was no irrigation, and cultivation was confined mainly to the rainy season. Following construction of wells, area irrigated in 1973 per beneficiary increased from 0 acres to 1.26 acres for the year. For 1980 wells, the irrigated area increased to 1.39 acres per beneficiary. The introduction of irrigation in the two non-rainy seasons (winter and summer), in addition to the increased cropped area, provided a stimulus for increasing production, and thus agricultural income. For projects completed in FY 1976, annual income per beneficiary went from Rs.2,191.70 before the well was constructed to Rs.3,477.56, after well construction, an increase of 59 percent. Major crops were paddy, millet, pulses and vegetables. Average family size was determined to be 3.96 members (average family size is taken from the Calcutta zone - south Bihar recipient profile study and used here as a proxy, see next section). Before project implementation, per capita monthly income was Rs. 46. This is considerably below the GOI cutoff of Rs. 76 per capita monthly. Following completion of the project, per capita monthly income in beneficiary households increased to Rs.73, just under the poverty line.

F. Cochin Zone Low Cost Housing Study

1. Description

Low cost housing is an FFW activity in which food commodities are paid for labor in constructing an individual family dwelling. Usually, the low cost house measures 10 by 30 feet, and has 2 to 4 rooms in that space. The FFW-assisted low cost house may either be pucca (brick walls, and tile roof) or kutcha (mud walls and thatch roof, or mud walls with tile roof). FFW-paid labor would be used to make bricks, pack mud walls, or make tiles for the roof etc. Other materials, such as wood for rafters, doors and windows are usually provided by the beneficiary.

2. Sample frame

The low cost housing study was undertaken by the Research Institute, Rajagiri of Kalamassery, Kerela. A sample of 300 beneficiaries selected from completed project applications, was surveyed using direct interviews, and a semi-closed ended questionnaire. Major issues addressed in the study included (a) profile of the beneficiaries, (b) screening process for selection of beneficiaries, (c) profile of houses actually constructed, and the role of FFW in their construction, and (d) achievement of intended benefit to provide adequate housing to the rural poor. Direct interviews were conducted during June to October, 1982. Samples were selected from projects completed in FY 1979, FY 1980 and FY 1981.

3. Socio-economic profile of beneficiaries

Seventy five percent of the beneficiaries were male, 80 percent were in the age group of 31-60 years, and the majority, 69 percent, had completed primary school. A small percentage were high school graduates, or higher. The majority, 81 percent, were married. A higher percentage of beneficiaries were Christian, 78 percent, while 14 percent were Hindu, 6 percent Muslim, and 2 percent were classified as others. Among the beneficiaries, about 40 percent were scheduled castes, scheduled tribes, and backward classes. Agricultural labor and non-agricultural labor were the principal occupations for 62 percent of the beneficiaires. For the three project years combined, 92 percent of the beneficiaries had monthly incomes less than Rs. 500 (i.e. approximately $ 46). About 95 percent of the beneficiaries have agricultural land, but the holding was only one fifth of an acre. The majority of the beneficiaries were from villages served by electricity, however only one fourth of beneficiary homes had electricity in them. Private latrines were used by only 16 percent of the beneficiaries. Family size averaged 5.4 members for the three project years. Socio-economic indicators suggest that the program is reaching the intended beneficiaries, i.e. rural poor.

4. Housing Changes

A majority of beneficiaries owned a house before the FFW-assisted house was constructed, but in almost all the cases it was a kutcha one. The need for a new dwelling was determined to be necessary either because the kutcha house was too small,

or was in a damaged condition. The average cost of construction of low cost houses was Rs. 4160, (i.e approximately $378) of which Rs. 2983 were for materials and Rs. 1177, were for labor. FFW-assistance averaged Rs. 644, or approximately 15 percent of the total cost of the house, and 55 percent of the labor costs. Most beneficiaries, about 95 percent, said they would not have constructed the house without FFW assistance. Almost all beneficiaries expressed their intent to remain in the house, and said it was adequate for their needs. Nearly 90 percent of the beneficiaries owned the land on which the house was built. For the others, it was owned by parents, or other relatives. FFW-assisted low cost houses appear to have helped reduce the incidence of illness, because it gradually decreased with the increase in the number of years of stay in the house. For example, 46 percent of the families in houses constructed in 1981 reported illnesses in the household for a total of 62 days a year. For families living in 1980 houses, 44 percent of the beneficiaries reported illnesses in the household for an average of 54 days in the year. For those built in 1979, in which respondents had by the time of interview lived three years in the FFW-assisted house, only 33 percent of households reported incidences of illness in the household for an average 48 days in the year. Similarly, there appears to be a relation between length of stay in the FFW-assisted house, and reduced number of births. For example, 12 percent of 1981 households reported births during the 12 month period preceding the interview, against 10 percent of the 1980 households, and 4 percent of the 1979 households. Expected births showed a similar decline. Four percent of the families in 1981 houses were expecting a birth in the next 3-7 months against 5 percent for 1980 households, and 2 percent for 1979 households. However, while these data suggest downward trends, other variables which may have affected the data, such as increased availability of primary health care at about the time the house was constructed, or the introduction of family planning activities into the project area, were not tested for in this study. We are therefore unable to conclusively attribute any decline in illness, or number of births to the low cost housing program.

5. Conclusion

Overall, we found the impact of this project type difficult to measure. Quantifiable economic indicators are not appropriate, and non-economic indicators such as an improved

sense of self-esteem, or security are nearly impossible to capture and to state in tangible terms. Other apparent benefits, such as improved health, and reduced fertility, require more rigorous study designs. Furthermore, exactly what role FFW played in the implementation of these projects remains unclear. In 70 percent of the cases over the three years studied, commodities were given directly to the project beneficiaries, who in turn distributed them to workers. Questions arise because we are unable to determine how many workers were on each site due to unavailability of muster rolls, and how often payment was made to them. Yet, despite the fact that FFW accounted for only 15 percent of the total cost of the average low-cost house, more than 95 percent of the beneficiaries stated they would not have constructed the house without FFW assistance. However, what role FFW played is likely to remain unclear because, due to Title II reductions, CRS/India has since reduced its FFW program country-wide. The CRS office in Cochin, where low-cost housing was the largest project type, and accounted for a large share of this activity in the overall country program, decided to absorb this reduction exclusively in the low-cost housing category. This resulted in a 90 percent reduction in low-cost housing projects in the zone.

Table 2: Summary of Asset Studies

Study	Sample Size	% As Small and and Marginal Farmers*	% Income Change**	Change in Beneficiary Employment %	Change in Hired Employment %	Area irrigated/ Levelled Acre/Beneficiary	Change in Cropped Area (%)	Change in area Irrigated per Beneficiary %
A	444	40	(80)	17	25	4.46	11 (80)** Mirzapur only	68
B	308	69	39 (78)	19	23	0.43	20 (78)	26
C	309	100	44 (80)	12	23	0.30	11 (80)	N/R
D	356	80	70 (80)	6	N/C	1,20	32 (80)	N/A
E	300	34	59 (76)	25	Nil	1.22	11 (80)	100
F	300	95	N/A	N/A	N/A	N/A	N/A	N/A

Key:

A Delhi zone tanks
B Madras zone deepened irrigation wells
C Calcutta zone land levelling
D Bombay zone land levelling
E Calcutta new irrigation wells
F Cochin zone low cost housing
* Marginal farmer = 0 to 2.5 acres of unirrigated land
Small farmer = 2.6 to 5 acres of unirrigated land
** Figure in parenthesis refers to fiscal year
N/R Before/after comparison not reported
N/A Not applicable

IV. Recipient Profile Study Results

1. Sample frame and description

The study surveyed a sample of 2649 recipients drawn from selected consignee areas in four CRS zones. Five studies were implemented, two in Calcutta zone, and one each in Bombay, Cochin and Madras zones. Twenty seven percent of the respondents, or 723, were active, i.e. working on FFW projects at the time of interview, and eating FFW commodities. Seventy three percent, or 1926 respondents were inactive, i.e. having worked on FFW projects earlier in the year, and not working on FFW, or consuming FFW commodities at the time of interview. We found that 98 percent of inactive workers had completed their FFW employment two or more weeks prior to the date of interview. We also found that 81 percent of the respodents consumed their FFW commodities within 2 weeks of receiving them, another 9 percent consumed all their commodities within 4 weeks of receiving them, and only 1 percent consumed their commodities in a time span that exceeded 4 weeks. The balance 9 percent were recorded as non-responses. Responses pertain to a period of time beginning with the date of interview back 12 months. Broadly, data collected pertain to calendar years 1981 (before FFW), and 1982 (after FFW).

2. Socio-economic profile of recipients

Most recipients, 84 percent, were male, and 16 percent were female. Seventy three percent were between the ages of 26 and 50 years. Literacy averaged out to be 36 percent, with Cochin zone (Kerala State) the highest with 89 percent and North Bihar the lowest with 16 percent. Recipients were predominantly Hindus, 61 percent, 33 percent were Christians, 2 percent were Muslim, and 4 percent were others, e.g. tribal religions. Most recipients, 83 percent, were members of scheduled castes, scheduled tribes, and other backward classes, all referred to officially by the GOI as the "weaker sections" of Indian society, groups targetted by the GOI as the neediest in terms of economic and social development. Most were married. Fifty six percent earned their livelihood chiefly as agricultural or non-agricultural labor. Thirty nine percent were small and marginal farmers. Seventy five percent reported earning Rs.300, or less per month. Average family size was 4.7. On a per capita basis, reported monthly income in recipient houses was

Rs.64 or less, well below the GOI poverty line of Rs.76 per capita monthly. Only when monthly income exceeds Rs.360 monthly, do these recipient families pass the poverty cut-off line. Fourteen percent of the recipient families reported earning between Rs.300 and Rs.500. Only 11 percent reported earning more than Rs.500 monthly. Sixty seven percent were found to live in kutcha houses (house with mud walls and thatched roof), only 6 percent lived in pucca houses (brick walled, with tile roof). Sixteen percent lived in huts, and the balance lived in mixed kutcha/pucca houses. Electricity was available to only 31 percent of the recipient households. Sixty nine percent had no access to electricity. Only 3 percent of the recipient households were found to have latrines.

3. FFW benefits while on the project

For the 12-month period covered, the average recipient worked 71 days on FFW, 156 days elsewhere, and was unemployed for 138 days of the year. Thus, FFW provided the recipient with 31 percent of his/her employment for the study year.

Employment data were also collected for two other working members in each recipient household. Combined, these two individuals worked an average of 32 days on FFW, i.e. 16 days apiece. Combined, they also worked 252 days elsewhere, for an annual combined total of 284 days of employment. These two individuals were unemployed for a combined total of 584 days per year. FFW provided 11 percent of their 284 days of employment.

All three working members (the recipient plus two others in the recipient household) worked for an average total of 511 mandays per year, of which 103 were provided by FFW, and 408 elsewhere. Thus FFW provided the recipient household with 20 percent of its total annual employment.

The average annual recipient family income during the 12-month study period was Rs.3,700. Of this Rs.780 were from FFW employment, and Rs.2,902 were from other sources of employment. For the year preceding the study year, recipients reported an average annual income of Rs.2,619. Average recipient family size was found to be 4.7 members. The Government of India poverty line cutoff is Rs.76 per capita per month in rural areas (based on IFY 1979/80 monthly cost of purchasing 2,400 calories of food daily per capita in rural

areas). For the income period preceding FFW, the per capita monthly income was Rs.46. For the study year, the per capita monthly income was Rs.66. Although FFW helped increase per capita income by 41 percent, the average recipient remains Rs.10, below the poverty line. (Income from FFW was arrived at in each zone by converting the value of FFW commodities earned per manday to the local market rupee equivalent for a mandays worth of bulgur and oil combined. This rate varied in a range from a low of Rs.4.40 per day in Calcutta zone (South Bihar) to a high of Rs.15.14 per day in Cochin zone.

4. Recipient relationship to FFW Program

The project beneficiary was mentioned most frequently, 42 percent of the time, as the source of knowledge about FFW employment. Self knowledge, and the gang leader were the next most frequent responses, at 15, and 10 percent respectively. The balance were spread among the project holder, village panchayat, and others.

Thirty three percent of the recipients said they worked on FFW because of assured employment, and another 32 percent said they worked because they were unemployed. The balance were spread over responses that ranged from assured wages, 8 percent, to payment in food, 2 percent.

Most commodity payments were made weekly (47 percent) 20 percent were paid daily, and 17 percent were paid fortnightly. Almost all recipients collected their commodities themselves.

5. Nutritional effects

Respondents were asked to recall all foods consumed by the family in the previous 24 hours. Interviewers asked for all dishes served at main meals, as well as for snacks and beverages served between meals. Mean per capita calorie requirements were calculated by summing daily requirements as established by the Indian Council of Medical Research by age and sex for each family member and dividing the total household requirement by the number of family members. Table 4 presents results for each zone, as well as averages for all the zones combined. The average per capita requirement for the five studies was calculated to be 2,138 calories. Both active and inactive recipients were above this average. Active recipients had an average intake of 2,212 $\pm$ 145 calories, against 2,272 $\pm$ 123 for

inactive recipients. Though the intake of inactive recipients was higher than that for active recipients, the difference was not statistically significant. The differences noted between active and inactive groups at the zonal level were also not significant.

The results of weight for age measures are reported in Table 5. A sample of 1,084 children ranging in age from 12 to 60 months, were weighed. There were 349 children classified as active, and 735 classified as inactive based on their parents' FFW status. We only report results based on the American NCHS standard for weight for age because it is the standard recommended for international use by the World Health Organization, and also because Indians have been found able to achieve this growth standard when food, and other basic health requirements are met. Use of an internationally accepted standard makes the results easy to compare with those of other studies elsewhere.

Overall, the inactive children were found to be somewhat better off. Five percent of the inactive children were found to be normally nourished, against 4 percent of the active children. This difference was significant at less than 0.025 percent. Thirty nine percent of the inactive children were found to suffer from mild malnutrition against 34 percent of the active children. This difference was not significant. Fifty one percent of the inactive children suffered from moderate malnutrition against 52 percent of the active children. Again, this difference was not significant. Five percent of the inactive children suffered from severe malnutrition against 9 percent of the inactive, but the difference was not significant. At the zonal level, difference between active and inactive children's status were significant only in the Bombay zone study. There, significant differences that favored inactive children were found in status levels of 1°, 2° and 3° (see Table 5).

Although the trend is in favor of inactive children in the weight for age measures, we are unable to make any definitive conclusion on that trend because for the most part, differences were not statistically significant.

We do not report weight for height measures, because of problems encountered with the height data. Results were inconsistent and reflected physical problems of taking accurate

height measures in the field. We have therefore concluded that for any future studies of this type, a group with more experience in nutrition survey techniques should be contracted to carry out data collection. For example, the National Institute of Nutrition, in Hyderabad, whose National Nutrition Monitoring Bureau collects and analyzes this kind of data annually in a number of states in India, would be ideal.

Table 3: Summary of Recipient Studies

Study	Sample Size	Sex (%) M	Sex (%) F	Religion Christian	Religion Hindu	Religion Muslim	Religion Other	Literacy %	Mean Family Size*	FFW Recipient Days**	Employment Household % ***	Occupation (%) Small & Marginal Farmers	Occupation (%) Labor	Occupation (%) Other	Annual Household Income (Rs.) Total Before FFW	After FFW	After Other Sources	After Total
A	322	82	18	20	77	2.5	0	16	5.06	96.3	27	3	93	4	859	626	1,544	2,170
B	644	81	19	6	93	1	0	25	5.47	5.47	15	67	32	1	1,777	570	2,123	2,693
C	979	98	2	36	50	2	12	24	3.96	68	20	54	45	1	1,871	299	1,907	2,206
D	367	67	33	53	46	1	0	54	4.63	63	20	11	82	7	2,100	1,044	3,868	4,912
E	337	72	28	66	32	1	0	89	4.36	82	23	5	68	27	6,487	1,454	5,066	6,520
Aggre.	2649	84	16	33	61	2	4	36	4.7	71	20	39	56	5	2,619	780	2,902	3,700

Key:
A. Calcutta Zone (North Bihar)
B. Bombay Zone
C. Calcutta Zone (South Bihar)
D. Madras Zone
E. Cochin Zone

* Average number of family members in recipient households
** Average number of days recipient worked on FFW
*** FFW as percent of Total Household annual employment (based on recipient and 2 other working members)

Table 4: Average Calorie Intake of Recipient Families and Frequency Distribution Compared to ICMR Requirements

Study	Sample Size	Per Capita Calories Mean requirement*	Recipients' Mean Intake ± Standard Deviation Active	Inactive	Sample Size	Active Percent of Families by Adequacy of Calorie Intake a**	b**	c**	d**	Sample Size	Inactive Percent of Families by Adequacy of Calorie Intake a**	b**	c**	d**
Calcutta Zone (North Bihar)	322	2121	2535 ± 95	2661 ± 73	107	72	14	4	5	215	72	19	8	1
Bombay Zone	644	2185	2081 ± 151	1982 ± 156	76	44	33	16	7	568	38	41	19	2
Calcutta Zone (South Bihar)	979	2091	2609 ± 187	2560 ± 158	395	75	14	9	2	584	84	8	5	3
Madras Zone	367	2221	2808 ± 179	2515 ± 123	66	57	20	18	5	301	54	27	16	3
Cochin Zone	337	2072	1025 ± 115	1642 ± 104	79	14	20	35	31	258	27	25	29	19
Average	530	2138	2212 ± 145	2272 ± 123	723	63	17	13	6	1926	57	24	14	5

* Mean per capita calorie requirement calculated by summing ICMR requirements by age and sex for each family member and dividing the total household requirement by the number of family members.

** a = Above the ICMR Recommended Intake
b = 75-100% of ICMR REcommended Intake
c = 50-75% of ICMR Recommended Intake
d = Below 50% of ICMR Recommended Intake

Table 5: Frequency Distribution of Children 12-60 months of age by Percentage of American Standard NCHS Weight for Age

Zone	Sample Size	Inactive %				Sample Size	Active %				Sample Size	Overall %			
		N	1°	2°	3°		N	1°	2°	3°		N	1°	2°	3°
Calcutta (North Bihar)	89	11	35	42	12	62	8	27	46	19	151	9	33	45	13
Bombay	102	5	36****	56**	3***	39	3	13****	69**	15***	221	4	32	59	5
Calcutta (South (Bihar)	317	1	39	57	3	204	0	37	56	6	521	1	39	56	4
Madras	68	10	43	40	7	35	9	42	40	9	103	10	43	40	7
Cochin	79	9	49	34	8	9	67	33	0	0	88	16	47	30	7
Total	735	5*	39	51	5	349	4*	34	52	9	1084	5	38	51	6

KEY : Gomez Classification:

N = Normal, 90 percent of standard or more
1° = Mild malnutrition 75 to 89.9 percent of standard
2° = Moderate malnutrition 60 to 74.9 percent of standard
3° = Severe malnutrition 59.9 percent of standard or less
* Significant at .025 percent
** Significant at 5 percent
*** Significant at 2 percent
**** Significant at 1 percent

FOOTNOTES

1. Community Systems Foundation, Food For Peace, "An Evaluation Report of the P.L. 480 Title II Program in India", Ann Arbor, Michigan, June 4, 1979.

2. Practical Concepts Incorporated, USAID/India, "An Evaluation Plan for the PL 480 Title II Food For Work Program in India" Washington, D.C., December 23, 1980.

3. Changes in Income in India, 1960-69, 1967-70, 1970-71, National Council of Applied Economic Research, New Delhi, December, 1975, p. 100.

4. Basic Statistics Relating to the Indian Economy Vol. 1, All-India, Centre for Monitoring the Indian Economy, September, 1981, Table 10.14 (minimum agricultural wages increased from Rs. 169 per month in January, 1977 to Rs. 180 per month in January 1981, a rate of increase of 1.6% per annum).

5. India Today, "Money Down the Grain" May 16-31, 1981, pps 122-123.

6. WFP Projects in India - 1983 (Synopsis).

7. Approved Annual Estimate of Requirements FY 1984

8. Evaluation of Food For Work Programme (August-October, 1979) Programme Evaluation Organization, Planning Commission, Government of India, New Delhi , November 1980.

9. National Center for Health Statistics Standards (NCHS) - American Standard.

10. Rao, Satyanarayana, and Sastry, Growth Pattern of Well-to-do Hyderabad pre-school Children, National Institute of Nutrition, ICMR, Hyderabad, July 1975.

Attachment B
to PES # 84-04

USAID/NEW DELHI

EVALUATION COST DATA

1. No. and Title of Project/Activity: PL 480 Title II Food for Work Program

2. Purpose of Evaluation: Assess development impart: phase I

3. Mission Staff Person Days involved in Evaluation (estimated):

   - Professional Staff 640 Person Days **
   - Support Staff 200 Person Days

4. AID/W Direct-Hire or IPA TDY support funded by Mission:

Name	Period of TDY (Person-Days)	Dollar Cost (Travel, Per Diem etc.)	*Source of Funds
a.			
b.			
c.			
d.			

5. Contractor Support, if any:

Name of Contractor@	Contract No.	Amount of Contract	*Source of Funds
1. Center for Research, Planning and Action (CERDA)	386-0000-Coo-1007-00	8,880	PD&S
2. Xavier Institute of Social Service	-1006-	18,794	PD&S
3. L.N.Mishra Institute	-1008-	11,423	PD&S
4. CERPA	-1013-	13,900	PD&S
5. CERPA	-1023-	36,446	PD&S
6. CERPA	-1029-	19,000	PD&S
7. CERPA	-1030-	14,500	PD&S
8. Research Institute, Rajagiri	-1031-	17,500	PD&S
	Total	$ 139,643	

* Whether PDS, Mission O.E., Project Budget or Central/Regional Bureau funds.

@ IQC, RSSA, PASA, PSC's, Institutional Contract, Cooperative Agreement, etc.

** FY81, FY 82, FY 83.