



LIFE-NOPEST PHASE-II PROJECT

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Baseline and Monitoring Report *On* Agricultural Production *of the* Participating Households

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BACKGROUND & INTRODUCTION

The LIFE-NOPEST phase-II project funded by the Food Security Unit of the European Commission (EC) has started in April 2001 for two years. The project has evolved as a merger of two phased out projects under Agriculture and Natural Resources Sector of CARE-Bangladesh namely LIFE (Locally Intensified Farming Enterprises) and NOPEST (New Options for Pest Management) projects. LIFE project had piloted an approach of farmer-driven action research alongside whole farm approach implemented by direct delivery system and with a simultaneous capacity building of local institutions (NGOs and CBOs) through partnership. While NOPEST focused on introducing a number of appropriate farm production techniques in rice fields e.g. integrated pest management (IPM), rice-cum-fish production in paddy fields and dike cropping. Taking the most effective technologies of these two projects and process of intervention, the phase-II project aims at building capacities in decision making of farm production to food insecure participants, who are primarily dependent on agricultural production for maintaining their livelihoods. The new extension phase has taken whole farm approach in both direct delivery system and through the partners (NGOs-Non Government Organizations and CBOs-Community Based Organizations), that allows flexibility in interventions based on actual needs and priorities of the enrolled participating farm households.

The project has set up five Operational Field Offices in the district of Mymensingh, Kishoregonj, Sherpur, Rajshahi and Chapai Nawabgonj with the establishment of 19 Team Offices at Thana level that covers additional 3 districts of Jamalpur, Netrokona and Tangail. In sum, all these field office covered a geographic spread of the project over 34 Thanas (Upazilla), 118 Unions and 401 villages.

The project aimed at 30,000 households organized under FFS (Farmers Field Schools) groups comprised of about 25 men or women farmers in each groups to achieve an average 20% increase of food and income produced from agriculture production. This report includes the base line information of direct delivery system as well as partnership delivery systems in its project operating area to know the pre-intervention situation in the farming system of project participants. The report will finally identify the scope of work and help to determine the achievements that project has imparted.

The objective of this report is primarily two fold:

- to record and present all relevant information of the participating households at a before intervention state to enable project to measure changes happened to them because of project interventions against some identified indicators.
- Provide the project with information that will help to design/ review interventions to specific communities under the project operational areas.

However, the indicators selected for the baseline study encompasses both economic and technical realms of Land ownership, Rice Provision Ability (RPA), Paddy production system, Tree plantation, management and tree nursery, Fish production system, Field crop production system, Homestead crop production system and Dike crop production system. The findings of baseline study can be compared with the data on the same indicators, which will be collected later on, and should be desegregated to see what impact the project has had on different groups.

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METHODOLOGY

Data Collection Procedures

Pre-structured questionnaires namely Participant Registration ([Annex-20](#)) and Baseline Data Collection ([Annex-21](#)) were used to collect data from the participants.

Field Trainers/Extension Facilitators were engaged to collect data at the inception of the project (July-December, 2001). Before data collection by Field Trainers (FTs), the Project Development Officer (M&E) oriented them about the questionnaire and techniques of data collection. The project had collected basic information from all the participants using participant registration format and baseline information from sample participants. Consistency and reliability i.e. overall quality of the data have been ensured by cross checking by the POs.

Given the population size of the LIFE NOPEST Phase II project, it has been decided to conduct the majority of the monitoring by means of the sample survey. The theoretical rationale behind determining the size of the sample for monitoring of the project is elaborated below.

Sample Size

A statistically significant sample size, which represents the entire target population (within the confines as specified), can be determined with the following equation

$$n = \frac{z^2 pq}{d^2}$$

Where

n= the desired sample size when target population is greater than 10,000

z= the standard normal deviate

p=the proportion in the target population estimated to have a particular characteristics

q= 1.0-p

d= degree of accuracy desired

There follows a brief explanation of what each of the parameters shown above entail:

- 1) n- in instances where our target population exceeds 10,000, 'n' represents the sample size which can represent the entire target population
- 2) z- this relates to how confident we wish to be that the result obtained from the sample estimate are accurate. 'z' has been set

at 1.96 which equates to a confidence level of 95% (this can be considered to be a customary figure)

- 3) p- this is the estimate of the percentage of the target population which will adopt 1 new practice and/or have an increase in return in Taka as specified in the Logical Framework. Hence, to ensure that we maximize the expected variance and therefore select a sample size that is sure to be large enough, an estimate of 50% has been taken.
- 4) D- this relates to the level of accuracy of the data retrieved from the sample population. This has been set at 5% that means the results obtained are within an accuracy of 5%.

Hence, using the above figures for the parameters defined in the equation for determining sample size, we see the following

$$n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2}$$
$$= 384 \text{ (approx.)}$$

Considering the population size under the partnership service delivery, and geographic spread of staff and participants, the sample size was decided as 456 from direct service delivery and 394 from partnership service delivery.

Major Variables Covered

Variables covered in the study for analytical purpose are land ownership, rice provision ability, feasibility of rice-fish, pond-fish, and dike crop, age of the participants, paddy production system, fish production system, field crop production system, homestead crop production system, and dike crop production system.

Analytical Framework

To get an idea on different socio-economic and demographic characteristics some statistical indicators such as mean, percentage, frequency have been used in this study.

$$Sum = \sum_{i=1}^N X_i \quad \text{and} \quad Mean = \frac{\sum_{i=1}^N X_i}{N}$$

Data Management and Analyses

Conventional statistical tools like histogram, percentages, ratios, frequency table, average etc. have been used in data analyzing and interpreting.

Data Processing

Data Entry Operator at field offices performed data entry with the close assistance from Technical Officer-M&E as per database designed in MS Access software. These data were then accumulated, cleaned and checked for accuracy as well as for consistency by the Technical Officer-M&E. SPSS for Windows software was mainly used for the statistical analyses and interpretation of the data on some pre-determined indicators. Moreover, MS Excel-97 was also used for this purpose whenever needed.

Quality control

For maintaining the reliability of data being collected a comprehensive cross checking mechanism was in place. During the data collection by the FTs in the field, the project officer has made random visit to check the consistency of data being collected by the staff. After completion of data collection by a particular team the team members sat together for checking the data collected by them. Finally the PDO (M&E), responsible for monitoring and evaluation of the project, randomly checked a certain percentage of filled in data collection from to ensure quality and reliability of the data.

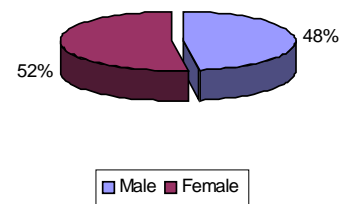
Besides, the PDO-M&E guided the whole process of data entry, analysis and presentation into a report.

Demographic and well-being profiles of Projects Participants

Household & Participant Status

LIFE-NOPEST-II project has selected 31161 low income and food insecure households primarily dependent on agriculture for their livelihoods in its direct service delivery system as project beneficiary. Selected households are mostly (90%) male-headed (Annex-1). Among 35085 direct project participants, females count 52% (Annex-2 & Figure-1). Age group distribution depicts that 90% project participants fall into 16-45 age group (Annex-3)

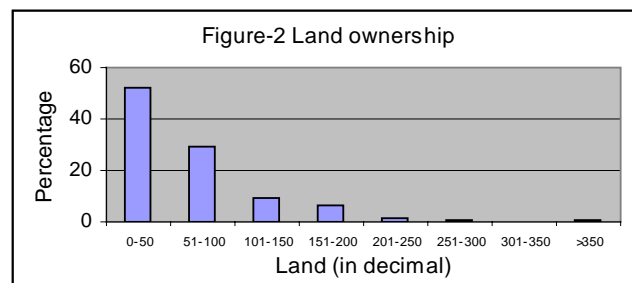
Figure-1 Sex distribution



Land ownership

Most of the households (52%) of the project have been found to have own cultivable land of 0-50 decimal followed by 51-100, 101-150, 151-200, 201-250, 251-300, and 301-350 and >350 decimal of land comprising of 51%, 29%,9%,6%,2%,1%,0.3% and 0.3% respectively (Annex-4 & Figure-2).

Although some of the households have more than 250 decimal of land, their number is very low (Annex-4). Some of them are the elite people in the society who felt keen interest to be the participants of the project and they have been included as the additional households beyond the target number of the project for organizing and mobilizing the FFS. However, the others have the land of poor productivity from where they do not get sufficient production to meet their annual food demand.



Feasibility of Additional Crop Production

In order to introduce rice cum fish cultivation practice, improved method of fish cultivation in pond and crop production on dike, information was collected from the project participants on the feasibility of these activities. A total of 6853 households (22%) have been found to have the feasibility for rice cum fish cultivation, 5612 households (18%) have the feasibility for pond-fish cultivation and 10155 households (33%) have feasibility for dike crop cultivation. The

participants under Mymensingh Field Office have been found to have more feasibility of these activities compared to the participants under the other Field Offices ([Annex-5](#)).

Rice Provision Ability

The rice provision ability has been taken as one of the indicators for selecting food insecure households. It refers to the number of months that the households secure rice consumption from their farm. The analyzed data reveals that 3.5% of the households do not get rice from their farm for any period. Highest proportion of the households (14%) have a rice provision ability of 6 months.

However, a little proportion of the households (1%) have the rice provision ability of 12 months who are the elite people in the society and have been included as the additional households beyond the target number of the project. A detailed illustration of the rice provision ability of the project participants has been made in [Annex-6](#).

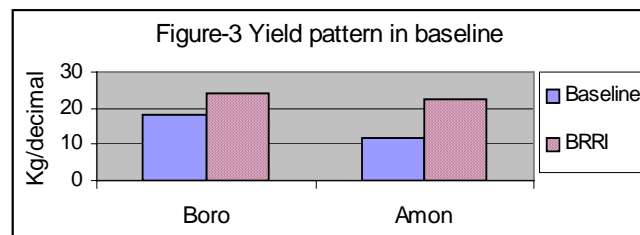
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Rice Production System

Land size and Production Trends

The data revealed that 73% participants grow rice in Boro season and 66% grow in Aman season. The average land sizes of the households used in rice production in Boro and Aman seasons were 68, and 77 decimal respectively (Annex-7).

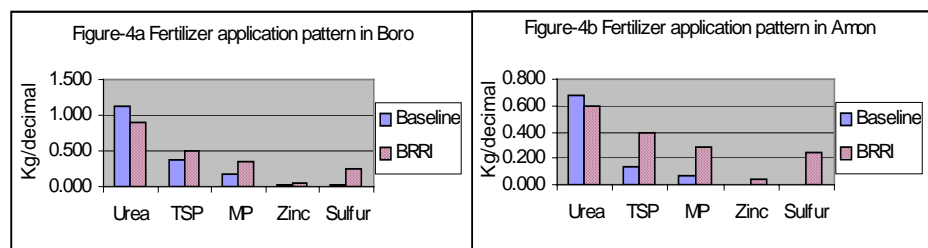
Rice production, on an average, in Boro and Aman seasons were 1816 and 1184 kg per acre respectively (Annex-7). The production pattern depicts that yield is 33% lower in Boro season and 88% in Aman season respectively (Figure-3)



comparing with HYV yield developed by BRRi (6, and 5.5 ton/hectare in Boro, and Aman seasons respectively).

Fertilizer Application Trends

The application of urea was inconsistent with recommended dose of BRRi in Boro and Aman seasons respectively. The data shows that in Boro an Aman seasons the urea application was 25 and 14% higher than the recommended dose. TSP, MP and Zinc fertilizers were 1-13% times higher in both season, and Sulfur application varies 1-8%



less in Aman (Figure-4a and 4b). The recommended dose is considered from that of medium fertile land for modern variety developed by BRRi (Annex-8).

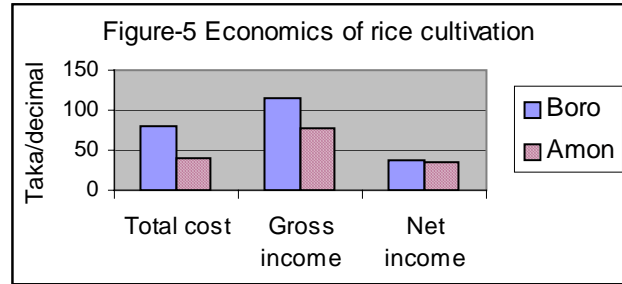
Pesticide Application trends

A total of 81% and 56% participants were found involved in pesticide application during Boro and aman seasons respectively. The cost for pesticide application were 2.54 and 1.49 Tk per decimal in these seasons respectively. The households under Kishoregonj were found to apply more pesticide in both the seasons while the households under Sherpur used more pesticide in season compared to other field

Economics of Rice Production

offices. The households under Chapai Nawabgonj spent highest of 3.37 and 2.51 Tk. per decimal for pesticide used in Boro and Amon seasons respectively compared to the other field offices and partner NGOs and CBOs (Annex-10).

The main cost contributing factors of production considered here are seed, fertilizer, pesticide, labor and irrigation. The total cost for producing rice in one acre of land was 79 and 41 taka in boro and aman seasons respectively. The participants obtained a net income of 37 and 36 taka/decimal in Boro and Amon seasons



respectively with benefit cost ratio stand 0.47 and 0.88 (Annex-10 & figure-5).

The findings from the baseline information have open up the scope of work in rice production system. The project can think of facilitating role of fertilizer in accordance with balance amount in rice production. The inconsistent application of fertilizer may be one of the biggest factors for lower yield. The scopes to boost up the rice production appear more in Aman than Boro. In addition, the scope of reducing pesticide in rice field remains for intervention.

Fish production system of our project participants largely dominated by traditional management system in ponds and fewer participants were found involved in rice-fish production. No participants were found to involve in fish seed production.

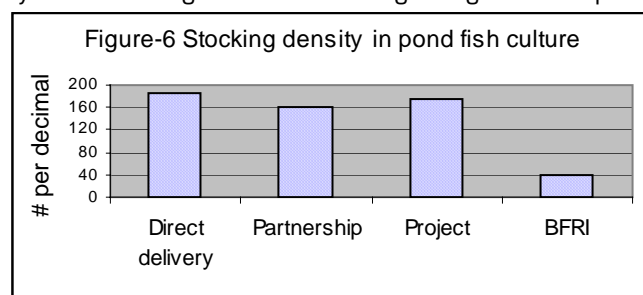
Pond Aquaculture

Analysis from the sampled data reveals that a total of 400 households (comprising of 47% of the sampled households) were involved in fish cultivation in pond (Annex-12). These households normally follow the traditional and sometimes improved traditional practices of fish cultivation. The average area of these ponds was 21.5 decimal, among these ponds 48% are singly owned and the rest are on joint venture (Annex-12).

These households have been found to stock a wide variety of fish species like Indian major carps (rohu, catla and mrigal), Chinese carps (common carp and grass carp) and tilapia (Annex-13). The households generally let the wild fishes enter into their ponds to get an additional biomass but these wild fishes reduce the overall production of the ponds. Therefore, opportunities exist in making the participants aware about suitable species composition and harmful effects of wild and weed fishes on fish production in pond.

Average stocking density in these ponds was much higher (174 fingerling/decimal) than the recommended density (fingerling/decimal). The farmers normally stock a large number of fingerling in their ponds believing that more stocking density will lead towards more production.

Therefore, the farmers could be made aware



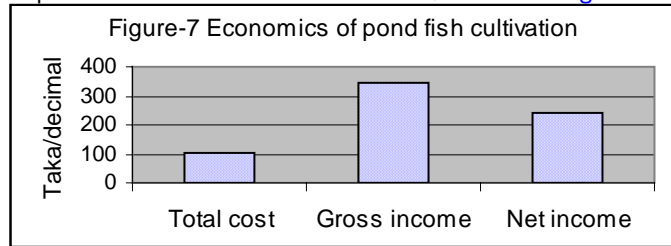
about the recommended stocking density in pond (Figure-6).

The farmers followed traditional (sometimes improved traditional) practices. They were found to apply a very lower amount of lime and TSP (0.28 and 0.13 kg/decimal respectively) than the recommended dose of Bangladesh Fisheries Research Institute (BFRI) in fish production in their ponds. However, they applied somewhat more urea and organic fertilizer compared to the BFRI recommended doses. Some of the farmers were found to apply potash and zinc fertilizers, which do not exert any significant effect in increasing production.

Supplementary feeding has been found to be an irregular practice in increasing production applying, on an average, 3.28 kg/decimal ([Annex-14](#)). Therefore, the farmers could be made aware about the importance of applying different inorganic and organic fertilizers and supplementary feeds.

The fish farmers got, on an average, 9.7 kg of fish per decimal from their ponds with the cost of 105 taka/decimal. Average gross and net incomes from these ponds were 344 and 239 taka/decimal ([Figure-7](#)).

Analysis of Benefit-Cost Ratio (BCR) shows that the average ratio was 2.27. The



highest ratio has been observed in Chapai Nawabgonj and the lowest in Sherpur compared to the other field offices ([Annex-15](#)).

Rice-Fish

Very few participants concentrated in Mymensingh and Sherpur were found involved in rice cum fish cultivation (1%) where the farmers got, on an average, 2.4 kg of fish/decimal with the cost of 23 taka/decimal. The farmers obtained gross and net incomes of 110 and 87-taka/decimal where the net income was an additional benefit from introducing fish in their rice fields ([Annex-16](#)).

Tree Plantation

Tree plantation and management is a major land-use technique that is currently adopted by the farming households for increasing productivity. Baseline information of project participants outlines the opportunities of project intervention in this field. It was depicted from the baseline survey that 57% of the participating households planted fruit trees & 39.61% households planted trees for timber fuel wood or fodder purposes. On average households planted 11 fruit trees and 9 timber trees in their lands, however average planted tree/households were higher (10-18) in Mymensingh, Kishoreganj and Rajshahi district and lower (3-6) in Sherpur and Chapai Nawabganj. However around 78% planted trees survived in all project sites ([Annex-17](#)).

Tree Management Practices

Baseline data shows depicts that farmers are generally reluctant in adopting tree management practices for better productivity, only 41% participating households are found practicing at least one or more tree management options. Mulching / Earthing up was observed as the highest adopted practice (18%) followed by fertilizer application (16%) and pruning (4%). Farmer's involvement in practicing Girdling, trimming, grafting and budding was found negligible ([Annex-18](#)).

Tree Nursery

Farmers involvement in tree nursery raising was found very minimum, only 2.24% participants were found gaining a net income amounting Tk 557/decimal in a year with an expenditure of Tk 203/decimal ([Annex-19](#)). There is a large potential of increasing farmer's income by involving them in tree seedling raising through project intervention.

Annex-1

Type of Relation	Direct delivery			Partnership delivery			Project		
	Sex		Total	Sex		Total	Sex		Total
	Male	Female		Male	Female		Male	Female	
Self	5004	278	5282	6634	591	7225	11638	869	12507
Spouse	6452	117	6569	8023	603	8626	14475	720	15195
Child	202	261	463	262	640	902	464	901	1365
Parents	272	708	980	215	714	929	487	1422	1909
Sibling	41	28	69	23	33	56	64	61	125
Others	40	2	42	7	11	18	47	13	60
Total	12011	1394	13405	15164	2592	17756	27175	3986	31161
%	89.61	10.39		85.4	14.6		87	13	

Relation of the participants to their HH Heads

Annex-2

Participant status by sex

Direct delivery					
Field Office	Male		Female		Total
	#	%	#	%	
Kishoregonj	895	49.3	917	50.7	1812
Sherpur	2228	49.5	2272	50.5	4500
Mymensingh	2359	51.4	2236	48.6	4595
Rajshahi	943	50.5	923	49.5	1866
Chapai Nawabgonj	1753	38.5	2803	61.5	4556
Total	8178	47.2	9151	52.8	17329
Partnership delivery					
Partner	Male	%	Female	%	Total
NGO	7362	48	7966	52	15328
CBO	1273	52.4	1155	47.6	2428
Total	8635	48.6	9121	51.4	17756
Project	16813	47.9	18272	52.1	35085

Annex-3

Age group of project participant

Age group	Direct delivery		Partnership delivery		Project	
	Participant	%	Participant	%	Participant	%
<=15	21	0.1	36	0.2	57	0.2
16-25	4142	23.9	3833	21.6	7975	22.7
26-35	7066	40.8	7884	44.4	14950	42.6
36-45	4254	24.5	4327	24.4	8581	24.5
46-55	1499	8.7	1391	7.8	2890	8.2
56-65	317	1.8	271	1.5	588	1.7
>65	30	0.2	14	0.1	44	0.1
Total	17329	100	17756	100	35085	100

Annex-4
Land ownership group (in decimal)

Direct delivery									
Field office	0-50	51-100	101-150	151-200	201-250	251-300	301-350	>350	Total HH
Kishoregonj	874	484	313	76	32	18	10	5	1812
Sherpur	1258	725	268	154	46	51	0	10	2512
Mymensingh	1453	961	253	261	36	21	1	4	2990
Rajshahi	1059	536	110	92	23	22	15	9	1866
Chapai Nawabgonj	2895	841	217	206	28	31	4	3	4225
Total	7539	3547	1161	789	165	143	30	31	13405
Partnership delivery									
Partner	0-50	51-100	101-150	151-200	201-250	251-300	301-350	>350	Total HH
NGO	7320	4832	1510	1048	321	158	59	80	15328
CBO	1388	705	194	99	23	12	6	1	2428
Total	8708	5537	1704	1147	344	170	65	81	17756
Project total	16247	9084	2865	1936	509	313	95	112	31161
Project %	52.14	29.15	9.19	6.21	1.63	1.00	0.30	0.36	100.00

Annex-5
Feasibility of Rice Fish, Pond Fish and Dike Crop cultivation

Direct delivery						
Field Office	Rice Fish		Pond Fish		Dike Crop	
	HH #	%	HH #	%	HH #	%
Kishoregonj	609	33.6	241	13.3	616	34
Sherpur	965	38.4	396	15.8	1022	40.7
Mymensingh	1832	61.3	663	22.2	1480	49.5
Rajshahi	280	15	50	2.7	420	22.5
Chapai Nawabgonj	1096	25.9	116	2.7	970	23
Total	4782	35.7	1466	10.9	4508	33.6
Partnership delivery						
Partner	Rice Fish		Pond fish		Dike crop	
	HH #	%	HH #	%	HH #	%
NGO	1607	10	3430	22	4661	30
CBO	464	19	716	29	986	41
Total	2071	12	4146	23	5647	32
Project	6853	22	5612	18	10155	33

Annex-6
Rice provision ability (no. of months)

Direct delivery														
Field Office	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
Kishoregonj	102	115	203	162	94	112	269	125	180	113	244	85	8	1812
Sherpur	21	43	159	259	237	173	551	158	269	170	306	147	19	2512
Mymensingh	23	39	179	316	318	225	541	177	295	201	458	206	12	2990
Rajshahi	121	133	122	111	109	108	381	75	190	102	277	65	72	1866
Chapai Nawabgonj	629	195	404	458	477	297	626	241	305	129	294	98	72	4225
Total	896	525	1067	1306	1235	915	2368	776	1239	715	1579	601	183	13405
%	6.68	3.92	7.96	9.74	9.21	6.83	17.7	5.79	9.24	5.33	11.8	4.5	1.4	100
Partnership delivery														
Partner	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
NGO	195	1156	1651	2107	1570	1774	1766	1308	1839	1089	617	230	26	15328
CBO	3	109	209	386	348	279	360	186	201	146	149	50	2	2428
Total	198	1265	1860	2493	1918	2053	2126	1494	2040	1235	766	280	28	17756
%	1.12	7.12	10.5	14	10.8	11.56	12	8.41	11.5	6.96	4.31	1.6	0.2	100
Project total	1094	1790	2927	3799	3153	2968	4494	2270	3279	1950	2345	881	211	31161
Project %	3.51	5.74	9.39	12.19	10.12	9.52	14.42	7.28	10.52	6.26	7.53	2.83	0.68	100

Annex-7
Household involvement, production and land used in rice cultivation

Direct delivery						
Field office	Boro			Amon		
	HH	Kg/dec.	Land (dec)	HH	Kg/dec.	Land (dec)
Kishoregonj	28	18.64	69	29	11.94	74
Sherpur	109	17.61	82	109	11.26	80
Mymensingh	113	17.46	88	109	10.48	93
Rajshahi	39	18.88	54	29	12.29	74
Chapai Nawabgonj	83	17.5	67	65	12.02	95
Total	372	17.75	76	341	11.3	86
Partnership						
Partner	HH	Kg/dec	Land (dec)	HH	Kg/dec	Land (dec)
NGO	202	18.67	62	182	12.53	68
CBO	47	18.14	56	34	11.54	67
Total	249	18.57	61	216	12.38	68
Project	621	18.16	68	557	11.84	77

Annex-8
Fertilizer application (kg/decimal)

Direct delivery										
Field office	Boro					Amon				
	Urea	TSP	MP	Zinc	Sulfur	Urea	TSP	MP	Zinc	Sulfur
Kishoregonj	0.990	0.220	0.090	0.010	0.010	0.670	0.050	0.010	0.003	0.010
Sherpur	1.230	0.330	0.120	0.010	0.040	0.580	0.030	0.010	0.000	0.010
Mymensingh	1.200	0.230	0.090	0.010	0.060	0.590	0.020	0.010	0.000	0.010
Rajshahi	1.070	0.500	0.190	0.150	0.050	0.550	0.160	0.070	0.013	0.010
Chapai Nawabgonj	0.970	0.390	0.190	0.010	0.020	0.650	0.290	0.130	0.000	0.010
Total	1.130	0.320	0.140	0.020	0.040	0.600	0.090	0.040	0.001	0.010
Partnership delivery										
Partner	Urea	TSP	MP	Zinc	Sulfur	Urea	TSP	MP	Zinc	Sulfur
NGO	1.114	0.403	0.2	0.012	0.002	0.777	0.206	0.108	0.006	0.003
CBO	1.165	0.432	0.199	0.029	0.003	0.707	0.133	0.062	0	0
Total	1.123	0.409	0.2	0.015	0.002	0.766	0.194	0.101	0.005	0.003
Project	5	5	0.17	0.0175	0.021	0.683	0.142	0.0705	0.003	0.0065

Annex-9
Pesticide use in rice production

Direct delivery									
Field Office	Boro				Amon				
	HH Involvement	HH used Pesticide	% HH used	Application Frequency	HH Involvement	HH used Pesticide	% HH used	Application Frequency	
Kishoregonj	28	28	100	1.75	29	25	86	1.36	
Sherpur	109	70	64	1.40	109	35	32	1.20	
Mymensingh	113	82	73	1.30	109	37	34	1.16	
Rajshahi	39	37	95	2.19	29	22	76	1.91	
Chapai Nawabgonj	83	79	95	1.78	65	47	72	1.89	
Total	372	296	80	1.61	341	166	49	1.51	
Partnership delivery									
Partner	HH Involvement	HH used Pesticide	% HH used	Application Frequency	HH Involvement	HH used Pesticide	% HH used	Application Frequency	
NGO	202	165	82	1.93	182	122	67	1.86	
CBO	47	41	87	1.68	34	22	65	1.41	
Total	249	206	83	1.88	216	144	67	1.79	
Project	621	502	81	1.75	557	310	56	1.65	

Annex-10
Input cost trend in rice production (taka/decimal)

Boro (Direct delivery)								
Field Office	Land	Seed	Fertilizer	Labor	Pesticide	Irrigation	Other	Total
Kishoregonj	10	3.64	13.33	39.5	3.18	18.23	0.52	88
Sherpur	8.49	3.84	15.19	27.2	1.2	22.18	0.29	78
Mymensingh	7.31	3.11	14.55	38.1	1.35	20.2	0.21	85
Rajshahi	10.4	4.06	18.22	27.66	3.3	20.13	0.51	84
Chapai Nawabgonj	8.81	3.27	15.51	17.82	3.37	19.16	3.06	71
Total	8.52	3.5	15.26	29.15	2.1	20.44	0.93	80
Boro (partnership delivery)								
Partner	Land	Seed	Fertilizer	Labor	Pesticide	Irrigation	Other	Total
NGO	8.17	4.68	17.54	24.21	3.1	20.5	1.47	80
CBO	8.11	4.17	17.08	21.84	2.39	16.55	1.61	72
Total	8.16	4.58	17.45	23.77	2.97	19.75	1.49	78
Project	8.34	4.04	16.355	26.46	2.535	20.095	1.21	79
Amon (direct delivery)								
Field Office	Land	Seed	Fertilizer	Labor	Pesticide	Irrigation	Other	Total
Kishoregonj	8.6	2.82	5.4	21.44	1.52	0	0.3	40
Sherpur	7.82	2.86	4.11	16.17	0.43	0.27	0.07	32
Mymensingh	6.99	2.79	4.06	21.7	0.49	0	0.23	36
Rajshahi	8.78	3.03	8.38	22.23	1.87	4.39	0.29	48
Chapai Nawabgonj	7.51	3.3	9.84	12.47	2.51	0.94	0.67	37
Total	7.64	2.93	5.63	18.45	1.06	0.64	0.27	37
Amon (partnership delivery)								
Partner	Land	Seed	Fertilizer	Labor	Pesticide	Irrigation	Other	Total
NGO	7.23	3.67	10.43	19.39	2.05	2.46	0.8	46
CBO	7.19	3.34	7.27	18.66	1.15	1.44	0.17	39
Total	7.22	3.62	9.93	19.27	1.91	2.3	0.7	45
%	16.07	8.06	22.09	42.87	4.24	5.11	1.56	100
Project	7.43	3.28	7.78	18.86	1.49	1.47	0.49	41
%	18.2	8.0	19.1	46.2	3.6	3.6	1.2	100

Annex-11
Economics of rice production (taka/decimal)

Direct delivery						
Field office	Boro			Amon		
	Total cost	Gross income	Net income	Total cost	Gross income	Net income
Kishoregonj	88	119	31	40	74	34
Sherpur	78	112	34	32	74	42
Mymensingh	85	120	35	36	66	30
Rajshahi	84	122	38	48	74	25
Chapai Nawabgonj	71	106	35	37	71	34
Total	80	115	35	37	71	35
Partnership delivery						
	Total cost	Gross income	Net income	Total cost	Gross income	Net income
NGO	80	119	40	46	83	37
CBO	72	109	37	39	75	36
Total	78	117	39	45	82	37
Project	79	116	37	41	76	36

Annex-12
Household involvement, pond size and ownership pattern of pond fish cultivation

Direct delivery						
Field Office	Involved HH	Pond size (decimal)	Single		Joint	
			HH #	%	HH #	%
Kishoregonj			10	42	14	58
Sherpur	47	10	32	68	15	32
Mymensingh	80	22	25	31	55	69
Rajshahi	17	26	9	53	8	47
Chapai Nawabgonj	46	30	20	43	26	57
Total	214	22	96	45	118	55
Partnership delivery						
NGO	154	21	77	50	77	50
CBO	32	23	19	59	13	41
Total	186	21	96	52	90	48
Project	400	21.5	192	48	208	52

Annex-13
Species stocked by the household

Species	Direct delivery						Partnership delivery			Project
	Kishoregonj	Sherpur	Mymensingh	Rajshahi	Chapai	Total	NGO	CBO	Total	
Common Carp	11	29	45	11	17	113	80	17	97	210
Silver barb	17	34	55	7	3	116	76	13	89	205
Tilapia	2	7	11	1	14	35	28	7	35	70
Rohu	22	27	69	14	34	166	127	30	157	323
Catla	20	20	52	14	29	135	103	21	124	259
Silver Carp	20	38	73	15	35	181	142	22	164	345
Mirgal	13	28	56	12	15	124	104	18	122	246
Grass Carp	10	17	22	5	3	57	46	4	50	107
Wild Fish	9	6	6	4	7	32	24	1	25	57

Annex-14
Input application in pond fish cultivation

Direct delivery						
Field office	Stocking Density (per dec)	Urea (kg/dec)	TSP (kg/dec)	Organic (kg/dec)	Lime (kg/dec)	Feed (kg/dec)
Kishoregonj	153	0.260	0.050	4.670	0.180	3.770
Sherpur	278	0.350	0.080	9.560	0.250	7.330
Mymensingh	207	0.150	0.060	2.740	0.180	2.820
Rajshahi	127	0.450	0.290	6.010	0.270	0.380
Chapai Nawabgonj	90	0.090	0.040	2.770	0.030	0.320
Total	185	0.220	0.080	4.720	0.170	3.190
Partnership delivery						
Category	Stocking Density (per dec)	Urea (kg/dec)	TSP (kg/dec)	Organic (kg/dec)	Lime (kg/dec)	Feed (kg/dec)
NGO	163	0.559	0.164	11.508	0.387	3.261
CBO	160	0.63	0.294	4.282	0.453	3.953
Total	162	0.571	0.186	10.265	0.398	3.38
Project	174	0.3955	0.133	7.4925	0.284	3.285

**Annex-15
Pond Economics (taka/decimal)**

Direct delivery				
Field Office	Product (kg/dec)	Total cost	Gross income	Net income
Kishoregonj	10.36	114	376	262
Sherpur	9.52	135	349	214
Mymensingh	9.38	90	337	247
Rajshahi	9.09	88	323	235
Chapai Nawabgonj	9.23	56	267	211
Total	9.47	95	328	233
Partnership				
Partner	Product (kg/dec)	Total cost	Gross income	Net income
NGO	10.13	118	363	245
CBO	6.96	105	275	170
Total	10.05	115	360	245
Project	9.76	105	344	239

**Annex-16
Rice cum fish cultivation**

Field Office	HH involved	Production (kg/dec)	Cost (tk/dec)	Gross income (tk/dec.)	Net income (tk/dec.)
Sherpur	2	2.6	15	103	88
Mymensingh	6	2.3	25	112	87
Total	8	2.4	23	110	87

Total 0.94 % project participant involved

**Annex-17
Tree plantation and survival**

Direct delivery				
Field office	Fruit Trees		Timber. Fuel or Fodder	
	# of Seedling Planted/HH	% seedling survived	# of Seedling Planted/HH	% seedling survived
Kishoreganj	18	79	14	64
Mymensingh	10	74	17	83
Sherpur	6	82	3	84
Rajshahi	8	84	19	66
Chapai Nawabganj	6	92	5	89
Total	9	82	12	78
Partnership delivery				
NGO	13	72	14	69
CBO	10	72	6	68
Total	13	72	13	69
Project	11	77	12	73

Annex-18
Adaptation of tree management practices

Practices	Direct delivery		Partnership		Project	
	# HH	Adoption % HH	# HH	Adoption % HH	# HH	Adoption % HH
Fertilizer Application	71	15.57	44	11.16	115	13.53
Earthing up	83	18.2	137	34.77	220	25.88
Trimming	8	1.75	5	1.27	13	1.53
Pruning	19	4.16	32	8.63	51	6.00
Girdling	1	0.21	1	0.25	2	0.24
Grafting	4	0.87	3	0.76	7	0.82
Budding	3	0.63	1	0.25	4	0.47
Total	189	41.44	223	57.09	412	48.47

Annex-19
Tree nursery

Partner	HH	Total cost (tk/dec)	Gross income (tk/dec)	Net income (tk/dec)
NGO	18	214	788	574
CBO	1	10	250	240
Total	19	203	760	557
Total 2.24 % project participant involved				

Annex-20

PARTICIPANT REGISTRATION FORMAT
LIFE NOPEST Phase II Project, ANR Sector, CARE Bangladesh
Frequency: Once (when Participants taken on)

1. General Identification:

Identification	Code ^a	Name
1.1 Field office		
1.2 Thana team		
1.3 Union		
1.4 Village		
1.5 FT/EF		
1.6 FFS		
1.7 Organization		

1.8 Form Id no. (For office use only)	
1.9 Registration Date	Month year
1.10 Service type (DD=1, Partnership=2)	
1.11 FFS type ^A	
1.12 Number of members in FFS	

A- Male=1, Female=2, Mixed=3, F/A male=4, F/A female=5

** See attachment-1: general identification code*

2. Register & Basic Information

Sl. #	Participant's Name	F/AHH Sl. #	Father / Husband's Name	Sex ^B	Relation to HH Head ^C	Age (yr)	Marital Status ^D	Own Land Size (dec.)	Feasibility (Yes=1, No=2) ^E			RPA (#of months) ^F	Religion ^G	
									RF	PF	DC			
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
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21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
# of Participants who can														
% of Participants who can Practice RF/PF/ DC((No. who can practice/Total number in														

B- Male=1, Female=2

C- Self=1, Spouse=2, Child=3, Parents=4, Sibling=5, Others=6

D- Married=1, Unmarried=2, Widowed=3, Divorced=4, Separated=5

E- RF= Rice Fish, PF=Pond Fish, DC=Dike Crop

F- RPA: Rice Provision Ability

G- 1=Muslim, 2=Hindu, 3=Christain, 4=Boudish, 5=Tribal

Calculate:

	Land size (Decimal)				RPA (Months)			
	<50	51-100	101-200	201+	<3	4-6	7-9	9-11
# of participants								
% of participants								

Annex-21

BASELINE DATA COLLECTION QUESTIONNAIRE

LIFE NOPEST Phase II Project
Method: **Participants Sample Survey**
Frequency: One Time (at beginning of Cycle)

1. GENERAL IDENTIFICATION:

Identification	Code*	Name
1.1 Field office		
1.2 Thana team		
1.3 Thana		
1.4 Union		
1.5 Village		
1.6 FT/EF		
1.7 FFS		
1.8 Organization		
1.9 Participant		

Form Id no. (For office use only)	
1.10 Data collection date	
1.11 Service type ^A	
1.12 FFS type ^B	
1.13 Sample type (for monitoring) ^C	

A-- DD=1, Partnership=2;
B- Male=1, Female=2, Mixed=3, F/A Male=4, F/A Female=5
C- Yes = 1, No=2

* See attachment-1: general identification code

2. PADDY

2.1. Yield Information

	Boro	Amon	Aush	Total (annual) ^B
1. Total Land Used (dec.)				
2. Land Topography ^A				
3. Yield (Kg)				
4. Yield Value (Tk)				

A : High=1, Medium=2, Low=3

B : Add Boro+Amon+Aush

Item	Quantity				Total Cost (Tk.)		
	Unit	Boro	Amon	Aush	Boro	Amon	Aush
Land preparation							
Seed/ Seedling (Own / Purchased)							
Inorganic Fertilizer	Urea	Kg					
	TSP	Kg					
	MP	Kg					
	Zinc	Kg					
	Sulfur	Kg					
Organic Fertilizer/ Compost		Kg					
Labor	Own	Man-Days					
	Hired	Man-Days					
Pesticide – Quantity ^C	Gm ml						
Pesticide – Frequency							
Irrigation							
Others (Please Specify)							
Total Cost (add all rows in season)							

2.2. Production Cost

C : Pesticide includes insecticide, fungicide, bactericide, weedicide and herbicide.

2.3) Calculate : Total Annual Production Cost = Sum of last row values (in Table 2.2.) = Tk _____

2.4) Calculate : Annual Net Profit = Total Yield Value (from Table 2.1.) – 2.3. = Tk _____

3. TREE PLANTATION and MANAGEMENT:

Name of Species	Code ^G	# Planted	#Survived	Where Planted ^F
1.				
2.				
3.				
4.				
5.				
Others				

3.1 Plantation of Fruit Tree:

Name of Species	Code ^G	# Planted	#Survived	Where Planted ^F
1.				
2.				
3.				
4.				
5.				
Others				

3.2 Plantation of Timber, Fuel, Fodder Tree

G : See attachment-3: Tree code

H : Homestead=1, Dike=2, Roadside=3, Elsewhere=4

3.3 Management/Improvement Practices

Management/Improvement Practices	Number of Trees	Category (Fruit=1/Timber=2)
Fertilizer/Manure Application		
Earthing-up		
Trimming		
Pruning		
Girdling		
Grafting		
Inarching		
Budding		
Others (Please specify)		

4. POND FISH :

Pond Area (decimals) :

Type of Ownership (Single=1, Joint =2)

4.1 Pond Information

If joint, how many members were involved in pond fish production?

If joint, how many portions owned by the farmer?

4.2 Production Cost

Item		Quantity		Cost (Tk.)
Seed		Gms	#	
Inorganic Fertilizer	Urea	Kg		
	TSP	Kg		
	MP	Kg		
	Zinc	Kg		
	Sulfur	Kg		
Organic Fertilizer/ Compost		Kg		
Labor	Own	Man-Days		
	Hired	Man-Days		
Feed		Kg		
Harvesting Cost				
Lime		Kg		
Others (Please Specify)				
Total Cost (add all cost rows) (Tk)				

4.3 Production, Consumption, Sales Information

Species Produced ⁶	Total Production		Consumption		Sales			Other		Production Value
	#	Wt(Kg)	#	Wt(Kg)	#	Wt(Kg)	Tk	#	Wt(Kg)	

G - 1=Common Carp, 2=Sharputi, 3=Tilapia, 4=Ruhu, 5=Katla, 6=Silver Carp, 7=Mrigal, 8=Grass Carp, 9=Wild Fish, 10=Other

5. RICE FISH :

Did you culture rice fish in last typical year ? (yes=1, No=2)

If yes, then provide the following information.

5.1 Rice Fish Information

Area (decimals) where RF Cultivated:

5.2 Production, Consumption, Sales Information

Species Produced ⁶	Total Production		Consumption		Sales			Other		Production Value
	#	Wt(Kg)	#	Wt(Kg)	#	Wt(Kg)	Tk	#	Wt(Kg)	

G - 1=Common Carp, 2=Sharputi, 3=Tilapia, 4=Ruhu, 5=Katla, 6=Silver Carp, 7=Mrigal, 8=Grass Carp, 9=Wild Fish, 10=Other

5.3 Total Input Cost = Tk

5.3) Calculate : Net Profit = Production Value (from Table 5.2) - 5.3 = Tk

6. FISH SEED PRODUCTION:

Did you culture fish seed in last typical year ? (yes=1, No=2)

If yes, then provide the following information.

6.1 Land Used

Rearing Place ^H	Area (dec.)

H - 1=Ditch, 2=Pond, 3=Rice Field

6.2 Production & Economic Returns

Production		Sale (Tk)			Total Production Value	Total Cost (Tk.)
#	Wt(Kg)	#	Wt(Kg)	Tk		

6.3) Calculate : Net Profit = Total Production Value - Total Cost = Tk

7. TREE NURSERY:

Did you do Tree Nursery in a typical year? (yes=1, No=2):

If yes, then mention the land area of tree nursery (in decimal)

Mention the total expense in tree nursery (in taka)

Total income from tree nursery (in taka)

8. Homestead crop:

8.1 Land Used

Homestead (decimal)

8.2 Production, Consumption and Sales

Homestead crop		Production		Consumption		Sales			Others		Production Value (Tk.)
Name	Code ^D	#	Kg	#	Kg	#	kg	(Tk.)	#	Kg	
1.											

2.													
3.													
4.													
Others													

D : See attachment-2: Vegetable code

8.3 Production Cost

Item		Quantity				Total Cost (Tk.)
Land preparation						
Seed/Seedlings						
Fertilizer	Organic/ Compost	Kg.				
	Inorganic	Kg.				
Labor	Own	Man-days				
	Hired	Man-days				
Pesticide ^F		g		ml	Freq	
Irrigation						
Fencing/Macha						
Others (Please Specify)						

F : Pesticide includes insecticide, fungicide, bactericide, weedicide and herbicide.

9. Field crop:

9.1 Land Used

Crop Field (decimal)	
----------------------	--

9.2 Production, Consumption and Sales

Field crop		Production		Consumpt		Sales			Others		Producti on Value (Tk.)
Name	Code ^D	#	Kg	#	Kg	#	kg	(Tk.)	#	Kg	
1.											
2.											
3.											
4.											
Others											

D : See attachment-2: Vegetable code

9.3 Production Cost

Item		Quantity				Total Cost (Tk.)
Land preparation						
Seed/Seedlings						
Fertilizer	Organic/ Compost	Kg.				
	Inorganic	Kg.				
Labor	Own	Man-days				
	Hired	Man-days				
Pesticide ^F		g		ml	Freq	
Irrigation						
Fencing/Macha						
Others (Please Specify)						

F : Pesticide includes insecticide, fungicide, bactericide, weedicide and herbicide.

10. Dike crop:

Dike (area = length (ft.) X width (ft.))	
---	--

10.1 Land Used

10.2 Production, Consumption and Sales

Dike crop		Production		Consumpt		Sales			Others		Productio n Value (Tk.)
Name	Code ^D	#	Kg	#	Kg	#	kg	(Tk.)	#	Kg	
1.											
2.											
3.											
4.											
Others											

D : See attachment-2: Vegetable code

Item		Quantity				Total Cost (Tk.)
Land preparation						
Seed/Seedlings						
Fertilizer	Organic/ Compost	Kg.				
	Inorganic	Kg.				
Labor	Own	Man-days				
	Hired	Man-days				
Pesticide ^F		gm		ml	Freq:	
Irrigation						
Fencing/Macha						
Others (Please Specify)						

10.3 Production Cost

F : Pesticide includes insecticide, fungicide, bactericide, weedicide and herbicide.