

Baseline Study for Sustainable Agriculture, Food Security and Linkages (SaFaL) Programme



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Human Development Research Centre

Conducted for

Solidaridad

Dhaka: October 2014

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Prepared by

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ACKNOWLEDGEMENTS

Solidaridad Network Asia, in partnership with national and international stakeholders, and the Embassy of the Kingdom of the Netherlands in Bangladesh, has started implementing the Sustainable Agriculture, Food Security and Linkages (SaFaL) programme in the south-west of Bangladesh. SaFaL is working towards the intensification of agricultural production in the sub-sectors of aquaculture, dairy and horticulture. SaFaL has estimated targets against indicators to be achieved over the project period. In order to create a benchmark, a baseline survey is necessary to come up with baseline values for each of the targets set. Solidaridad Network Asia awarded Human Development Research Centre (HDRC) for having carried out the baseline Survey. The accompanying report is the outcome.

The successful administration of the Baseline Study would not have been possible without the commitment and dedication of all those who were involved in this process.

The enthusiasm of Selim Reza Hasan (Country Manager-Bangladesh, Solidaridad Network Asia) towards the study is highly appreciated by us. Among SaFaL team members, we are thankful to Muhammad Shakil Anwar (Program & Partnership Manager) for his positive support towards the study; we are particularly grateful to Md. Abir Ahmed, Monitoring and Evaluation Specialist) for his stimulating inputs, and unstinted support at all stages of this study; we also thank Indu Bhushan Roy (Programme Coordinator), Biplob Kumar Saha (Monitoring and Evaluation Officer), and Meshba Uddin Ahmed (Monitoring and Evaluation Officer) for their support.

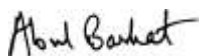
We are indebted to all the staff members of Solidaridad who reviewed the draft report and put their valuable comments and suggestions on that; those comments and suggestions were highly useful in finalizing this report.

We are grateful to all the staff members of *Uttaran* and *Jagorani Chakra Foundation* for their excellent support during our field data and information collection.

Data collection was complex. However, our field team was so trained and committed that they finally did overcome all odds, and completed their tasks successfully. In this regard, we are grateful to them for the commendable work done with utmost sincerity.

The in-house staff members of HDRC worked untiringly at all the stages. We thank all those lovely and uncomplaining souls at HDRC. We are indebted to ASM Obaidur Rahman (Systems Analyst, HDRC) for his all out efforts. We are grateful to Md. Mahfuz Ali for editing the report. We are thankful to Ali Ahmed (Sr. Research Associate, HDRC) for his hard work. We also thank Md. Ismail Hossain (Lecturer, Department of Sociology, Kumudini Govt. College, Tangail) for his inputs towards the study.

Above all, we will remain ever grateful to the respondents of the survey, without whose profound support, the implementation of the study would have been impossible.



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Dhaka: October 2014

Abbreviations

AIS	Agricultural Information Service
BADC	Bangladesh Agricultural Development Corporation
BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BFDC	Bangladesh Fisheries Development Corporation
BFRI	Bangladesh Fisheries Research Institute
BINA	Bangladesh Institute of Nuclear Agriculture
BJRI	Bangladesh Jute Research Institute
BMDA	Barind Multipurpose Development Authority
BRRRI	Bangladesh Rice Research Institute
BSRI	Bangladesh Sugarcane Research Institute
CBO	Community Based Organization
CDB	Cotton Development Board
DAE	Department of Agricultural Extension
DAM	Department of Agricultural Marketing
DAP	Diammonium Phosphate
DCI	Data Collection Instrument
DLS	Department of Livestock Service
DoF	Department of Fisheries
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GoB	Government of Bangladesh
GR	Green Revolution
HDRC	Human Development Research Centre
HH	Household
HYV	High Yielding Variety
KG	Kilo Gram
MOA	Ministry of Agriculture
MOP	Murite of Potash
NGO	Non-Government Organization
PG	Producer Group
PL	Post Larva
PRA	Participatory Rural Appraisal
PSF	Pond Sand Filter
RA	Randomly Assigned
SaFaL	Sustainable Agriculture, Food Security and Linkages
SCA	Seed Certification Agency
SRDI	Soil Resources Development Institute
SAAO	Sub-Assistant Agricultural Officer
TSP	Tripple Super Phosphate
UNO	Upazila Nirbahee Officer

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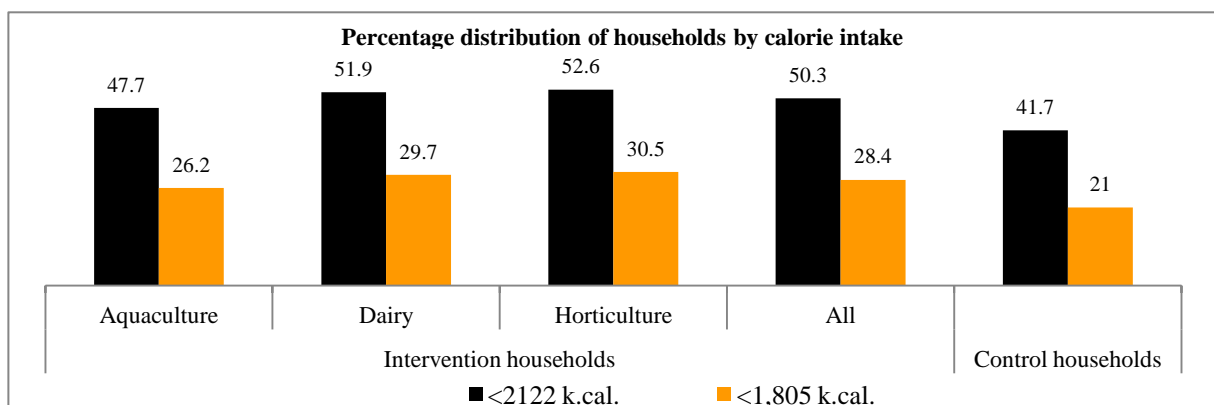
Executive Summary

Solidaridad Network Asia in partnership with national and international stakeholders, and the Embassy of the Kingdom of the Netherlands in Bangladesh have started implementing the Sustainable Agriculture, Food Security and Linkages (SaFaL) programme in the south-west of Bangladesh. SaFaL works towards intensification of agricultural production in the sub-sectors of *aquaculture*, *dairy*, and *horticulture*. A number of 56,938 farm households are brought under interventions. SaFaL has formed Producer Groups (PG) with members of each of the three sub-sectors. One group consists of around 50 households. One potential member of each of the target households has become member of the PG. A 37% PG members are female. SaFaL is working in 69 unions (including part of a Paurasava of Narail Sadar) under 13 upazilas from 5 districts in Bangladesh (i.e., *Khulna*, *Bagerhat*, *Satkhira*, *Jessore*, and *Narail*). The objective of this study is to provide baseline data so that assessment as well as dynamic analysis can be made in future. The design is “Pre-test-Post-test Intervention-Control group Design.” Sample size of households is adequate to represent intervention and control groups; as well as three sub-sectors (i.e., *aquaculture*, *dairy*, and *horticulture*).

Background characteristics of the surveyed households

A 61.1% of the surveyed PG members have passed at least grade five. A 31% of the intervention households are *landless* (owning less than or equal to 49 decimal land); which is 36% among control households. A 64.8% intervention household has at least one milking/pregnant cow and/or heifer, which is 73.1% among the control households. The average net annual income for the intervention households is Tk. 191,994, which is Tk. 164,677 for control.

Household Food Consumption: A 50.3% intervention household consumes less than 2,122 k.cal. per person per day; while a 28.4% household consumes less than 1,805 k.cal per person per day. Thus, based on the direct calorie intake method (DCI) for poverty measurement, it reveals that in the intervention households 50.3% of the households live below the absolute poverty line and 28.4% below the hardcore poverty line. The calorie intake situation is poor in intervention households compared to that of the control households. Among the control households, 41.7% of the households consume less than 2,122 k.cal. per person per day; while 21.0% households consume less than 1,805 k.cal. per person per day. Majority of the households with *under-5 children* or *pregnant women* or *lactating mother* have reported about having diversified types of food comprising *carbohydrate-protein-fat-vitamin-mineral*. However, in all the cases for *under-5 children*, *pregnant women*, *lactating mother*- dietary diversity may show some satisfactory level- but, the amount of food intake is not sufficient. Diversified diet is prevalent in terms of variety but not so much in terms of quantity and quality in the households under the survey. More so, the puzzle about ‘access’ to and ‘real intake’ of diversified diet has to be seriously considered.



Household Savings and Credit Status: About half of the households (52.2% of intervention and 48.5% of control) did not have any savings at the day of interview. Percentage of households having savings in *samiti* (NGOs and cooperatives combinedly) remains relatively high among both intervention and control households (25.3% and 35.4% respectively). The average amount of household savings among intervention group is Tk. 14,594 which is Tk. 12,944 for control group. A 45.5% intervention household has access to credit, which is 54.5% among control households. A 23% household among intervention group has access to formal credit market, which is 15.7% in the control group.

Disaster and Coping Strategies: During the last five years, 53.6% intervention households were affected by natural disasters; which was 19.1% among control households. *Heavy rain* is the predominant disaster for the intervention households, while it is *cyclone* for the control group. *Flood* remains as the second natural evil for the intervention households. Agricultural losses are more severe in the intervention households than that in the control. *Borrowings from relatives and friends* is the leading disaster coping strategy for the intervention households.

Women's Role in Household Decision Making: In terms of taking decisions on *business operation aspect*, the majority women take decisions jointly with their husbands (50.7% in intervention and 48.1% in control households). Only a 5% woman can take such decision alone, which is slightly higher among the women in control households (10.5%). Women have almost no role in deciding about *purchasing lands*, irrespective of intervention and control households (respectively 2.8% and 3.8%). Other indicators depict an identical pattern.

Hygiene and Nutrition: The knowledge and practice level of hygiene and nutrition issues among women shows significant gaps. A 58.3% women in the intervention households opined that vegetables should be washed before cutting; while only 18% women reportedly practiced it. A 75% woman among intervention households opined that, newborn babies should be exclusively breastfed up to six months; while reported practice level is 55.2%. Other indicators show a similar pattern of wide gaps between knowledge and practice level.

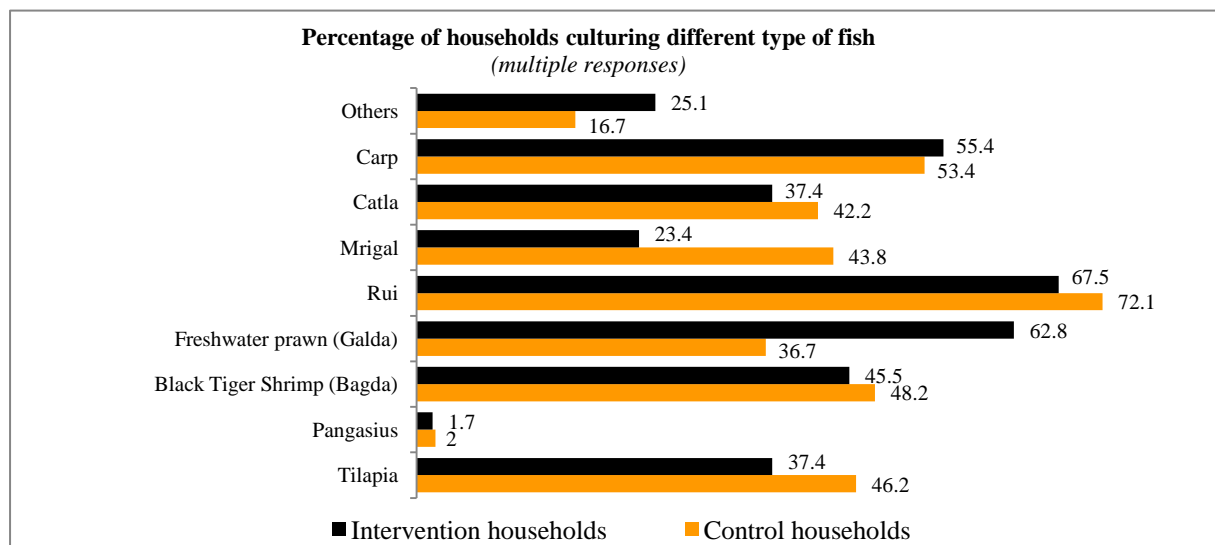
Soil Quality, Soil Testing and Cultivation in Saline-Infiltrated Land: Only 29.2% intervention households have some knowledge about soil quality; which is 20.4% among control. Almost no farmers (both among intervention and control households) have arranged soil-testing on their plots. Around one-fourth households (26.5% among intervention and 26.2% control households) have reported ever cultivating the land which had salinity problems. Only 5.6% intervention households have knowledge about salt-tolerant varieties; which is 9.3% among control households. The use rate of salt-tolerant varieties is insignificant.

Cropping Intensity: The cropping intensity, both among the intervention and control groups, is less than the national average. The cropping intensity is 105% among the intervention group; which is 117.3% among control. While, according to National official statistics (2013) cropping intensity is 191% in Bangladesh.

Aquaculture Sub-Sector: SaFaL focuses four species for the aquaculture: Pangasius, Tilapia, Freshwater prawn (Golda), and Black Tiger shrimp (Bagda). A 37.4% intervention households culture Tilapia; which is 47% among control. Only 1.7% intervention households culture Pangasius; which is 2% among control households. Black Tiger Shrimp (Bagda) is cultured by 45.5% intervention households; which is 48.2% among control. Freshwater prawn (Golda) is cultured by 62.8% intervention households; which is 36.7% among control.

A 31.3% intervention households culture Tilapia, Golda, and Bagda at the same time; which rate is also the same for the combination of Golda and Bagda.

A 0.30 ton of *Black Tiger Shrimp (Bagda)* is produced per hectare by the intervention households, which is 0.25 ton per hectare among the control households. A 0.20 ton of *Freshwater Prawn (Golda)* is produced per hectare by the intervention households, which is 0.22 ton per hectare among the control households. *Tilapia, Pangasius, and Carp* productivity among the intervention households is 3.06 ton per hectare; which is 4.27 ton per hectare among control households. On average, an intervention household produces 0.67 ton of aquaculture products in each hectare, which is 0.81 ton for control households. The proportion of wastage to the total production of aquaculture products from the time of harvesting to selling is not significant.



Almost not a single household takes any measures or steps before preserving and/or selling fish. The supply-chain actors reported use of harmful medicines and/or substances mostly by the forward market actors; not by the producers.

A 54.5% intervention household cannot collect quality fingerlings/post larva; and, 38.1% do not feed fish regularly. Almost no farmer buys/collects inputs for aquaculture in a group.

Women’s participation in aquaculture is low at only 10% of total involvement in terms of person-days. The average daily wage rate for female day-laborer involved in aquaculture is much less than that of the male workers, irrespective of intervention and control groups (Tk. 115 for female versus Tk. 200 for male).

A 33.7% intervention household sell aquaculture products to *upazila/zila level market*; followed by *union level market* (24.3%), *farm gate* (22.7%), and *local market* (17.2%). A 36.3% of the intervention households have reported that they do not get reasonable price for their aquaculture products. Almost no farmer sells aquaculture products collectively.

The average net annual income among Aquaculture PG group is Tk. 238,743, of which 69.9% comes from aquaculture.

The Upazila Fisheries Officer provides public services with *shortage of logistics and trained human resources*. There is lack of a formal coordination mechanism with other relevant stakeholders (e.g., NGOs), as well as with the private sector actors. A 50.1% aquaculture PG member does not receive any of the relevant services from anywhere while doing aquaculture.

Dairy Sub-Sector: At the day of household survey, it was found that a 64.8% intervention household had at least one milking/pregnant cow and/or a heifer, which was 73.1% among the control households. Among the Dairy PG, this same was 96.8%.

In last one year, among the intervention households who produced milk, on average had 1.15 milking cow; received milk on average 216 days from a milking cow in a year; average milk production per household was 2 litre per day, while average milk production per milking cow was 1.8 litre per day.

Milk production scenario at a glance*						
Indicators	Sub-sector	Intervention households				Control households
		Aquaculture	Dairy	Horticulture	All	
Average number of milking cows per household		1.10	1.19	1.05	1.15	1.09
Average number of milking days per milking cow in a year		210	218	225	216	184
Average milk production per household (litre per day)		1.7	2.3	2.1	2.0	1.9
Average milk production per milking cow (litre per day)		1.5	1.9	2.0	1.8	1.7

* Calculations have been done for those households only who had milk production in last one year preceding the survey

Green grass and straw are leading fodders which are used in about 80% of the households- both among intervention and control households. No farmers procure dairy inputs collectively.

A 68.3% of the intervention and 63.3% of the control households wash udders prior to milk collection. Only one-fourth households (26.3% intervention and 28.8% control households) wash milk collection pot properly with hot water/cleaning agent.

Cow-shed management, milking and day-to-day work like feeding, grazing, bathing, etc. are three main areas of dairy rearing where female members of 70% of households from both intervention and control households are engaged.

Milk-collectors (*Goala*) - who collect milk from the households - are the prime buyers of milk from the milk producing households.

Average net annual income among Dairy PG group is Tk. 143,274- of which only 3.7% stems from milk production.

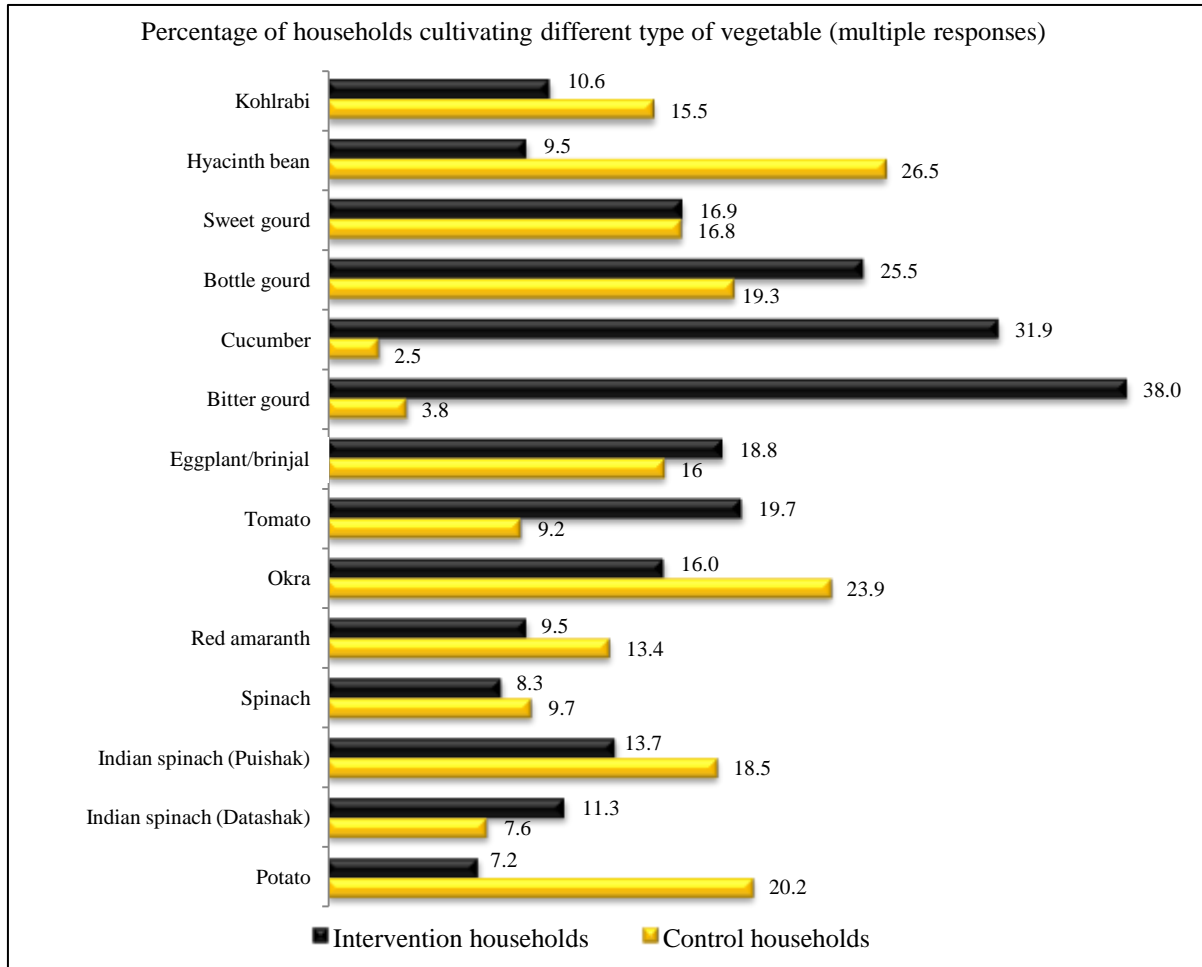
A 48.2% intervention PG member does not receive any services from any sources on dairy activities, which is 17.9% among control households.

Horticulture Sub-Sector: A 38% intervention household cultivates *bitter gourd* followed by *cucumber* (31.9% households), and *bottle gourd* (25.5% households). The highest yielding vegetable in last one year preceding the survey among intervention households was cucumber with a yield rate of 46.5 ton per hectare followed by *bottle gourd* (40.5 ton) and *tomato* (26 ton). In control households, the highest yielding vegetable is *bottle gourd* (39.3 ton), followed by *cucumber* (35.8 ton).

Almost none of the households took any measures or steps before preserving and/or selling vegetables. The supply chain actors reported use of harmful medicines and/or substances by the forward market actors, and not by the producers.

Households neither have practice of purchasing inputs nor do they sell produced vegetables collectively.

Out of the total expenditures for vegetable cultivation, the expenditure for *fertilizer* is the highest, followed by expenditure for *seed* and *irrigation*.



The most reported problem in selling vegetables is *not getting reasonable/appropriate price* (36.6% in intervention and 44.3% in control households). A 79.2% intervention household sells vegetables in *local markets* followed by *upazila/zila market* (49.1%), *farm gate* (42.8%), and *union market* (35%).

Only 13.5% household in intervention and 19.3% household in control area made income from fruit trading. None of the households either in intervention or control groups reported taking measures or steps before preserving and/or selling fruits. Since fruits are not produced for commercial purpose, households usually do not give efforts on fruit gardening. Applying fertilizer or pesticide is not a common practice for fruit cultivation.

The average net annual income among Horticulture PG group is Tk. 170,166, of which 17% comes from horticulture.

There are no distinguished government horticulture services available at upazila level. Sub-Assistant Agricultural Officers (SAAO) work as front line workers at union level. Farmers expect appropriate services from them, but they cannot provide expected services.

Role of Landless Groups in Agriculture: The landless groups – according to SaFaL- are those who can work as agents in the various steps of the agricultural works and thus maintain linkages with the other stakeholders in both the backward and forward market. The agricultural and Gher (fish cultivation) laborers have no direct role in the process. But the milk seller group has somewhat relationship with the selling system. Some agriculture laborers are also engaged in the selling of the farm products.