

**Proceedings of the participatory workshop
on
Technology Identification and Recommendation for
FoSHoL Project
(Gazipur district)**

9 March 2005



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Glossary

AAS	=	Agricultural Advisory Society
AAO	=	Additional Agriculture Officer
AC	=	Area Coordinator
ACA	=	Area Coordinator Associate
BARI	=	Bangladesh Agriculture Research Institute
BKB	=	Bangladesh Knowledge Bank
BRDB	=	Bangladesh Rural Development Board
BRRRI	=	Bangladesh Rice Research Institute
CARE	=	Cooperative Assistance for Relief Everywhere
DAE	=	Department of Agriculture Extension
DFID	=	Department for International Development
DFO	=	District Fisheries Officer
DLO	=	District Livestock Officer
DLS	=	Department of Livestock Services
DoF	=	Department of Fisheries
DW	=	Development Worker
EC	=	European Commission
ED	=	Executive Director
FGD	=	Focus Group Discussion
FoSHoL	=	Food Security for Sustainable Household Livelihoods
GOs	=	Government Organizations
GTC	=	Grass-root Training Centre
IRRI	=	International Rice Research Institute
ITDG	=	Intermediate Technology Development Group
NGOs	=	Non Government Organizations
PETRRRA	=	Poverty Elimination Through Rice Research Assistance
PM	=	Project Manager
PNGO	=	Partner Non Government Organization
PO	=	Programme Organizer
SO	=	Scientific Officer
SPO	=	Senior Programme Officer
UAO	=	Upazila Agriculture Officer
UFO	=	Upazila Fisheries Officer
ULO	=	Upazila Livestock Officer
URDO	=	Upazila Rural Development Officer
USSO	=	Upazila Social Service Officer
VRC		Village Resource Center
ZC	=	Zonal Coordinator

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Introduction

The FoSHoL (Food Security for Sustainable Household Livelihoods) project is a 54-month project; the objective of which is to promote food security and livelihood improvement of the food insecure, small and marginal farmers through the dissemination of sustainable agricultural technologies. To achieve the objectives of FoSHoL project, EC has selected four NGOs (ActionAid Bangladesh, CARE Bangladesh, ITDG Bangladesh, and Proshika) as dissemination agencies. The four disseminating NGOs have been selected for their potential to contribute to the overall improvement of food security among the targeted farmers. They will identify, adapt and disseminate the selected technologies among the target farmers. This will strengthen farming system efficiency and will consequently improve farm-household food security and livelihood. Moreover, EC has selected IRRI to provide the mandated coordination and thus ensure that the four NGOs carry out their interventions in a coherent, consistent, effective and efficient manner, using appropriate technologies selected from their own experiences; PETRRA experiences; also from IRRI and elsewhere. The coordinating agency, IRRI, will work with disseminating NGOs to deliver technologies that will improve farming practices and the utilization of farm resources. Through these interventions, the target farmers will increase the quality and quantity of their farm output and thus enhance their own food security.

Location specific technology identification for the targeted food insecure, small and marginal farmers is one of the major activities of IRRI in FoSHoL project. IRRI has assigned Agricultural Advisory Society (AAS) to explore, identify and document technologies from sources throughout the country; giving particular emphasis in the districts where the FoSHoL project is operating. The selected technologies will be documented in the Bangladesh Knowledge Bank (BKB). The BKB documentation will guide the efforts of the four disseminating NGOs as they undertake to identify the most suitable technologies that are appropriate to the sub-ecosystems of their respective target areas. This derived documentation is intended to be a roadmap for carrying out the process of identifying suitable agricultural technologies and their sources; and storing these in Bangladesh Knowledge Bank and implementing them as appropriate among their constituents within their designated FoSHoL project areas. The BKB resources will help, guide and harmonize the efforts of the four disseminating NGOs as they undertake to identify the most suitable technologies for non-rice, rice, fisheries and livestock production; technologies that are appropriate to the sub-ecosystems of the target areas designated by each of the participating NGOs.

Several workshops have been scheduled in the FoSHoL project areas in collaboration with the four disseminating NGOs. These are being conducted by Agricultural Advisory Society (AAS) under the supervision of the coordinating agency, IRRI. The intention of the workshops is to identify, select and disseminate specific agro based technologies for rice, non-rice, fisheries, livestock and non-farm activities that could be act as a catalyst for the disseminating NGOs of FoSHoL project.

In this regard, a workshop was conducted on 9 March 2005 at Grass-root Training Centre (GTC), Proshika, Sreepur, Gazipur from 9.00 am to 4.00 pm in collaboration with Proshika, one of the disseminating NGOs of FoSHoL project.

Purpose:

The workshop was convened for the purpose of selecting (identifying) the most potential agro based technologies for rice, non-rice, fisheries, livestock and non-farm activities for targeted farmers of FoSHoL project in Gazipur district.

Facilitators:

In technical session the participating farmers and secondary stakeholders were divided into two groups. Group-I was selected to identify the technologies of crops and non-farm activities and Group-II was selected to identify the technologies of livestock and fisheries. Two facilitation teams conducted the group work. For Group-I, Mr. Harun-Ar-Rashid, ED, AAS and consultant, FoSHoL project, IRRI was the team leader of the facilitations team. Mr. Deb Kumar Nath, Irrigation Engineer, AAS; Mr. M.M. Anwar Hossain, SPO, Proshika, Dhaka; Mr. Mamunul Haque, Asst. Manager Communication, IRRI, Ms. Anjumanara Swapna, Zonal Co-ordinator, Proshika, Gazipur and Mr. Abdul Razzak, Area coordinator, Proshika, Sreepur acted as facilitator's for Group-I. On the other hand for Group-II, Ahmad Salahuddin, manager Coordination and Capacity Building, FoSHoL project, IRRI was the team leader of the facilitators team. Mr. A.K.M. Ferdous, Agronomist, AAS; Mr. A.K.M. Murshedur Rahman, Entomologist, AAS; Mr. A.K.M. Hasan Sayed, Coordinator, Social Forestry, Proshika and Mr. Azharul Islam, Area Coordinator, Proshika, Bhaluka acted as facilitators for Group-II.

Participant:

A total of 64 participants attended in the workshop of which 32 were farmers and 32 participants were from different stakeholders (GOs and NGOs) of Gazipur and Mymensingh district. Among the 32 farmers, 17 were male and 15 were female from Sreepur and Bhaluka upazilas. On the other hand, among the 32 participants attended from relevant GOs and NGOs, 5 were female and the rest 27 were male. The distinguished stakeholders were from Department of Agricultural Extension (DAE), Department of Livestock Services (DLS), Department of Fisheries (DoF), Bangladesh Rural Development Board (BRDB), International Rice Research Institute (IRRI), Journalists and NGOs including Proshika and Agricultural Advisory Society (AAS). List of workshop participants are provided in Annex-III.a and III.b.

Methodology

The facilitators undertook participatory Focus Group Discussions (FGD) with farmers at community level, discussion with the stakeholders at district level (Gazipur) and district level participatory workshop with participating farmers and secondary stakeholders of Gazipur and Mymensingh districts. These were conducted during 7-9 March 2005. Details of FGDs, discussion meeting with district level relevant stakeholders and participatory district workshop are given below:

FGD at community level

In order to identify the farmers' demand-led technologies, two FGDs were conducted at community level. A total of 69 farmers including 31 female farmers (45%) participated in the FGDs. Out of the two FGDs; one FGD was conducted at Village Resource Centre (VRC) of Kopatiapara village in Sreepur upazila of Gazipur district on 8 March 2005, where a total of 30 farmers including 12 female farmers (40%) participated. In Sreepur, the FGD was conducted with the cooperation of Grass-root Training Centre (GTC), Proshika, Sreepur, Gazipur.



Another one FGD was conducted at Rashida's house of Kharuali village in Bhaluka upazila of Mymensingh district on 8 March 2005, where a total of 39 farmers including 19 female farmers (49%) participated. In Bhaluka, the FGD was conducted with the cooperation of Grass-root Training Centre (GTC), Proshika, Bhaluka, Mymensingh.



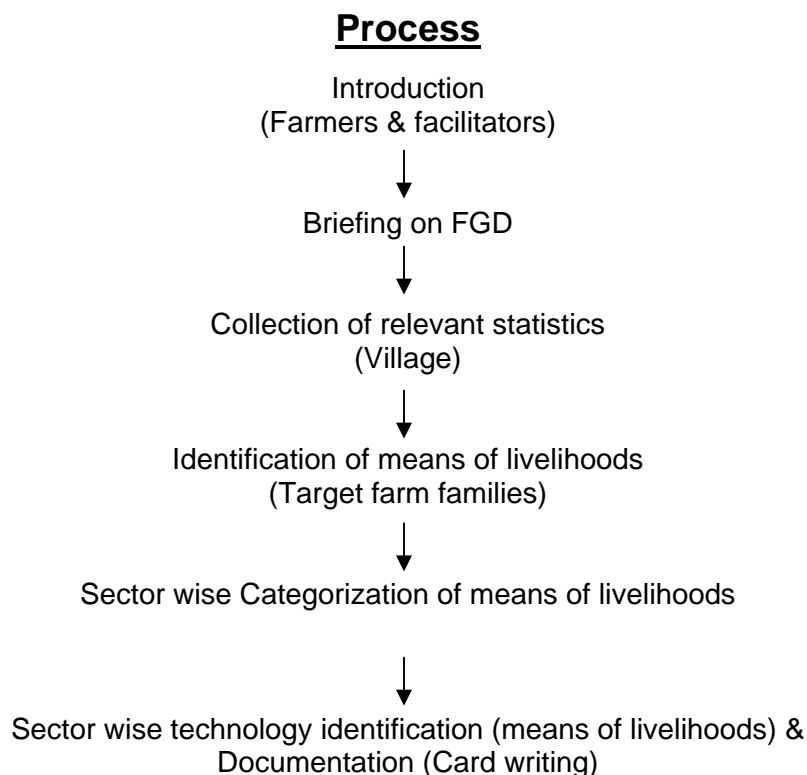
Mr. Harun-Ar-Rashid, ED, AAS and Consultant, FoSHoL project, IRRI; Mr. A.K.M Ferdous, Agronomist; Mr. Deb Kumar Nath, Irrigation Engineer and Mr. A.K.M. Murshedur Rahman, Entomologist of AAS conducted the FGDs in the above upazilas of Gazipur and Mymensingh districts. FGDs were conducted with the overall support of Mr. M.M. Anwar Hossain, SPO, Proshika, Dhaka; Md. Abdur Razzak, AC, Proshika, Sreepur, Gazipur; Mr. Azharul Islam AC, Proshika, Bhaluka, Mymensingh; Ms. Lavli Yeasmin, ACA, Proshika, Sreepur; Ms. Asma Khatun, ACA, Proshika, Sreepur, Gazipur and Mr. Nazmul Hasan, ACA, Proshika, Bhaluka, Mymensingh. These half-day long FGDs were conducted through open discussion and in a participatory manner. During open discussion, existing technologies, problems and farmers demand were crucially identified covering all sectors of rice, non-rice, livestock, fisheries and non-farm activities.



session gave special attention to female participants during selection of the non-farm ITDG technologies at plenary.

ITDG documented technologies were displayed among the participants with an illustration by the facilitators. In this regards, the facilitators of the FGD

The process of FGD that was followed at each community is given below:



Output of these FGDs at farmer's level was documented through card writing for the purpose of presentation, selection and prioritization of the technologies in the technical session of the district workshop.

The facilitators of the district workshop presented the farmer's 'community level' technology selections. After presentation of each technology, the floor was open for all participants of the district workshop to discuss the merits of each technology under discussion and then the recommended technologies were prioritized according to the process.

Discussion with district level stakeholders

Discussion with district level stakeholders was conducted to identify sustainable technologies for Gazipur district. Mr. Harun-Ar-Rashid, ED, AAS and Consultant, FoSHoL project, IRRI; Mr. A.K.M. Ferdous, Agronomist, AAS; Mr. Deb Kumar Nath, Irrigation Engineer, AAS and Mr. A.K.M. Murshedur Rahman, Entomologist of AAS along with M. M. Anwar Hossain, SPO, Proshika, Dhaka conducted the district level discussion meetings. The "candidate technologies" were identified from the Department of Agriculture Extension (DAE), Department of Livestock Services (DLS) and Department of Fisheries (DoF) during the district level discussion meeting in Gazipur. The views of participants in the district level discussion meetings were duly recorded by the facilitators

on cards. These cards represented the primary documentation of the district level discussion meetings.

District workshop

After conducting the FGDs with the targeted farmers at community level and the discussion meeting at secondary stakeholder level, a district level workshop was conducted with the representative farmers from Sreepur upazila of Gazipur district and Bhaluka upazila of Mymensingh district and with the distinguished representatives of relevant secondary stakeholders from Gazipur district. A participatory approach was followed through out the workshop. The workshop was divided into three sessions i.e., inaugural session, technical session and concluding session and was proceeded on as per Schedule (Annex. IV).

a) Inaugural session:

The purpose of inaugural session of the district level workshop was to give a focus about FoSHoL project as well as about the workshop. The inaugural session of the workshop was presided over and inaugurated by Mr. Habibur Rahman, UAO, Sreepur, Gazipur. Dr. Noel P Magor, Manager, FoSHoL project and Representative, IRRI, Dhaka was the Chief guest of the workshop. Mr. A. K. M. Hasan Sayed, Coordinator, Social Forestry Programme, Proshika, Dhaka, delivered welcome address in the workshop. Ahamed Salahuddin, Manager Coordination and Capacity Building, FoSHoL project, IRRI spoke on FoSHoL project. Md. Harun-Ar-Rashid, ED, AAS and Consultant FoSHoL project, IRRI spoke on FoSHoL project and gave an over view on the process of the technical session of the workshop. Mr. Rezaul Kabir, Central Coordinator, Proshika spoke in the session on behalf of Proshika. Mr. Shafiqul Islam, ULO, Sreepur, Gazipur spoke on the scope of dissemination of poultry and livestock. Ms. Hosney Ara, DFO, Gazipur spoke on the impact of fisheries in livelihood of the food insecure people.

b) Technical session:

The main purpose of the technical session was to select the potential technologies for the targeted farmers of Gazipur district. At the beginning of the technical session, Mr. Harun-Ar-Rashid, ED, AAS and consultant FoSHoL project, IRRI gave a briefing on the process of the technical session. After briefing on the process of the technical session, the following steps were amplified: group formation, identification of technologies, presentation of identified technologies, selection of potential technologies, prioritization of potential technologies and presentation of prioritized technologies according to the presented process of the technical session of the workshop.

Group formation: To identify the area specific farmer's demand-led technologies, two groups were formed. Group-I was responsible to identify the technologies of crops and non-farm activities and Group-II was responsible to identify the technologies of livestock and fisheries. Participating male and female farmers of the workshop were divided into two groups according to their own interest. On the other hand, participating secondary stakeholders of both GOs and NGOs were divided according to their close association as well as interest with the groups. Participants from DAE were in Group-I. On the other hand, participants from DLS and DoF were in Group-II. As a whole each group contained representative of farmers, GOs and NGOs and had a balanced strength for technology identification, selection, prioritization and recommendation.

Identification of technologies: Small and marginal farmers demand-led technologies were identified in the district workshop through participatory group discussion among the farmers and stakeholders of Gazipur and Mymensingh districts, which were documented by the facilitators on cards. The technologies were identified on the basis of three major sectors such as crops (cereals, vegetables, fruits, spices, nursery, others) fisheries and livestock.

Presentation of identified technologies: Farmer's suggested technologies, district level stakeholder's suggested technologies and district workshop participant's suggested technologies were recorded on cards and presented by the facilitators among the participants of the workshop.

Selection of potential technologies: After the presentation of farmer's demanded technologies, district level stakeholder's suggested technologies and district workshop participant's suggested technologies, the floor was opened for discussion to select the potential technologies for the targeted farmers of FoSHoL project. The potential technologies were selected by the participants of the workshop through discussion and necessary modification at plenary.

Prioritization of technologies: During the "prioritization of technology" process, farmers and secondary stakeholders of the district workshop prioritized the potential technologies sector wise such as crops (cereals, vegetables, fruits, spices, nursery and others), fisheries and livestock's. Farmers and stakeholders of Group-I prioritized the different categories of crops (cereals, vegetables, fruits, spices, nursery and others) whereas; Group-II prioritized the technologies of livestock and fisheries. The prioritized technologies were ranked on position basis as per ascending order.

Presentation of technologies: The group leader of Group-I Mr. Habibur Rahman, UAO, DAE, Sreepur, Gazipur presented the technologies of crops and others agro-based activities. On the other hand, for Group-II, the technologies of livestock and fisheries were presented by a participating farmer Mr. Rafiqul Islam from Bhaluka upazila of Mymensingh district. All participants of the workshop accepted the technologies as their real demand for the locality.

c) Concluding session:

The concluding session was over with the closing speech of farmers, GOs and NGOs representatives. Md. Harun-Ar-Rashid, ED, AAS and Consultant FoSHoL project, IRRI; Dr. Noel P. Magor, Manager FoSHoL project and Representative, IRRI, Dhaka; Mr. Mohammad Ali, Unit Organizer, CMES; Ms. Gita Rani Debi, Upazila Rural Development Officer (URDO), Kapasia; and Mr. Anwer Hossain, SPO, Proshika gave their satisfactory closing speech where they expressed their appreciation to the participating farmers and stakeholders of the district workshop.

Inaugural Session (Output)

At the beginning of the inaugural session Mr. A.K.M. Hasan Sayed, Coordinator, Social Forest, Proshika delivered his welcome speech in the workshop. In his speech, he thanked and welcomed all of the participants (both farmers and stakeholders) for their kind participation in the workshop. He mentioned that the FoSHoL project funded by European Commission (EC) is going to be implemented by four disseminating NGOs where Proshika planned to implement this project in 40 upazilas. He added that the FoSHoL project will run for about 4-5 years and disseminate the suitable agro-based technologies in the target areas. Proshika will be able to improve the livelihood of the poor farmers where about 18000 farmers will be directly benefited and about 5 lakh farmers will be indirectly benefited. At the end of his speech he mentioned that farmers are the essence of this workshop and they will be able to identify the suitable technologies for the improvement of their livelihood by their own experiences.

Ahamed Salahuddin, Manager Coordination and Capacity Building, FoSHoL project, IRRI said that on the basis of the success of PETRRA project of IRRI, the European Commission (EC) has designed the FoSHoL (Food Security for Sustainable Household Livelihoods) project to achieve food security and livelihood improvement of the food insecure small and marginal farmers. EC has selected four disseminating NGOs to implement the FoSHoL project in different locations of the country. Under the FoSHoL project, we are going to work on all types of agricultural on-farm and non-farm activities through which small and marginal farmers can be benefited and improved their livelihood status. He also mentioned that the FoSHoL project has not been started yet and it will be started as soon as possible. Through this workshop we will try to identify the technologies, which can be used at the time of implementation of the project.

Mr. Harun-Ar-Rashid, ED, AAS and consultant FoSHoL project, IRRI welcomed and thank all of the participants of the workshop. He gave a short brief on FoSHoL project with his presentation. Mentioning the objectives of FoSHoL project he said that today we would try to identify the technologies for Gazipur district and these technologies will be used at the time of implementation of the project. He said that the project would run for about 4-5 years with the aim of giving food security to the food in secured farm families. Mentioning the names he said that four disseminating NGOs will work with the project where IRRI is acting as a coordinating agency and AAS is doing short time consultancy. In Gazipur district, Sreepur, Kaliakair and Sadar upazilas are selected for FoSHoL project, he added. He briefly presented the four steps of the process of the technical session for identification, selection, prioritization and recommendation of the technologies for Gazipur district. He was hopeful for the successful technical session and thanked everybody for participating in the workshop.

Ms. Hosney Ara, District Fisheries Officer (DFO) said that it is very important to establish an integrated approach with crops, fisheries and livestock for improving the livelihood status of small and marginal farmers. It is also one of the important goals of the government to improve the livelihood of the small and marginal farmers by the maximum utilization of a small piece of land, she added. It is very happy news for us that several NGOs are going to be implemented the FoSHoL project for the improvement of livelihood of small farmers utilizing their limited resources. Giving more emphasis on fish

culture she said that farmers are now able to culture fish in their rice field, which was unbelievable before 15-20 years. Mentioning the necessity of the fish culture she said that it would be easy to bring quick change in livelihood status of the small and marginal farmers. She also mentioned that fish culture is also necessary to reduce the nutritional deficiency of the country. She ensured all kind of technical cooperation on fish culture from fisheries department.

Mr. Shafiqul Islam, Upazila Livestock Officer (DLO) said that agriculture contained four large sectors including the livestock. He mentioned that the Gazipur district is well known for poultry and livestock sectors. It is a comparatively high land and the communication system is very good. So, there is a great scope for the dissemination of poultry and livestock in a large scale in this location. He was hopeful mentioning that the FoSHoL project will give proper emphasis on this emerging poultry sector.

Mr. Rezaul Kabir, Central Coordinator, Proshika, Dhaka mentioned that through the FoSHoL project Proshika will be able to reduce the poverty from the target areas taking initiative of livelihood status development for the target farmers.

Dr. Noel P. Magor, IRRI Representative and Manager FoSHoL and Chief guest of the workshop said that since the establishment of BRRI, IRRI has a very close relation with this organization. Through the workshop we will try to identify the technologies for disseminating among the small and marginal farmers including the female farmers for improving the livelihood status. He was hopeful to identify the suitable technologies by the farmers and stakeholders through this workshop.

Mr. Habibur Rahman, UAO, Sreepur and Chairman of the inaugural session said that farmers of this district have to identify the suitable technologies for improving their livelihood status through this workshop. It is very happy news for us that FoSHoL project is going to be started in this area for improving the livelihood status of the small and marginal farmers. We can support the farmers but they have to identify the appropriate technologies for FoSHoL project by their own situation to improve their present condition, he added. We have to remember in mind that our cultivable land is decreasing day by day. So it is necessary to grow more crops in the limited cultivable land for our existence. We have to identify such type of technologies by which we can get more profit. For example, cultivation of vegetables in this district will be more profitable as the communication facility is very good and intercropping of shed loving plants such as zinger and turmeric in jackfruit gardens for the maximum utilization of land, he added. So we have to consider all the relevant factors to get the best results. At the end of his speech he thanked all the participating farmers and stakeholders of relevant GOs and NGOs for participating the workshop.

Technical session

Findings:

The lands of Gazipur district can be divided into two main categories. i.e. 'Chala' (high land or flood free area) and 'Baid' (low land area). In 'Chala' lands, fruits as well as vegetables are grown where in 'Baid' lands mainly rice is grown. Through FGDs at community level, district level meetings with stakeholders and district workshop, the technologies were identified, selected, prioritized and recommended with the cooperation of farmers and secondary stakeholders (GOs and NGOs) for the food insecure small and marginal farmers.

1. Suggested on-farm technologies for FoSHoL project in Gazipur district

Small and marginal farmers are the target farmers of the FoSHoL project and they lead their lives through different agro-based strategies. Farmer's and secondary stakeholder's recommended on-farm technologies for FoSHoL project were divided into three major sectors i.e. crops, fisheries and livestock, where crops have several categories such as, cereals, vegetable, fruits, spices, nursery and others. A total of 101 potential technologies were suggested in the workshop where 13 technologies were on cereal crops, 21 technologies were on vegetable, 13 technologies were on fruit, 7 technologies were on spices, 6 technologies were on nursery, 6 technologies were on other agro-based activities, 15 technologies were on fisheries and 20 technologies were on livestock. The farmers and stakeholders suggested technologies are presented in Annex. I.



holder's recommended on-farm technologies for FoSHoL project were divided into three major sectors i.e. crops, fisheries and livestock, where crops have several categories such as, cereals, vegetable, fruits, spices, nursery and others. A total of 101 potential technologies were suggested in the workshop where 13 technologies were on cereal crops, 21 technologies were on vegetable, 13 technologies were on fruit, 7 technologies were on spices, 6 technologies were on nursery, 6

technologies were on other agro-based activities, 15 technologies were on fisheries and 20 technologies were on livestock. The farmers and stakeholders suggested technologies are presented in Annex. I.

2. Prioritized potential technologies

Participatory farmers and secondary stakeholders of the workshop prioritized the suggested potential technologies under three major sectors such as crops (cereals, vegetables, fruits, spices, nursery and others), fisheries and livestock's. Farmers and stakeholders of Group-I prioritized the different categories of crops whereas; Group-II prioritized the technologies of livestock and fisheries. The prioritized technologies of crop (cereals, vegetables, fruits, spices, nursery and others), fisheries and livestock with their obtained rank on position basis as per ascending order are provided in Annex. I.



3. Prioritized means of livelihoods

In Group-I, farmers and stakeholders of the district workshop prioritized the crop-based means of livelihoods such as rice, vegetables, fruits, spices, nursery and others where more emphasis was given on the farmer's opinion. The ranking was on position basis as per ascending order. Out of the six categories, vegetables were identified as the best means of livelihoods for the farmers followed in order by rice, fruit, spices, nursery and others. The findings of the prioritized crop based means of livelihoods is provided in the following table1:

Table 1. Prioritization of agro-based major means of livelihood of the targeted farm families in Gazipur district.

Agro-based major means of livelihood	Prioritizing the means of livelihood (Position*)
Rice	2
Vegetable	1
Fruit	3
Spices	4
Nursery	5
Others	6

* Position: 1= 1st, 2= 2nd, 3= 3rd, 4=4th, 5=5th and 6=6th

Nevertheless in Group-II, between the two major means of livelihood categories, livestock obtained the first priority followed by fisheries.

4. Problems, Suggestions and Comments of the farmers and secondary stakeholders

During FGD, farmers were asked to inform the suitable agro-based technologies by which they would be able to improve their livelihood status. Most of the farmers of Gazipur district demanded to ensure quality seed, improved vegetable production techniques, high yielding vegetable seed, etc. They wanted to know about the profitable rice cultivation technique, pesticide and fertilizer management of crops and proper insect and disease management of fruits especially for jackfruit and mango and jujube. Mentioning the poultry sector as very profitable, they desired to get training on rearing, disease management and improved production techniques of poultry. On the other hand, farmers demanded trainings on quality fish fingerlings production, disease management of fishes, polyculture of pond fishes, fish feed preparation, improved tilapia and pangus fish cultivation etc. Most of the farmers of Sreepur upazila in Gazipur district raised some problems during FGD at community level which are given below:

- ✓ Inadequate irrigation system in 'Chala' (high land)
- ✓ Lack of knowledge on seed production and preservation technique of crops
- ✓ Lack of knowledge on pest and pesticide management of crops
- ✓ Inadequate supply of improved fish fingerlings
- ✓ Inadequate knowledge on disease management of poultry

During FGD in Bhaluka upazila of Mymensingh district, most of the farmers wanted to know about the cultivation practices of HYV rice, management of insects and diseases, of vegetables and rice, seed production and preservation technique of vegetables and rice, information on quality seed, fertilizer and irrigation management etc. Farmers demanded to get training on pest management, fertilizer management, beef fattening, livestock management, vaccination of livestock, fish feed preparation, fish fingerlings production etc. Few problems raised by the farmers of Bhaluka upazila of Mymensingh district during FGD at field level are given below:

- ✓ Irrigation facilities in high land are very poor
- ✓ Inadequate knowledge in insect and disease management
- ✓ Inadequate vaccination facilities for poultry
- ✓ Unavailability of improved fresh water fingerlings
- ✓ Unavailability of quality seeds of rice and vegetables in the market

During discussion meeting with the district level stakeholders (DAE, DLS and DoF), suitable technologies were suggested for the small and marginal farmers of the targeted upazilas. They suggested that the training is necessary in every sector such as rice, non-rice, livestock, fisheries and non-farm activities. Department of Agriculture Extension (DAE) suggested providing training on IPM, modern method of rice cultivation, fertilizer management, preparation of organic pesticide etc. They also suggested to introduce quality seeds of vegetables, drum seeder, paddle-thresher, cultivation of zinger, turmeric & summer onion in sandy red soil, cultivation of vegetables, trees & fruit trees nursery, cultivation of apple jujube, etc. Department of Livestock Services (DLS) suggested providing training on biogas plant, poultry farming, milking cow rearing, compost (poultry) preparation etc. Department of Fisheries (DoF) suggested to provide training on fishery management, production of fish fingerlings, community based fish culture, fish meal preparation, integrated fish culture etc. to improve livelihood of the small and marginal farmers of the targeted upazilas.

5. Accepted ITDG documented technologies

During FGDs at community level, out of 107 ITDG documented technologies, 58 technologies were accepted by the farmers, which are provided in Annex. II. Especially the women showed their keen interest on the documented agro based non-farm activities, which mostly include the food processing and preservation techniques.

Concluding session

One of the participating farmers Mr. Abdul Hakim said that it is a great pleasure to him to participate in such kind of workshop. He was excited to say that since most of the skilled and experienced participants from different GOs and NGOs including farmers raised discussion on technology identification, he felt proud to participate in the discussion on the selection and recommendation of suitable technologies in their location. He said that we are looking forward for the implementation of FoSHoL project.

A participating female farmer Ms. Rahima Begum said that it is very happy news for us because; a project is going to be implemented in this area to increase the livelihood status of small farmers. She was hopeful for the immediate implementation of the FoSHoL project.

Mr. Mohammad Ali, Unit Organizer, CMES thanked Proshika and AAS for organizing such kind of workshop. He also mentioned that mushroom cultivation is a very promising technology and our organization can provide technical support on mushroom cultivation and on bio-fertilizer technology if farmers show their interest on it

Ms. Gita Rani Debi, Upazila Rural Development Officer (URDO), Kapasia said that a lot of agro based technology identified from this workshop. She was hopeful that the implementation of the farmer's demand-led technologies in Gazipur district could give the food security of small farmers.

Dr. Noel P. Magor, Manager FoSHoL project and Representative, IRRI, Dhaka and chief guest of the workshop expressed his cordial thanks to all participants of the workshop and added that farmers and secondary stakeholders identified lots of technologies from this workshop. On the other hand, different organizations may also have some promising technologies, he added. He stressed the necessity to identify these technologies for the improvement of farmer's livelihood.

Md. Harun-Ar-Rashid, Executive Director, AAS and Consultant FoSHoL project, IRRI thanked all of the participating farmers and secondary stakeholders of GOs and NGOS on behalf of AAS and IRRI for spending their valuable time. He appreciated the group leaders and the facilitators of both groups for providing high quality facilitation in identification selection and prioritization of the technologies. He also thanked staffs of Proshika and AAS for providing the logistic support for successful workshop. He gave cordial thanks to Mr. Anwar Hossain, SPO, Proshika, Dhaka for his tremendous support to organize the workshop. He expressed his special thanks to Mr. Manju Mian, Caretaker, GTC, Sreepur, Gazipur for his tireless effort to make successful the workshop.

Mr. Anwar Hossain, SPO, Proshika, Dhaka express his happiness that the workshop is going to be end successfully. He expressed his hope that the FoSHoL project will be able to bring some change in livelihood status of the small and marginal farmers of Gazipur district. He also thanked to Mr. Manju Mian, Caretaker, GTC, Sreepur, Gazipur for providing logistic support for successful workshop. Finally he thanked all the participating farmers and stakeholders for spending their time and efforts in the workshop and concluded the session with high expectation.

Annex-I. Identified and prioritized suitable technologies for Gazipur district by the

participants of the district workshop

SI #	Sector	Identified technologies	Ranking
I	Crop:		
1.	Cereal: Rice	Improved rice cultivation techniques	1
		Quality rice seed production techniques	2
		Improved rice seed storage techniques	3
		Introduction of HYVs rice	4
		Improved rice seedlings production techniques	5
		Rice pests and diseases identification and their management	6
		Improved irrigation management for rice cultivation	7
		Rat control in T. Aman season	8
		Introduction of high yielding and hybrid rice varieties	9
		Rice hybrid cultivation in high fertile soil	10
		Balanced fertilizer use in rice cultivation	11
		Introduction of rice thresher	12
	Maize	Grain maize cultivation	-
2.	Vegetables	Extension of hybrid Bitter gourd varieties	1
		Profitable vegetable cultivation techniques	2
		Introduction of hybrid papaya (green) cultivation	3
		Dissemination of high yielding Brinjal cultivation	4
		Introduction of high yielding hybrid radish cultivation	5
		Dissemination of hybrid Cauliflower and Cabbage cultivation	6
		Improved production technique of Tomato	7
		Leafy vegetable cultivation (Red amaranth and Indian spinach)	8
		Community based Mushroom cultivation	9
		Bottle gourd cultivation for vine	10
		Dissemination of high yielding Amaranth (dhanta) cultivation	11
		Pani Kachu cultivation	12
		Vegetable seedling production techniques	13
		Panchamukhi Kachu cultivation (High land)	14
		Plantain (Kancha Kala) cultivation	15
		Introduction of hybrid tomato cultivation	16
		Improved production techniques for vegetable seed	17
		Extension of Bottle gourd, Sweet gourd, Bitter gourd, Brinjal and White gourd cultivation	18
		In-field irrigation techniques for vegetable crops	19
		High yielding yard long bean cultivation	20
		Health hazard free pest and disease management for vegetables	21

3.	Fruit	Jackfruit cultivation	1
		Apple Jujube cultivation	2
		Pest management for Jujube	3
		Narkeli Jujube cultivation	4
		Improved sapling production techniques for Lemon, Guava, Mango, Jackfruit, Kamranga and Amloki	5
		Improved method of Banana cultivation (Variety: Sobri)	6
		Banana Pests and diseases management practices	7
		Jackfruit Pests and diseases management	8
		Mango Pest management	9
		Extension of Lemon cultivation	10
		Improved cultivation method for high yield papaya	11
		Dissemination of Apple Jujube cultivation	12
4.	Spices	Dissemination of high yielding Zinger cultivation in sandy red soil	1
		Dissemination of high yielding Turmeric (BARI variety) cultivation	2
		Turmeric and Zinger cultivation under Jackfruit trees	3
		Summer Onion cultivation in sandy red soil	4
		Year round green chilli cultivation	5
		Balijuri chilli cultivation during winter season	6
		Hybrid chilli cultivation	7
5.	Nursery	Establishment of small scale nursery for fruit, vegetable and flowers	1
		Commercial Flower cultivation	2
		Dissemination of Tuberose, Gladiolus and marigold cultivation	3
		Seedling production technique for flowers	4
		Grafting for Apple Jujube	5
		Seedling and saplings production techniques	6
6.	Others	Compost preparation technique	1
		Knowledge on Nursery establishment and management	2
		Introduction of In-field irrigation techniques for non-rice crops	3
		Ensuring to supply the quality seed of crops	4
		Introduction of Power tiller	5
		Apiculture	6
II.	Fisheries	Financial support for fish culture	1
		Improved fish culture method	2
		Fish fry production technique	3
		Fish feed production technique	4
		Training on fish disease control	5
		Pangas culture technique	6
		Polyculture of fishes	7
		Integrated fish culture	8

		Fish disease management	9
		Community based fish culture in beel	10
		Fish feed management	11
		Pond preparation knowledge for fish culture	12
		Monosex Tilapia culture	13
		Introduction of Galda shrimp (prawn) culture in carp polyculture pond	14
		Pond re-excavation and its management technique for fish culture	15
III.	Livestock	Improved cattle breeds development	1
		Local duck-Chicken rearing management	2
		Goat rearing	3
		Small poultry farming with 100-200 chickens	4
		Fodder cultivation technique and its seed supply	5
		Pigeon rearing	6
		Milking cow rearing	7
		Cattle disease management	8
		Poultry disease management	9
		Calf (female) rearing	10
		Beef fattening	11
		High yielding improved Chicken rearing	12
		Milk marketing technique/system	13
		Feed Management for Goat rearing	14
		Organic fertilizer preparation from poultry litter	15
		Prevention of livestock and poultry diseases through management	16
		Goat disease management	17
		Boiler and layer rearing	18
		Milk preservation technique	19
		Milk processing technique	20

Annex-II. ITDG documented technologies accepted by the farmers in Gazipur district

Sl. Nr.	Farmer's accepted ITDG documented technologies
1.	Tomato sauce preparation
2.	Tamarind chatni preparation
3.	Green mango chatni preparation
4.	Olive chatni preparation
5.	Green chilli pickle preparation
6.	Green mango pickle preparation
7.	Dry jujube pickle preparation
8.	Chanachur preparation
9.	White gourd morabba preparation
10.	Amsatta preparation
11.	Coconut ball (Naru) preparation
12.	Sugarcane Juice preparation
13.	Candle preparation
14.	Green mango sour pickle preparation
15.	Narikeli (Sweet) preparation
16.	Poultry feed preparation & business
17.	Olive sour-sweet-hot pickle preparation
18.	Sewing
19.	Hog plum morabba preparation
20.	Hog plum hot pickle preparation
21.	Milk business
22.	Sugar-molases khaza preparation
23.	Puffed rice (muri) preparation
24.	White gourd morabba preparation
25.	Organic fertilizer or compost preparation
26.	Poultry rearing
27.	Banana chips preparation
28.	Improved furnace (chula) preparation
29.	Goat rearing
30.	Beef fattening
31.	Coconut fibre made household materials preparation
32.	Soap preparation
33.	Small (mudi) shop
34.	Duck egg incubation business using Chinese method
35.	Milking cow rearing
36.	Apiculture
37.	Semai preparation
38.	Nurser for medicinal and fruit trees
39.	Commercial bamboo cultivation
40.	Shon papri preparation
41.	Packaging business
42.	Tea stall
43.	Gunny bag preparation and its business
44.	Power tiller business for land preparation
45.	Mat preparation
46.	Organic fertilizer preparation from waste
47.	Murali preparation and business
48.	Mobile rice milling business
49.	Seed business
50.	Medicinal plant nursery
51.	Rice thresher business
52.	Grinded spices business
53.	Bamboo handicrafts preparation and its business
54.	Earth worm compost preparation and its business
55.	Agri-implements repairing business
56.	Pigeon rearing and business
57.	Commercial flower cultivation
58.	Mango morabba preparation

**Annex-III.a: List of participants of the district workshop in Gazipur
(Farmers)**

Sl. No.	Name	Village	Upazila	District
1.	Abdul Hakim	Bhaluka	Bhaluka	Mymensingh
2.	Abdul Hasem	Goyari	Bhaluka	Mymensingh
3.	Srina Begum	East Bhaluka	Bhaluka	Mymensingh
4.	Shamsunnahar	East Bhaluka	Bhaluka	Mymensingh
5.	Nurul Islam	East Bhaluka	Bhaluka	Mymensingh
6.	Bedana Begum	East Bhaluka	Bhaluka	Mymensingh
7.	Rashida Aktar	Kharaoali	Bhaluka	Mymensingh
8.	Meherbanu	Medina	Bhaluka	Mymensingh
9.	Rafiqul Islam	Bhaluka	Bhaluka	Mymensingh
10.	Md. Azizul Haque	Chakpara	Sreepur	Gazipur
11.	Rahima Aktar	Chakpara	Sreepur	Gazipur
12.	Fatema Aktar	Singaradigha	Sreepur	Gazipur
13.	Afroza Begum	Singaradigha	Sreepur	Gazipur
14.	Jamila Begum	Ajugir Chala	Sreepur	Gazipur
15.	Taramoni	Kapatiapara	Sreepur	Gazipur
16.	Saleha Begum	Kapatiapara	Sreepur	Gazipur
17.	Halima Khatun	Kapatiapara	Sreepur	Gazipur
18.	Parvin Akter	Kapatiapara	Sreepur	Gazipur
19.	Bilasi Begum	Kapatiapara	Sreepur	Gazipur
20.	Sirajul Haque	Kapatiapara	Sreepur	Gazipur
21.	Hamed Ali	Singardisha	Sreepur	Gazipur
22.	Umar Ali	Singardisha	Sreepur	Gazipur
23.	Shariyat Ali	Singardisha	Sreepur	Gazipur
24.	Sultana Begum	Kapatiapara	Sreepur	Gazipur
25.	Mostafa Kamal	Jame Mosque	Sreepur	Gazipur
26.	Ashraful Alam	Kapatiapara	Sreepur	Gazipur
27.	Uzzal Ahmad	Kapatia Para	Sreepur	Gazipur
28.	Iman Ali	Kapatia Para	Sreepur	Gazipur
29.	Md. Abdul Hannan	Kewra	Sreepur	Gazipur
30.	Kamal Ahmed	Shimultala	Sreepur	Gazipur
31.	Abdul Jalil	Kapatia Para	Sreepur	Gazipur
32.	Md. Khalit	Kapatia Para	Sreepur	Gazipur

**Annex-III.b: List of participants of the district workshop in Gazipur
(Stakeholders)**

Sl. Nr.	Name	Designation	Organization	Address
1.	Md. Shahidur Rahman	Area Manager	BIZZ	Sreepur, Gazipur
2.	Santosh Kumar Shaha	Area Manager	SSS	Sreepur, Gazipur
3.	A.K.M. Eyazul Hasan	RS	Dip	Sreepur
4.	Azharul Islam	AC	Proshika	Bhaluka, Mymensingh
5.	Mohammad Ali	Unit Organizer	CMES	Barmi, Sreepur
6.	Md. Sirajul Haque	PHE	DPHE	Sreepur
7.	Md. Abdul Razzak	AC	Proshika	Sreepur
8.	M.M. Anowar Hossain	SPO	Proshika	Dhaka
9.	Fazlul Karim	Accountant	Proshika	Sreepur
10.	Rejaul Karim	CC	Proshika	Dhaka
11.	A.K.M. Hasan Sayed			
12.	Ahmad Salahuddin	Management Coordinator	IRRI	Dhaka
13.	Poritosh Kumar Das	A.A.O	DAE	Sreepur
14.	Mamunul Haque	Asst. Manager Communication	IRRI	Dhaka
15.	Md. Habibur Rahman	UAO	DAE	Sreepur
16.	Dr. Md. Shafiqul Islam	ULO	DLS	Sreepur
17.	Dr. Zahirul Islam	Veterinary Surgeon	DLS	Sreepur
18.	A.K.M. Ferdous	Agronomist	AAS	Dhaka
19.	Md. Ashraf Hossain Khan	Cashier	Proshika	Sreepur
20.	Ahmad Nasimuddin	PA	Proshika	Sreepur
21.	Jahangir Hossain	PO	Proshika	Maona, Sreepur
22.	Mojahar Hossain	PO	Proshika	Maona, Sreepur
23.	Anjumanara Shwapna	ZC	Proshika	Maona, Sreepur
24.	Md. Abdul Mazid	CT	Proshika	Sreepur
25.	Md. Mujibur Rahman	BM	Dip	Maona
26.	Gita Rani Debi	URDO	BRDB	Kapasias
27.	Hosne Ara	DFO	DoF	Gazipur
28.	Loveli Yeasmin	ACA	Proshika	Sreepur
29.	Dr. Noel.P.Magor	Manager FoSHoL Project and IRRI Representative	IRRI	Dhaka
30.	A.K.M. Murshedur Rahman	Entomologist	AAS	Dhaka
31.	Deb Kumar Nath	Irrigation Engineer	AAS	Dhaka
32.	Asma Khatun	ACA	Proshika	Sreepur

Annex-IV
Participatory workshop
Technology Identification and Recommendation for FoSHoL project
Schedule

Date: 9 March 2005

Place: GTC, Proshika, Sreepur, Gazipur

Funded by: EC

Time: 9.00 am - 4.00 pm

Implemented by: Proshika & AAS

Coordinated by: IRRi

Time	Subject	Method	Presenter/Facilitators
9.00-9.45 am	Registration	-	Md. Ashraf Hossain Khan, Proshika
9.45-9.50 am	Honorable guest reception	-	M. M. Anwar Hossain, Proshika
Inaugural Session:			
9.50-9.55 am	✓ Recitation from holy Quaran	-	Moulana Mustafa Kamal Kashemi, Khatib, Baitul Atik Jame Mosque, Mauna
9.55-10.05 am	✓ Welcome address	-	A.K.M. Hasan Sayed, Coordinator, Social Forestry Progamme, Proshika
10.05-10.15	✓ Short briefing on EC funded FoSHoL project	-	Ahamed Salahuddin, Manager Coordination and Capacity Building, FoSHoL project
10.15-10.25 am	✓ Short briefing from AAS on FoSHoL project & workshop	-	Md. Harun-Ar-Rashid, ED, AAS and consultant, FoSHoL project, IRRi
10.25-10.35 am	✓ Short briefing from DLS on FoSHoL project	-	Mr. Shafiqul Islam, ULO, Sreepur, Gazipur
10.35-10.50 am	✓ Short brief from DoF on FoSHoL project	-	Ms. Hosney Ara, DFO, Gazipur
10.50-11.00 am	✓ Inaugural Speech of chief guest and opening of the workshop	-	Dr. Noel P Magor, Manager, FoSHoL project and Representative, IRRi, Dhaka
11.00-11.10 am	✓ Inaugural speech of the session Chairman	-	Mr. Habibur Rahman, UAO, Sreepur
11.10-11.30 am	Tea break	-	-
Technical session:			
11.30-1.00 pm	✓ Process of technology identification	Presentation & Group formation	Harun-Ar-Rashid, Ahamed Salahuddin
	✓ Technology Identification and selection (Group-1: Crops and non-farm)	Card writing and Plenary	Harun-Ar-Rashid, A.K.M. Hasan Sayed, Deb Kumar, Murshed
	✓ Technology Identification and selection (Group-2: Fisheries and livestock)	DO	Ahamed Salahuddin, Anwar Hossain, Ferdous
1.00-2.00 pm	✓ Break for prayer and lunch	-	-
2.00-3.30 pm	✓ Prioritization of the selected technologies (Group-1& 2)	Plenary	Harun-Ar-Rashid, Ahamed Salahuddin, Hasan Sayed Anwar, Ferdous, Deb Kumar, Murshed and Group leaders
	✓ Presentation of the technologies	Presentation	Group-1: Md. Habibur Rahman UAO, DAE, Sreepur, Gazipur Group-2: Md. Rafiqul Islam, Farmer, Valuka
Concluding session:			
3.30-4.00 pm	<ul style="list-style-type: none"> ✓ Representative of Farmers and stakeholders ✓ Representative of AAS ✓ Representative of Proshika ✓ Representative of IRRi 	-	Md. Harun-Ar-Rashid, A.K.M. Ferdous, M. M. Anwar Hossain