

Communication Assessment and Action Plan for the LACC Project in Bangladesh



In collaboration with:

Department of Agricultural Extension,
Ministry of Agriculture, Government of Bangladesh





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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 2010

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Acknowledgement

This document has been produced within the framework of the project GCP/INT/048/ITA Communication for Sustainable Development Initiative (CSDI), a joint effort of the Italian Ministry of Environment and Territory and FAO to promote communication as a key for sustainable natural resources management, climate change adaptation and food security.

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The authors would like to address their special thanks to: Mr Adrianus Spijkers, Mr Tommaso Alacevich and the whole FAO Representation in Bangladesh, as well as Dr Abu Wali Raghieb Hassan and the whole LACC project staff, for the support provided during the mission; Dr Satendra Singh, International Consultant for LACC project, for his valuable guidance to the consultants while in Dhaka and during the visit to the LACC field sites; Dr Stephan Baas, FAO Sustainable Rural Development Officer, and Ms Federica Matteoli, CSDI ComDev Specialist, for the inputs provided during the preparation of the study.

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Acronyms

ADPC	Asian Disaster Preparedness Center
AICC	Agricultural Information and Communication Center
AIS	Agricultural Information Services
AO	Agricultural Officer
BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BFRI	Bangladesh Forest Research Institute
BLRI	Bangladesh Livestock Research Institute
BMD	Bangladesh Meteorological Department
BNNRC	Bangladesh NGOs Network for Radio and Communication
BRAC	Bangladesh Rural Advancement Committee
BRACU	Bangladesh Rural Advancement Committee University
BRRRI	Bangladesh Rice Research Institute
BTN	Bangladesh Telecenter Network
BWDB	Bangladesh Water Development Board
CCA	Climate Change Adaptation
CCC	Climate Change Cell
CDMP	Comprehensive Disaster Management Program
CEGIS	Center for Environment and Geographic Information Services
CFS	Climate Field School
DAE	Department of Agricultural Extension
DDMC	District Disaster Management Committee
DMB	Disaster Management Bureau
DMC	Disaster Management Committee
DMIC	Disaster Management Information Committee
DoE	Department of Energy
DRM	Disaster Risk Management
FFS	Farmer Field School
FFWC	Flood Forecast Warning Center
GIS	Geographic Information Systems
GPS	Global Positioning System
ICM	Integrated Crop Management
ICT	Information and Communication Technology
IPM	Integrated Pest Management
IT	Information Technology
KAP	Knowledge, Attitude, Practices

LACC	Livelihood Adaptation to Climate Change
M&E	Monitoring and Evaluation
MoA	Ministry of Agriculture
MoFDM	Ministry of Food and Disaster Management
MoEF	Ministry of Environment and Forests
NAEP	National Agricultural Extension Plan
NARS	National Agricultural Research System
NGO	Non-Government Organization
NTIWG	National Technical Implementation Working Group
RKB	Rice Knowledge Bank
RKC	Rural Knowledge Center
SAAO	Sub-Assistant Agricultural Officer
SRDI	Soil Resources Development Institute
UDMC	Union Disaster Management Committee
UTIWG	Upazila Technical Implementation Working Group
WMO	World Meteorological Organization

Introduction

Communication is a key to promoting sustainable development. Communication for Development or ComDev, an approach applied by FAO that combines a variety of participatory communication processes and tools, ranging from rural radio to the Information and Communication Technologies (ICTs), is central to this task. The systematic use of ComDev strategies and services at the field level contributes to the sustainable use of natural resources and new development opportunities in the rural areas by:

- facilitating equitable access to knowledge and information to improve rural livelihoods;
- promoting people participation and collaborative Natural Resource Management (NRM);
- enhancing the capability of development institutions; and
- supporting innovative research and advisory services.

Several FAO projects in Asia, Africa and Latin America have successfully incorporated ComDev systems and components to support environmental and development programmes in rural areas. FAO and the Italian Ministry of Environment and Territory have agreed to a joint initiative named *Communication for Sustainable Development Initiative* (CSDI) to strengthen national efforts in the applications of ComDev approaches and strategies to sustainable development policies and programmes, as well as to food security and rural livelihoods. Special attention is given to the application of ComDev activities and initiatives to climate change adaptation in the agriculture, forestry and fisheries sectors and in sustainable natural resources management.

Within this framework, CSDI fielded two missions in Bangladesh to support FAO *Livelihood Adaptation to Climate Change* (LACC) project, which is currently in its second phase. Particularly, two consultants in Communication and in ICT for Development and Environment visited LACC stakeholders at both national and local levels. This was done to systematize lessons learned on the role of communication within project activities as well as to design a proposal for an ad hoc ComDev and ICT component for the next phase of the Project.

The working methodology employed by the consultants comprised the review of secondary documents and reports related to the project, that were provided by the Lead Technical Officer from FAO headquarters and FAO staff in Bangladesh. Moreover, a series of interviews with project staff and focal persons at the national level as well as focus group discussions with rural communities, which are the ultimate beneficiaries of the project, were carried out by the consultants. Further information on the methodology is available in the second chapter of this report.

Finally, the consultants would like to thank FAO for the opportunity to be a part of the development undertaking in Bangladesh in the area of Communication for Development as applied to livelihood adaptation to climate change.

I - Project Background

The Livelihood Adaptation to Climate Change or LACC project is a subcomponent of the bigger Comprehensive Disaster Risk Management Programme (CDMP) which is being funded by United Nations Development Fund, UK Department for International Development, and the European Commission. LACC is being implemented by the Department of Agricultural Extension (DAE) of the Ministry of Agriculture (MoA) of Bangladesh, with technical support from the Food and Agriculture Organization (FAO) of the United Nations.

1.1 Project Objectives

The project aims to:

- introduce, improve and strengthen institutional and technical and change; address technology needs for adaptation, awareness raising and climate information needs;
- implement in a participatory manner and jointly with local communities good practices and strategies to effectively address climate change adaptation and disaster preparedness; and develop strategies for their long term sustainability; and
- provide recommendations for upscaling and mainstreaming of successfully pilot tested livelihood adaptation options into development planning and policy decision making.

1.2 First Phase of LACC

The first phase of LACC (LACC I) was implemented in 2005-2007. It focused on translating climate change impacts into local and regional agriculture impacts and response options and livelihood adaptation practices. It covered four pilot drought prone *upazilas* in northwestern part of Bangladesh. In partnership with the Bangladesh Agriculture Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), and

the Asian Disaster Preparedness Centre (ADPC) in Bangkok, Thailand the first phase was able to accomplish the following:

- put in place an appropriate institutional framework through the establishment of Technical Implementing Working Groups (TIWGs);
- provide capacity building to the National Technical Implementation Working Group (NTIWG) and DAE officials on various climate change related topics;
- implement more than 300 demonstrations and field testing out of which more suitable and user-friendly options have been identified; and
- identify 26 adaptation options from farmers and other stakeholders.

The NTIWG is composed of representatives from DAE, BARI, Bangladesh Rice Research Institute (BRRI), Climate Change Cell (CCC) of the Department of Energy (DOE), Disaster Management Bureau (DMB), Space Research and Remote Sensing Organization (SPARRSO), Bangladesh Meteorological Department (BMD), and Barind Multipurpose Development Agency (BMDA). It plays a significant communication role in the project by linking the scientific community generating climate change information with the *Upazila* Technical Implementation Working Group (UTIWG). It specifically obtains climate information from NTIWG and translates this into impacts on the agricultural sector. The two working groups are in constant communication with each other in transforming project methodologies and adaptation options into agricultural sector adaptation processes. NTIWG selects the adaptation options for pilot testing in the farmer's field.

1.3 Second Phase of LACC

The second phase or LACC II was implemented in 2008–2009. It was expanded to the southwestern coastal region of Bangladesh, which is characterized by high salinity, siltation, water logging, degradation, fresh water scarcity, cyclones, and storm surges and flooding. Such phenomena have led to substantial loss to agriculture and associated livelihood. To address these, LACC II worked on identifying and pilot testing livelihood adaptation options that are suitable to local conditions, sustainable and eco-friendly, economically viable, socio-culturally acceptable and integrated with

development. With strong stakeholder engagement, the LACC II project adopts an approach which systematically goes through the process of:

- assessing current vulnerability, risks and local livelihoods;
- assessing future climate risks;
- promoting institutional and technical capacities for adaptation;
- identifying, validating and testing suitable adaptation options;
- designing location-specific adaptation strategies; and
- up-scaling and mainstreaming.

Built into the processes above are cross-cutting actions namely: community participation, gender perspective, training, cross-sectoral coordination and policy advocacy. These are further complemented by extension strategies such as farmers exchange visit, meeting with research institutes, backstopping mission, establishment of demonstrations, group meeting, and national level meeting. Some of the beneficial adaptation options identified during this phase are the minipond, jujube gardening, improved stove, homestead garden, mininursery and floating garden.



Little thing that matters: providing community folks with a photo taken with them can serve as a memory peg of the learning and social encounters they had.

1.4 Third Phase of LACC

The third phase of the project (LACC III) will be launched in 2009 to include the hill tracts and north flood-prone areas, extending also the coverage in drought-prone and coastal areas. It shall also include livelihood adaptation options involving livestock, forestry and fisheries.

The LACC project pilot areas now cover 44 villages in 28 unions and in 10 *upazilas*, namely: Nachole, Gomostapur, Sapahar, Porsha, Lalpur, Bagatipara, Dacope,

Terokhada, Bhandaria and Nazirpur (LACC Draft Annual Report, 2008). Figure 1 shows the areas where the LACC II pilot sites are located.



Figure 1. Location of the different pilot sites of LACC II

1.5 Institutional Arrangements

LACC project is executed by the DAE under the chairmanship of its Director General or DG (Draft LACC Annual Report, 2008). The DG of DAE through the Director of Field Services of DAE is responsible for the timely execution of the project. A sub-component manager is in place for project implementation through the DAE's existing network at various levels. At the field level, the project is being implemented by DAE through coordinated support from the existing extension systems of the departments involved. There are 10 field monitoring officers, one in each *upazila* appointed by FAO, to facilitate the project implementation and the monitoring of the adaptation option demonstrations.

National and *Upazila* level technical implementation working groups (N/UTIWG) are set up to effectively deliver technical support regarding livelihood adaptation to climate change and disaster preparedness in agriculture, fisheries, forestry and livestock to the national/*upazila* level Disaster Management Committees (DMCs), farmers and other stakeholders. Different farmer groups and Farmer/ Climate Field Schools are working as partners at local level.

II - Communication Assessment

2.1 Rationale

Project documents and reports consistently point out the lack of knowledge among stakeholders about climate change and the need for creating awareness among them. These gaps lead to short-range adaptive responses and, thus, need immediate attention.

Climate change adaptation (CCA) is a human behaviour that is deeply anchored on information and knowledge in various areas impinging on development such as natural resource management disaster risk management (DRM) and food security among others. The challenges of climate change require increasing information and knowledge for the stakeholders. And these information and knowledge, just like in any educational undertaking, have to come in the form and at the time they would appropriately meet the “learning moments” of the affected stakeholders.

While information materials are made available and a number of communication activities are now being undertaken, there is no clear, integrated and documented communication plan or blueprint that guides all communication actions and decisions. Hence, there is a need for a mechanism that would bring together these communication efforts into an integrated and holistic approach. This integrating mechanism can be performed most appropriately by ComDev process, approaches, methods, and tools.

ComDev is a planned or deliberate intervention that can systematize and deepen the social adaptive learning most appropriate in CCA. For it to be effective, it must be designed based on the existing realities in the field. Hence, assessment of the current situation, resources, needs or gaps, strengths as well as opportunities for appropriating ComDev in LACC is an important undertaking.

2.2 Objectives

The objectives of this assessment study are as follows:

- map out the stakeholders of LACC project;
- assess the information/communication strengths, needs/gaps as well as suitable channels and communication approaches for community-based CCA at different levels in LACC II project.
- document experiences in participatory community learning (e.g. farmer field school, climate field school), information and communication practice for CCA within the context of LACC II; and
- draw up communication action plans indicating short-term recommendations for LACC II and long-term recommendations for LACC III.

2.3 Methodology

2.3.1 Review of secondary documents and reports

Familiarity with the LACC project was done through reviews of reports and documents. These were provided in advance by the Lead Technical Officer from FAO headquarters and supplemented by the International Consultant and other project officers upon arrival in Dhaka, Bangladesh. Other materials were collected from the partner research institutes and the field officers of the *upazilas* visited.

2.3.2 Interviews with project staff and focal persons

First hand information about the project and its activities were gathered through personal interviews with the international and national consultants of the LACC project. Additional information was elicited from the focal persons of institutional stakeholders of LACC. Visits to their respective offices and interactive discussions were facilitated by the international and national consultants of LACC.

Several visits and discussions with the Bangladesh National Network for Radio and Communication (BNNRC) were done in relation to the proposal to establish a community rural radio for agricultural extension. The importance of linking this project proposal to LACC has been strongly underlined during preliminary meetings with local stakeholders and joint activities could be developed in the third phase of the LACC project.

2.3.3 Field visits and focus group discussions

Field visits were conducted from January 29 to February 4, 2009 to the following selected project sites in six *upazilas*:

Upazila	Project Sites
Nachole	Shibpun Shiala
Dacope	Bajua
Lalpur	Nobi Nagar, Ramandapur
Bhandaria	Ator Khali
Nazirpur	Ram Nagor
Gomostapur	Malpur, Boradudpur

Table 1. Project sites visited in six *upazilas*

During these field visits, courtesy calls and discussions with the upazila agricultural officers together with the project field officers and the Sub Assistant Agricultural Officers (SAAOs) were made. Communication materials being used at the upazila were also noted and samples collected or photographed. The demonstration plots were observed together with the farmer groups and C/FFS participants. After each field tour, focus group discussions were held with FFS farmer participants including women and children.

The discussions revolved around issues and concerns affecting their livelihood adaptations; information seeking behaviour; knowledge sharing; information gained and still needed; communication resources; spreading and use of ICT tools for gathering information; trusted persons; interpersonal communication flow; communication problems encountered and how they tried to solve such problems.

2.4 Communication Dimension of LACC Implementation

The communication dimension of LACC is closely intertwined with its operationalisation strategy, project components and processes for livelihood adaptation to climate variability and change. As shown in Figure 2, and as emphasized by the outer arrow on the left, the project implementation is highly participatory. It engages the farmers in the process of improving their livelihood adaptation capacity as early as the stage of

assessing their current vulnerability, onward to assessing their future risks, then to identification and testing of adaptation options and to designing local adaptation strategies (FAO, 2008).

As early as the part of entering the community where the identified livelihood adaptation options will be pilot tested, the project staff already use selectively a number of communication approaches deemed appropriate to accomplish the project objectives. These include social mobilization, community empowerment, and awareness raising and field demonstration.

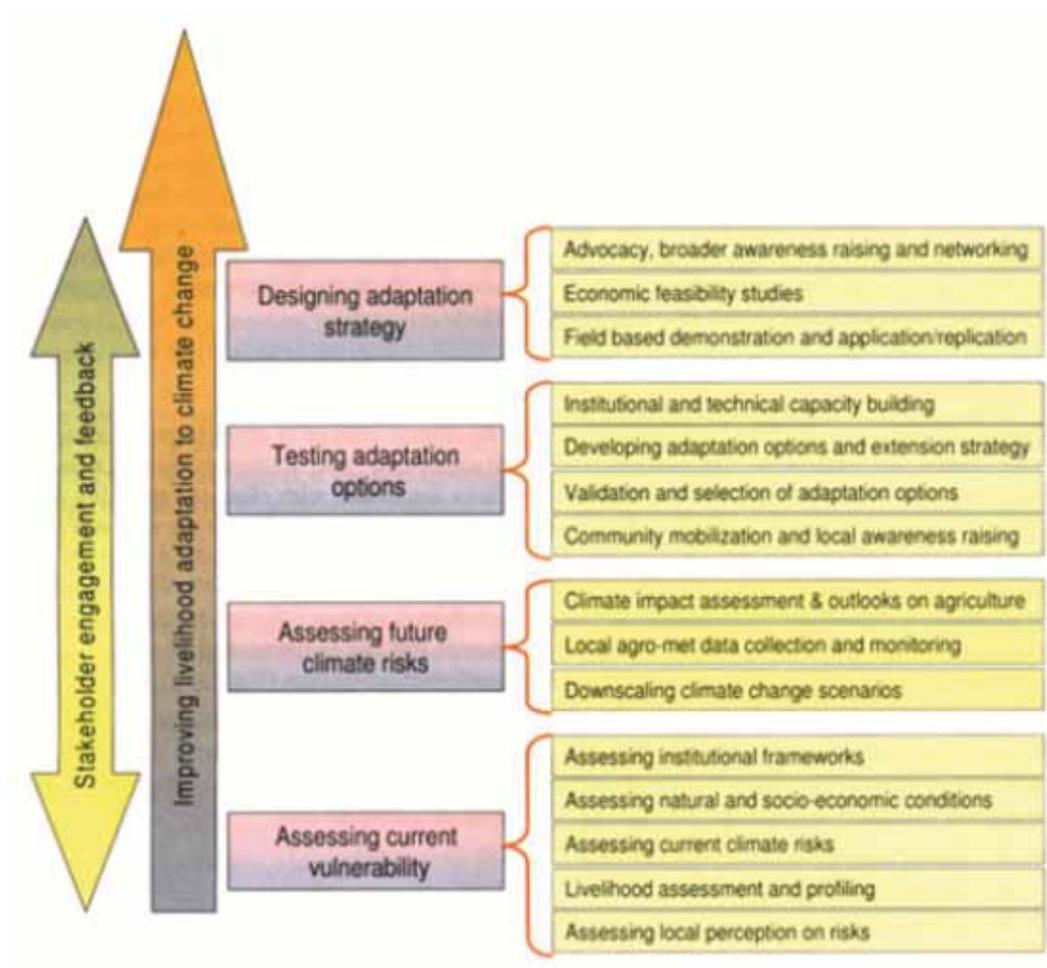


Figure 2. Operationalization, strategy, project components and processes for livelihood adaptation to climate variability and change

2.4.1 Social Mobilisation

Based on FAO report (2008) about LACC, social mobilisation forms a big part of project implementation from the very start. It involves “facilitating community groups to establish relations with other stakeholders to access and gain technological assistance, administrative backup and other need-based support.” Based on the project’s experience, this was deemed essential and came out as effective for:

- motivating farmers and farmer’s groups to collaborate in a more organized way;
- catalyzing interest in and awareness of climate variability and change and their impact on agriculture; and
- mobilising self-initiative to find out and implement adaptation options locally.

2.4.2 Community Organizing

Community empowerment is one of the intermediate goals of the project. To achieve this, community organizing as a communication/extension approach is employed to enable the local communities to diagnose their own needs and problems; decide on the technologies and options that would improve their livelihood option; and enhance their resilience to climate change risks. The main message for community discussion is that “a broader range of adaptation options adds value to their current pool of coping strategies”. In pursuing the intermediate goal of empowering communities, the project “focuses on providing support for decision-making and capacity building processes that shape social learning, technology transfer, innovations, and development pathways especially among the marginalized groups who are most vulnerable to impacts of climate change”.

2.4.3 Awareness Raising

For local awareness raising about the LACC project, face-to-face communication with the aid of a variety of communication materials are used, namely: orientation meetings, field days, demonstration rally, folk songs, dramas and exchange visits. Communication materials and aids used are leaflets, bulletins, flipcharts, banners, posters, videos and slide shows. Orientation workshops are carried out among farmers, extension workers, district-level officials and decision makers.

Field days are conducted during harvest period to show off the produce and the results of farm demonstration. They also incorporate farmer rallies whereby about a hundred farmers are invited from neighbouring villages for them to see the outcomes and, thus, are encouraged to replicate the technologies. Representatives from the input dealers, banks, NGOs, *upazila* officials and research institutions are invited to share experiences and witness the events. Results of discussion then serve as basis for their future planning and prioritisation of adaptation options.

2.4.4 Field Demonstration

The project deems this as the most appropriate method for guided learning and field testing of adaptation options. This is done in a participatory manner where orientation meetings are held first and farmers volunteer themselves and their respective fields for possible demonstration testing of the adaptation practices. Among the already established demonstrations are those on mini-pond, establishment of jujube garden, homestead vegetable garden, improved stove, rice-fish cultivation, T. aman rice cultivation, fodder cultivation, fruit tree plantation and fish rearing in mini-pond. During the demonstration cycle, researchers and scientists from the concerned research institutes (e.g. BRRI, BARI) and extension workers frequently visit the farmers to check on their progress.

2.4.5 Climate/Farmer Field School

The Farmer Field School (FFS) is a group-based learning process developed and promoted by FAO to support Integrated Pest Management (IPM). More than two million farmers across Asia have participated in FFS, learning the proper use of pesticides and improving the sustainability of their crop yields. The FFS concept embeds elements and methods from various disciplines, such as ComDev, community development, experiential learning, agronomy, and agro-ecology. Later on, the concept of FFS was expanded in order to reach broader goals than IPM per se. One of the most recent results has been the development of the Climate Field School (CFS) concept, a process introduced with the aim of increasing farmers' knowledge of climate and their adoption of climate (forecast) information. The basic concept of CFS is to disseminate climate information applications to end users by translating the information from scientific language into field language and then translating field language into farmers' language (Motha, et al, 2004).

The conduct of FFS represents a pilot activity of significant importance in the LACC project. This is now being adopted in pilot sites located in three *upazilas*: Nachole, Gomastapur and Nazirpur. FFS embodies the concepts of experiential learning or learning-by-doing (Figure 3). As a training process, it is anchored on the concept of building up human capability through non-formal education rather than the delivery per se of a package of technology (Quebral, 2002) associated with the “transfer of technology” model of extension. Under FFS scheme, the farmer’s analysis forms the basis of the research priority; farmers themselves undertake the experiment; and researchers also learn from them and with them. Agricultural services also become decentralized and specialized all throughout the crop growing cycle.

FFS was earlier designed by FAO for IPM, a “system of managing pests using the best combination of cultural, biological and chemical measures given certain circumstances”. This has been tested and proven to be a cost effective, environmentally sound, and socially acceptable method for managing diseases, insects, weeds and pests in agriculture (Abu Wali Raghieb Hassan, 2008).

Its methodology involves field-based learning in weekly sessions of 1 hour once a week or 2 hours every other week as agreed upon with the farmers group. The session is facilitated by the project field officer and/or extension worker. Farmers learn hands-on together with their peers on a particular concern such as pest and diseases and develop the skills of articulating ideas as well as making decisions based on empirical evidence.

A draft concept note (LACC, 2008) proposes that the success of FFS can be tapped “to educate the farmers on basic knowledge of climatology and enable them to read and understand climate information/data so that they can better plan their agricultural activities”. As a result, the establishment of CFS has been proposed within the framework of the LACC project. There are, however, concerns that should be addressed to make this more workable: translation of technical climatic terms and jargons into popularised or laymanised terms and concepts that the farmers would readily understand; localizing climate forecast as input to farmers’ decision making; and the training of facilitators themselves on the climatic terms and concepts.

On a pilot testing basis, climate change concepts are now being integrated in the learning activities of IPM schools and Integrated Crop Management (ICM) clubs.

Resource books and training guides from the ADPC on climate change variability are used as references for introducing climate change into these non-formal education groups. There are no definite findings yet on how successful the CFS is for enhancing climate change adaptation as the farmers have yet to complete the climatic topics included in one cropping season. Recently, after his technical backstopping mission, the project Lead Technical Officer underlined that when CCA issues could be integrated in the existing FFS or IPM/IPC clubs, the establishment of separate CFS may not be needed anymore. As a result, FFS throughout this document will now be referred to as C/FFS, indicating the integration of CFS concepts into the existing FFS curriculum.

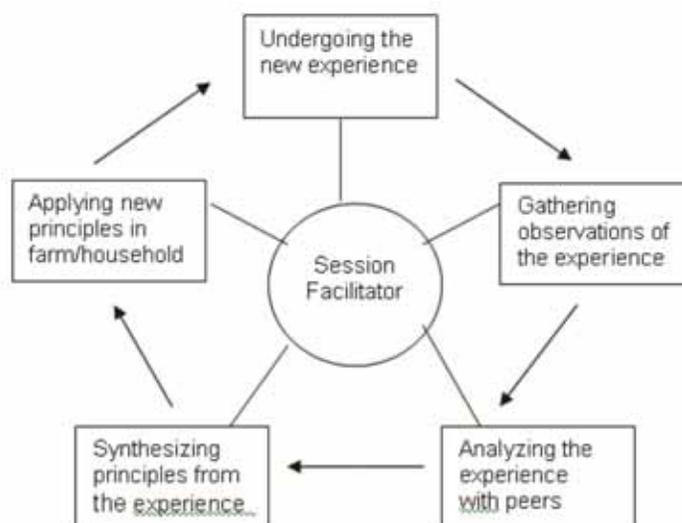


Figure 3. Experiential learning approach as applied in C/FFS

2.5 LACC Stakeholders: Mandates, Communication Capacity and Potentials

The institutional stakeholders of LACC project were mapped out to determine “who will be involved and how” in the communication action plan. Analysis of the stakeholders in terms of their mandates, communication capacity and potentials was done to identify the opportunities by which LACC project can enhance its communication efforts. Potential communication partners of LACC were also identified.

Met and interviewed for this assessment study were officials from the following organizations and institutions: DAE, CDMP, CCC, BMD, BARI, BRRRI, BNNRC,

Horticulture Training Centres (i.e. Chapai Nawabganj centre) and *upazila* agricultural offices.

Based on the mapping exercise, the different LACC stakeholders as validated with the project consultants are shown in Figure 4.

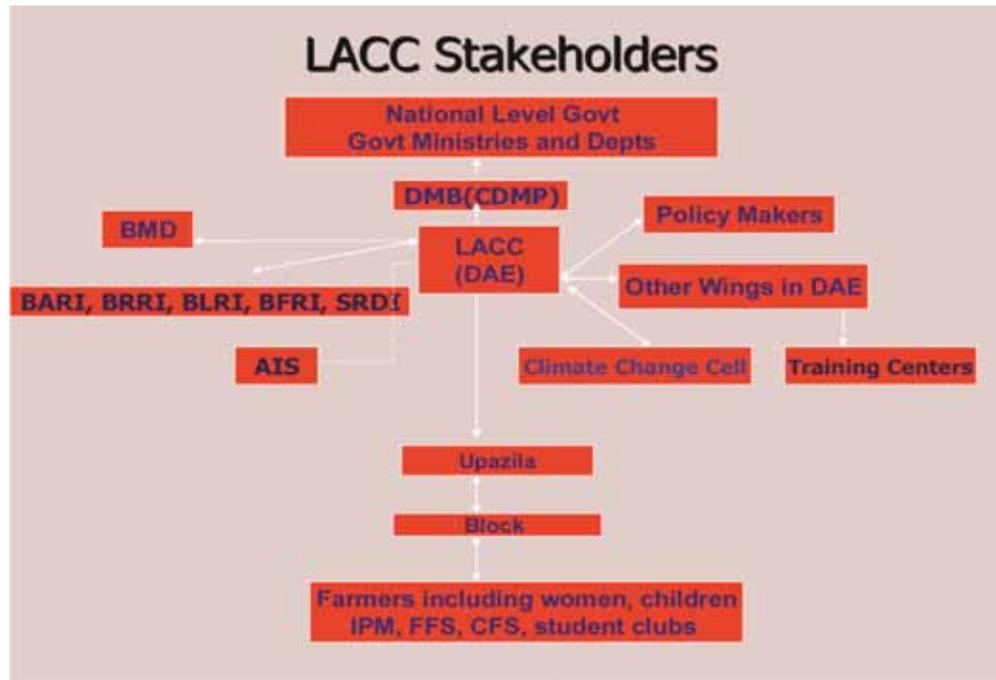


Figure 4. Mapping of LACC stakeholders

LACC is a project lodged at DAE, which implements the project and is accountable to the GoB through the CDMP, where it falls as a subcomponent project.

Horizontally, the DAE is linked with other government departments, research institutes and other climate change national projects for the needed technologies on climate change adaptation. While it is not officially linked with the Agricultural Information Services (AIS), its alliance with this department is an important prospect as the LACC project expands its communication efforts.

Down the structural hierarchy, LACC project works directly with the *upazilas* where its project field monitoring officers are based. It is also at this point where its partnership with the agricultural service is strongly being worked out. Through the *upazilas*, LACC project carries out its pilot testing activities together with the farmers, women, ICM/IPM, C/FFS and student clubs at the village level.

Table 2 summarizes the list of LACC institutional stakeholders, their communication capacity and resources as well as their potential in providing value-added to LACC communication efforts.

Stakeholder and Mandate	Communication Capacity and Resource	Potential in Providing Value-added to LACC Communication
DAE provides information on appropriate technologies; educate farmers through proper advice and training, thereby motivating farmers to adopt improved technologies.	Has broad-based extension service provided by its extension workers at the upazila level	High – in disseminating functional livelihood adaptation options to a critical mass of farmers
CDMP is a UNDP-funded project that aims to strengthen the capacity of Bangladesh management system to reduce risks and improve response and recovery activities.	Manages a network of Disaster Management Information Centers (DMICs) equipped with ICTs for climate information and warnings	High – in providing quick and timely climate forecasts and warnings for better response; DMICs can serve as learning resource of C/FFS.
CCC acts as secretariat for coordinating national climate change activities.	Develops variety of mechanisms and information materials for CCA and risk reduction in development activities; communication activities focus on awareness, social communication and knowledge management; has 63 focal points for mainstreaming CCA in development plans and programs	High – in designing systematically top-down and bottom-up communication emphasizing scientific ways of preparing for climate change
BMD handles all meteorological activities in the country.	Regularly releases weather bulletins and forecasts	Low – further needs to laymanize weather data for better appreciation of and use by the farmers
BARI conducts research on crop production varieties, management, marketing and consumption.	Produces posters, leaflets and technical guides for extension workers and farmers	High – in assisting LACC develop cropping systems for saline and drought areas which are important key messages in LACC communication
BRRI conducts research on all aspects of rice, demonstrate technologies to farmers, train extension personnel.	Translates and packages communication materials for extension workers and farmers; operates ICT-enabled Rice Knowledge Bank accessible online.	High – can assist LACC in testing rice varieties resistant to drought and salinity which are important key messages in LACC communication
BLRI conducts multi- and interdisciplinary research on livestock and poultry production to help address food security and poverty alleviation.	Provides help, online advisory services, training and produces communication materials (CDs, videos, leaflets, etc.) for variety of users	High – can provide LACC with livelihood options involving livestock and the appropriate technologies that go with them as key messages
BFRI conducts forest management and forest products utilization research.	Has strong network locally and internationally and maintains a rich database	Medium – knowledge and technologies are relevant to upland areas which will be
SRDI is a national centre of excellence in the study of land and soil resources.	Equipped with an operational GIS and tools for timely and high quality information on soils	High – at lesser cost, LACC can request training on GIS application for its staff; access GIS materials and equipment for its field activities

Table 2. LACC stakeholders, mandates, communication strengths and potentials

2.6 Other Potential Communication and ICT Partners of LACC

2.6.1 Other Potential Communication Partners of LACC

In the course of doing the assessment of LACC stakeholders, a number of other organizations that are currently not tied up with LACC project yet, but whose mandates and current communication work are related to LACC were encountered. The possibility of linking up with these groups may be explored to assist LACC in its communication efforts particularly at policy and grassroots levels. They are listed and described in terms of their mandates and communication resources in more detail below.

a. Agriculture Information Service

The Agriculture Information Service or AIS is a public service unit under the MoA which plays a significant role in providing mass media support to the agriculture sector. Its vision is to act as “a bridge between researchers and farmers through the use of modern communication facilities in print and electronic media, providing necessary information at the right time to the overall development of the agricultural community”. Its mission is “to create awareness through mass media among rural people about modern agricultural technologies that would help improve their livelihood”. It is considered a strong media organization that has established a knowledge bank and information network centres for agriculturists, farmers, and entrepreneurs.

Communication Activities and Resources. AIS is a powerful media house that packages and disseminates information using a combination of radio, TV, documentary film, poster, folder, leaflet, booklet, newsletter, magazine and banner. It has been providing technical support in the planning, designing and producing the regular TV program on agriculture called Mati-o-Manush. This is aired regularly at BTV, a government channel, five times a week. In addition, AIS also provides 2-minute regular news on agriculture on TV. Likewise, it uses almost a cumulative total of 5.5 hours daily, airing agricultural programs in local dialects and in a variety of radio program formats through Bangladesh Betar via the regional radio stations. Items of national interest, such as the Sidr cyclone in 2007, are covered by AIS through the national commercial radio and TV stations. It has produced 2-3 minutes film for electronic media as filler.

To complement the efforts at the grassroots level, AIS fields its mobile vans that provide public viewing of a 22-minute documentary on agriculture. On the publishing side, AIS prints the agricultural magazine E-Krishi and distributes it among extension workers and farming communities at a very low (subsidized) cost. It has also tapped the computer-based communication by producing advisory services such as “how to cope with floods” using the Youtube at the internet. Local and popular songs containing developmental messages on agriculture are also integrated in its mass media programs.

The message-contents of its communication programs cover issues of the day, seasonal crop, new technologies and instructions from higher authorities regarding certain policies and advices. For planning purposes, it conducts a multi-stakeholders meeting every quarter of the year to decide on the topics to be selected and distributed to the mass media. Results of such meetings serve as basis for coming up with their quarterly media program prioritization. Technical content comes from the institution-members of the National Agriculture Research Centres (NARS) including agricultural universities. Scientists and experts from these organizations are also tapped as broadcasters themselves and as panel discussants in radio programs. Every 2–3 years, it also conducts media survey to determine the evolving media preferences among its intended audience.

A recent project that AIS ventured on is the establishment of Agricultural Information and Communication Centers (AICC) at the village level. In line with the new GoB policy known as Digital Bangladesh, the AICC is envisioned to provide ICT-enabled communication services (e.g. email, fax, SMS, mobile phone, photocopying machines) to the farmers at the village level with the assistance of the agricultural extension workers. This is also where other materials like magazines, brochures and leaflets may be distributed to the farmers. There are now about 20 of these AICCs in selected areas in the country. This is to complement the current ratio of agricultural extension workers to farmers set at 1:12 000.

While the AIS leadership expressed the need to upgrade their current institutional capacity in terms of human resources and physical equipment and facilities, it can be said that AIS is relatively endowed with such resources to enable it to fulfil its mandate effectively. Additional equipment (e.g. vehicles for mobility) may be a reasonable need considering that AIS is willing to work at the community level. But this is something that

needs to be coordinated with DAE, which is the one mandated to do face-to-face grassroots extension.

The standing AIS proposal to FAO to establish, manage and operate the first community rural radio for agriculture is a recent development with significant bearing on the LACC's future communication efforts. Once this pushes through, it provides a very good opening for partnership in building up a Rural Communication Services (RCS) for CCA. This is a possible convergence point for rationalizing and systematizing the communication efforts now being undertaken in the farmer communities by various organizations on CCA.

b. Bangladesh Telecenter Network

Its brochure states that BTN is a coalition of organizations that aims to foster a telecenter movement in Bangladesh. It maximizes the advantages of ICTs through sharing of experiences and knowledge. It considers itself as an inclusive platform for building a sustainable information and knowledge system for the poor and marginalized. It is composed of multi-stakeholders that include NGOs, private sector, research institutions, academe, media, international and national development partners, individuals and government institutions.

Communication Activities and Resources. Its mission is tied up with the country's Mission 2011 which is about building a sustainable information and knowledge system for the poor and the marginalized by 2011, the year Bangladesh will celebrate its 40th independence anniversary. By this time, it envisions that all citizens of the country would have access to a telecenter for communication, information and other services that would help improve their livelihood and quality of life. The telecenters will have different ownership patterns, technology, target beneficiaries, service packages and business or sustainability models. Included in its action plan towards Mission 2011 are the development of telecenter policy, capacity development, mapping of institutions engaged in content development, technical and reference support, promotion and event management, resource mobilization, and operations and management.

c. Bangladesh NGO Network for Radio and Communication

BNNRC is a national networking body on alternative mass media that aims to build a democratic society based on the principles of free flow of information, equitable and

affordable access to information, communication technology for development and the right to communication of remote and marginalized population.

Established in 2000, it is an active policy advocate for the establishment and operation of community radio in Bangladesh. Now that the law on the latter has been passed last 2008, BNNRC is proactively preparing the ground for practitioners of community radio. It has published several materials on community radio including among others the primer about the Bangladesh Community Radio Installation, Broadcast and Operation Policy of 2008 and Community Radio Handbook.

Communication Activities and Resources. To provide technical and administrative assistance to the applicants of community radio, its secretariat has put up a Community Radio Academy. This aims to provide services in three areas: capacity building, research and development as well as and technical cooperation. To lay the groundwork for the establishment of new community radios in the country, BNNRC is going to embark on a baseline survey on radio listenership in 10 selected areas. This is a potential area for collaboration where LACC project sites could be included in the baseline study. The results could then be used as basis for setting up the agricultural community rural radio.

BNNRC is also piloting the integration of ICT for Development (ICT4D) in the Rural Knowledge Centre (RKC)/Telecenter in several villages. Through this, it hopes to replicate it as a way of providing the population in the rural areas with easily accessible, manageable and low cost communication facilities. The RKC houses computers, phones, lamination, digital cameras and internet connection, making all these tools and services available to fill the needs of local people. BNNRC has so far established 10 RKCs in the country, mostly in the coastal areas. To complement their RKC services, RK volunteers are tapped to assist in information dissemination at the community level. These volunteers are usually fresh college graduates and those still looking for jobs. An example of their assistance was done during the last national election where their RK volunteers assisted in the lamination and processing of identification cards of the rural voters.

2.6.2 Potential ICT Partners for LACC

Potential ICT partners have been analysed as the development of ICT application could support LACC in pursuing its goals at both national and local levels. The list of

potential partners presented below does not include all potential ICT partners currently working in Bangladesh, but it focuses on the institutions that are playing a prominent role in their own sector. Keeping in mind the financial resources constraint in LACC project, three different classes of priority have been identified: low, medium and high.

- **Low priority**

- a. BRAC University**

The Bangladesh Rural Advancement Committee, widely known as BRAC, is the biggest Bangladeshi non-governmental development organization and one of the biggest in the world. BRAC activities cover the whole developmental sector. In 2001, the private BRAC University (BRACU) was established in Dhaka. BRACU is a centre of excellence in higher education with five main departments: Architecture, Computer Science and Engineering, Economics and Social Science, English and Humanities, Mathematics and Natural Sciences.

Information and ICT Activities and Resources. Within the five departments, there are various institutes (e.g. Institute of Educational Development) that could play a role in supporting DAE in mainly three areas: training and education at both national and local level; development of computer aided learning tools and localization of relevant information coming from various sources into Bangla language; and provision of an environment for testing the development of information services via mobile phones.

Priority level for this potential is considered low. Time and financial resources would be needed to establish a partnership with BRACU, with long-term benefits though.

- b. Center for Environmental and Geographic Information Services**

The Center for Environmental and Geographic Information Services (CEGIS) is an independent organization under the Ministry of Water Resources. CEGIS is mainly working on integrated environmental analysis through the application of information technologies, particularly GIS and remote sensing. CEGIS offers services like consulting, training as well as research and development of information systems and related tools in the area of agriculture, fisheries and natural resource

management. CEGIS has already cooperated with LACC at the start of its project activities.

Information and ICT Activities and Resources. CEGIS has the capability to develop software and provide a set of reliable information about soil, water and climate. It has high quality expertise in the application of IT, GIS and remote sensing. It could assist and train DAE and LACC project staff in the development of geo-referenced information systems to support analysis, planning, decision making and monitoring and evaluation activities.

Nonetheless, priority for this option is low. In the short- and medium-term, there is no reason for developing a LACC GIS per se. CEGIS capacity could be an added value in the future, in case that LACC would need to develop a livelihood systems assessment and/or vulnerable groups, In the short-term, however, CEGIS could play a role in piloting small geo-based applications at local level (e.g. GPS monitoring systems).

- **Medium priority**

- a. Bangladesh Water Development Board**

The Bangladesh Water Development Board (BWDB) and its Flood Forecast Warning Center (FFWC) is the national centre of excellence in water resource management and in the provision of information on water issues at short- and long-term.

Information and ICT Activities and Resources. BWDB, through FFWC, has established a strong network for data collection via HF wireless network, mobile telephone, telemetry stations and satellite. All the data are employed to run a flood forecast model to which a GIS system is associated in order to provide daily bulletins, 1–3 day forecasts, weekly dry season bulletin and reports up to local (thana) level. Depending on the issue, the information is shared with the GoB and NGOs via internet, e-mail, fax, telephone, radio and television. Finally, FFWC is cooperating with CDMP to convey the output of its work into the DMIC. FFWC is also willing to develop salinity forecasts in 2009–2010.

This option is given medium priority. FFWC is currently focusing on early warning system as a short-term action. This poses a duplication issue with the DMIC developed

by CDMP. As BWDB is already among LACC stakeholders, this partnership could be established throughout the third phase of LACC, depending on the new project priorities.

b. Soil Resource Development Institute

The Soil Resource Development Institute (SRDI) is a national centre of excellence in the study of land and soil resources in Bangladesh. The SRDI became an independent institute in 1983 under the Ministry of Agriculture and Forest. The main activities of SRDI are related to the creation of inventories and survey of soil and land resources, interpretation and analysis of soil and land resource data, water, plant, fertilizer and heavy metal.

The potential of the SRDI in the ICT field lies on its GIS capability and expertise to conduct soil analysis. The provision of timely and quality soil information can be made in the coastal areas of LACC project through the SRDI district offices. On the GIS side, the system managed by the SRDI was originally established at DAE and then transferred to SRDI due to the lack of capacity within DAE to put the GIS into operation. Finally, the SRDI maps at *upazila* level are already being used by the project and local DAE staff.

Priority for SRDI involvement in ICT is high. Establishing partnership with SRDI would benefit LACC at limited costs. SRDI has an already operational GIS as well as tools for soil analysis. As such, SRDI could provide training and access to material and equipment for LACC staff at local and national level at low cost.

c. Bangladesh Agricultural Research Council

The Bangladesh Agricultural Research Council (BARC) is the leading agency of NARS and it operates under MoA. BARC is the umbrella organization for agricultural research at the national level, thus, one of its main functions is to coordinate the work of agricultural research agencies in Bangladesh. To carry this out, it undertakes cooperative work with the main ministries of GoB putting BARC in an advantageous position to deal with cross-cutting issues like climate change.

Information and ICT Activities and Resources. BARC holds and manages a series of advanced information systems, databases and datasets. It developed a multi-scale

land resources information system under FAO technical assistance. The system, based on FAO AEZ, encompasses different tools for decision support in the agriculture sector as well as a complete spatial database system up to thana level. The spatial database system managed by BARC includes land, soil and hydrological resources; climatic and agro-climatic resources; socioeconomic data; and cropping pattern and farming system information. Moreover, BARC develops different information systems such as the Research Management Information System (RMIS) and Project Implementation and Monitoring System (PIMS) to keep track of agricultural research and map the agricultural research projects conducted throughout Bangladesh. Finally, BARC manages various databases on crop varieties and suitability as well as on agricultural technologies. The latter is particularly important as many technologies developed and tested in the past at the local level in Bangladesh are stored in the database. LACC could possibly build upon this database (e.g., introducing technologies for adaptation) for its project activities.

The priority level for this potential is high. As the umbrella organization of national research institutes in agriculture, BARC could play a big role in facilitating the validation of adaptation options and the impact/outcome mapping. Similar to that of SRDI, establishment of partnership with BARC will not entail high cost; it could be based on mutual benefit to both organizations gaining higher visibility at national and international levels.

2.7 LACC Pilot Sites: Livelihood Adaptation and Communication Profile

As discussed earlier, LACC now covers 10 project sites, six of which were visited during the mission. In as much as an important part of the activity is looking into the rural learning and communication institutions and processes as significant anchors of community-based adaptation to climate change, then relevant information were also gathered from these sites. Their livelihood adaptation and communication profile are summarized in Table 3 below.

Data	Nachole	Gomostapur	Lalpur	Dacope	Nazirpur	Bhandaria
Climate and natural hazards	Drought	Drought	Drought	<ul style="list-style-type: none"> - Salinity - Cyclone - Flood 	<ul style="list-style-type: none"> - Salinity - Cyclone - Water logging 	<ul style="list-style-type: none"> - Increasing salinity - Cyclone
Adaptation options observed	<ul style="list-style-type: none"> - Mini pond - Jujube cultivation - Homestead garden - Improved stove - Mango plantation - Chick pea cultivation 	<p>Adaptation options were not observed due to time constraint, but farmers referred the following ones:</p> <ul style="list-style-type: none"> - minipond - chickpea cultivation 	Homestead garden	<ul style="list-style-type: none"> - Boro cultivation - Use of saline tolerant rice variety (<i>Bridhan 47</i>) - Homestead garden - Jujube cultivation 	<ul style="list-style-type: none"> - Floating gardens - Rice-fish culture - Saline resistant rice variety (<i>Bhidan 47</i>) - Sweet potato cultivation 	<ul style="list-style-type: none"> - <i>Sarjan</i> - Potato cultivation
Expressed needs/concerns	<ul style="list-style-type: none"> - Deepening water level; no water recharge because soil is clay loam - Digging of more canals - Training or study tours for farmers - Irrigation - Chemical fertilizers - Marketing of produce <p>From women:</p> <ul style="list-style-type: none"> - Home-based livelihood such as vegetable raising, duck raising, poultry 	<p>Water scarcity is the main problem:</p> <ul style="list-style-type: none"> - In the last cropping season, there was no yield due to drought - Irrigation systems are needed to sustain crop production 	<ul style="list-style-type: none"> - Adverse effects of extreme temperature and decreasing water supply on agricultural crops - Dense fog damaging potatoes <p>For women:</p> <ul style="list-style-type: none"> - Home-based livelihood: - Goat rearing - Cow rearing - Poultry raising - Drinking water - Fuel for cooking 	<ul style="list-style-type: none"> - Low level of knowledge about climate change - Farmers to visit also other areas for learning - No cyclone centres for shelter - Irrigation - Canal diggings - Waterborne diseases - Marketing <p>For women:</p> <ul style="list-style-type: none"> - Livestock raising - Sewing - Embroidery - Drinking water 	<ul style="list-style-type: none"> - Demo on potato cultivation - Equipment for measuring rainfall, salinity, temperature - SMS per village leader - Irrigation source for sweet potato - Switch gate or valve to control water inflow from river - Safe drinking water - Display board 	<ul style="list-style-type: none"> - Untimely rainfall - No switch gate to control flow of saline water from river - Waterless dam - High soil porosity - Less fish in the river - Infested poultry - Safe and clean drinking water, 80% currently using pond water, unfiltered

Information needs	- Data on rainfall, temperature covering 15-20 days - Documentation of devastated areas - Soil testing - Fertilizer recommendations - Local market price	- Localized weather forecast (for 10-15 days) - Data on rainfall and temperature, covering 15-20 days - Soil testing - Input management - Marketing information	- Weather forecast (for 15 days) as climate change is something new to farmers	- Salinity - Weather (rain forecast) - Treatment for diseases of fish, livestock - Other species appropriate in their area such as coconut, palm	- Localized weather forecast (for 10-15 days) - Climate hazards affecting planting and harvesting - Market prices - Soil salinity testing and solutions - No IPM, no FFS
Trusted sources of information outside of village	- SAAOs	- SAAOs	- SAAOs - NGOs with projects in the village	- Hat or local market 2 days a week - SAAOs - NGOs providing training	- Local pharmacies - NGOs where they avail credit - SAAOs
Trusted source of info within the village	- Literate farmers - Those more knowledgeable or successful in agriculture	- Literate farmers - Village leaders - No NGOs focusing on agriculture	Ex. Union Leader – more educated, elite in the village	Imam especially during emergency; otherwise they are on their own	Experienced farmer
Access to mass media resources	- Village leaders have access to GMS network - Limited access to radio and TV - Watch at TV shops - Prefer entertainment, not news - 10% with mobile phones, radio, and TV	Borodadpur: - 10-20% with mobile phones, radio and, TV Maipun: - 5-10% radio - 1-3% TV - Almost no mobile phones (but GSM is operating) - Agricultural newspapers (Barodadpur only) - No formalized groups of discussion	Bajua: - 10% radio - No mobile phones (but GSM network is operating) - No electricity facilities and use batteries/fuel Kutakhali: - 20% radio - 1-5% TV - 5-10% with mobile phones (15 people) - 10% have access to electricity	Extremely low diffusion of ICTs: - 0-1% radio - No TV - No mobile phone (but GSM is operating)	- Very few have radio - No TV - 1-2% mobiles; - Electricity not available - Local market is the hotspot (people use to watch TV and listen to radio in market stalls), but during rainy season it's very difficult to go to the market.

Preferred mode of information dissemination sharing	<ul style="list-style-type: none"> - Local microphones - Field day - Demo plot - Workshops - Meetings - Folk songs (<i>gambhira</i>) - Drama, art - Film - Demonstration 	<ul style="list-style-type: none"> - Folk songs (<i>gambhira</i>) - Demonstration - Radio and mobile phones (Barodadpur only) - C/FFS 	<ul style="list-style-type: none"> - Folk songs - C/FFS - Demonstration 	<ul style="list-style-type: none"> - Demonstration - Meeting - Folk and religious songs - Local microphone - Training - Film show - Drama 	<ul style="list-style-type: none"> - Local microphone - Face-to-face - Training - Field day - Film show - Demonstration 	<ul style="list-style-type: none"> - Farmers' meeting - Folk songs (<i>janikan</i>) - Training - Film - Poster
Venues for meetings and discussions	<ul style="list-style-type: none"> - FFS room owned by a farmer participant - Local market - Tea stalls 	<ul style="list-style-type: none"> - Local market - C/FFS: room rented into local club (Barodadpur only) 	- C/FFS room owned by a villager	FFS small building	Open area in the village	Tent laid out in open field
Communication materials used by field officer and Upazila AO and SAO	<ul style="list-style-type: none"> - Video - Film showing - Poster - Pamphlet 	<ul style="list-style-type: none"> - Video - Visual poster 	<ul style="list-style-type: none"> - Poster - Film show - Pamphlet 	<ul style="list-style-type: none"> - Poster - Leaflet - Booklet - Film show 	<ul style="list-style-type: none"> - Newspaper clipping- -- - CD documentary - Wall chart - Rolling cloth flip chart for training - Framed photo with caption - Plant signages - Laminated clipping - Photo album 	<ul style="list-style-type: none"> - Photo - Poster - Chart
Message treatment	Need for localized data on rainfall, temperature, hazard warnings	Need for localized data on rainfall, temperature, hazard warnings, market information	- Dense fog; impact on crops - Plant diseases - Impact of temperature and water scarcity on agriculture	<ul style="list-style-type: none"> - Climate change - Impacts on farming - Impacts on health 	<p>Sample Slogan: To increase soil health use organic fertilizer or compost.</p>	<p>Sample Slogans:</p> <ul style="list-style-type: none"> - Adopt new technologies, new crops - Cope with climate change, adopt suitable cultivation practices.

Suggested communication solutions	Sustain C/FFS Collective data gathering for meteorological data Establish village level information centres	- Organize informal meetings with other farmers Organize training session for other farmers with a Train the trainers approach - Expand participation in CFS to others and women too (separate session once per month) (Barodadpur only)	Expand participation in C/FFS; many are interested	Use mosque to inform villagers thru microphones SMS	Use mosque to inform villagers thru microphones SMS	Establish communal info centre with camera and SMS phones
C/FFS	With C/FFS	C/FFS (Barodadpur only)	None yet but interested	None yet	With C/FFS	None yet
Length of time preferred for training	Willing to set aside any length of time	Willing to set aside any length of time	2-3 days	Willing to set aside any length of time	2 weeks at most for women; 25 days at most for men	At most a week
Problem solving	Refer to SAOs	Refer to experienced and/or literate farmers, SAOs	- Go to upazila office - Have group meeting	- Have a group meeting - Relay problem thru SMS to SAO	Refer to Union officials, SAOs, or NGOs	Refer to SAOs

Table 3. Livelihood adaptation and communication profile of the LACC project sites visited

The adaptation and communication profile of the LACC pilot sites visited during the study surfaced a number of communication findings. These have important and immediate implications for designing the LACC communication action plan. They are discussed in detail in the succeeding paragraphs.

Drought and salinity are the overriding concerns. A need-based or demand-driven communication plan should, thus, focus its key or core messages on addressing adaptation knowledge and practices pertaining to drought and salinity. For crafting more specific messages, the expressed needs and concerns should serve as guide. For example, if dense fog is perceived as causing damage to potatoes, a scientific explanation of why this occurs and how it can be prevented is the logical message that should come upfront.

A number of adaptation options, e.g. mini-pond, jujube plantation, homestead garden, floating garden and saline-resistant rice variety are currently being adopted. But since many of these options are still in their replication stage, LACC communication efforts should concentrate first on the concerned scientists, farmers and extension workers. This is to establish a learning partnership among these key actors on the appropriate livelihood adaptation option. As more definitive findings are generated and knowledge on effective options become more established, communication efforts could expand to development policy and decision makers and to farmers in other similar situations. A good process documentation of the experience should, thus, be undertaken to substantiate the recommended adaptation options later on.

The findings point to the fact that in the local communities there are traditional trusted sources of information. They act as gatekeepers and can either facilitate or hinder information exchange within the group or community. Usually, they earn such status by being the most educated, relatively richer, more experienced, or respected religious leaders. The LACC pilot sites exhibited such phenomenon. Hence, there must be a way that these trusted persons are identified so that they can be tapped as information brokers and multipliers among their peers when it comes to the dissemination of appropriate adaptation options.

The SAAOs at the *upazila* agriculture offices come out as highly credible and trusted sources of information among the farmers. In fact, they are the ones being approached in the community when there are farm problems that need to be solved. At present, they provide assistance to the LACC-hired project monitoring officers and are pretty

well equipped with extension and communication skills. Their role in communicating livelihood adaptation options is quite significant and should, thus, be sustained even if the LACC project ends. They can be provided with psychic and moral incentives like sending them to trainings, conferences or exchange visits locally or abroad, and recognizing their efforts through provision of rewards.

Ownership and access of the local people to mass media (TV and radio) as well as to the mobile phones are very low. Hence, if TV and radio will be used, communities must be provided with communal units which they can use together as group of listeners, watchers or learners. These can then be placed in strategic places where they usually gather to learn and discuss such as the C/FFS room, tea stalls, local pharmacy or “hat” (local market).

Folk songs like *ghambira* are popular medium of communication and should be continuously harnessed (as what is currently being done) for promoting livelihood adaptation options to climate change. Being part of the local culture, folk songs establish closer affinity and create favourable subliminal effect on acceptability of the theme or intended message among the local people.

Generally, the preferred mode of communication is interpersonal or face-to-face. This suggests that mass media (TV, radio) or mediated mode (via mobile phone) though used in the project should be continuously complemented by interpersonal means of communication. The latter include demonstration, training, meeting and field day among others. These are initiatives already in place and need only to be sustained.

Local communication gadgets such as local microphones and loud speakers used in mosques can be tapped as channels for communicating and amplifying urgent information such as weather forecasts as well as advisory agricultural services such as where to obtain quality seeds and when to plant or harvest). They can very well complement the face-to-face interaction with project field officers and SAAOs. This would only require proper coordination with local religious groups or leaders in the community.

Typical venues for community gatherings or discussions are the local market, tea stall, C/ FFS room, or any open area in the community where a tent can be set up. Features of these places (such as informal setting, presence of tea, ground floor seats) may be simulated in the proposed local communication centres such as the AICCs so that they

become non-alienating places for the local people to come and visit. C/FFS rooms can also be used as venues for displaying communication and learning materials like posters and photos.

Communication materials as aids for learning need not be expensive. As shown during the visit, cheap but effective communication materials such as rolling cloth flip chart, wall chart made of Styrofoam or illustration board, and framed photos of specimens can be replicated.

Film showing is a preferred medium for learning and this is understandable: it is animated, approximates reality better and stimulates more senses during the experience. Messages can also be localized and popularized so that they appeal more to the intended audience. For example, in two of the sites visited (Nazirpur and Bhandaria), farmer participants in the C/FFS developed slogans that capture good practices in agriculture as a way of coping with climate change. Slogans are crisp and easy to remember and can provide the initial trigger or stimulus for the detailed discussion of issues and solutions peculiar to their local situations.

2.8 Climate Field School: Participatory Community Learning

Behavioural change towards long-term climate change adaptation can be best achieved through participatory community learning. The current C/FFS being undertaken by LACC, where attempt to integrate climate change concepts is being worked out, is a good practice that should be maintained and sustained. For one, FFS as a time-tested nonformal education method among farmers, provides value-added features to the otherwise unilinear, top – down extension methods following the diffusion model or technology transfer approach.

The following are the value-added features of C/FFS as a component now being pilot tested by LACC project:

a. Facilitates experiential learning

The C/FFS is basically patterned after the typical FFS. The latter is a discovery-based learning developed particularly for the IPM program in rice farming. At the heart of

C/FFS is the experiential learning process or learning-by-doing approach. Here, the farmers as a group undergo a cyclical process of getting exposed to an experience” (actual or simulated) on which they observe and reflect upon (analysis), derive lessons or principles learned, and plan for actual applications of such lessons and principles to immediate or future problems.

b. Helps transform short-term adaptation behaviour to long-term ones

C/FFS is designed to enable the farmers to acquire knowledge on climatology and build their capacity to read and understand climate information and data. They can better plan their farming activities based on these information. Eventually, the series of C/FFS sessions on weather, climate variability, climate risks and impacts, mitigation, adaptation, early warning and other climate-related topics can help bring about transformation of their short-term adaptation behaviour into longer-term one. This is based on the assumption that as they learn more about the science of climate change through C/FFS, they acquire a more founded knowledge that enables them to come up with broader and more long-term decisions.

c. Merges local with scientific knowledge

The learning process in and outside the C/FFS in some cases also serves as the venue for merging local with technical knowledge (Figure 5). As is now being practiced in LACC project, the identification of local adaptation practices emanates from the farmers and is facilitated by the project field monitoring officers and/or the SAAOs. The identified adaptation option (e.g. homestead garden, improved stove, potato farming) is then piloted voluntarily in the farmers’ lots under the guidance of the project field officer and/or SAAOs. During pilot testing, the farmers keep track of key information (such as seed, fertilizer, amount of water, diseases) and these are discussed and analyzed together with them by the project field officer and/or SAAOs.

Technical guidelines and prescriptions based on research results from allied research institutions are then infused with the farmers’ data and observations to enable them to analyze the performance of the crops with this additional knowledge. Hence, it generates an overlapping point between local and technical knowledge in the process, which in turn brings about an enhanced local knowledge. It should be noted that during this pilot testing, the *upazila* agricultural office also provides inputs such as venue for meetings, seeds, fertilizers and technical advice. This guided pilot testing for various adaptation options leads to a menu of viable adaptation practices that are: suitable to

local conditions, sustainable and eco-friendly, economically feasible, socio-culturally acceptable and integrated with development.

The merger of local with scientific knowledge brings about more sustainable and long-term adaptation options which the farmers tested themselves. This makes knowledge bloom and grows within the local knowledge system itself, an empowering experience rather than a mere technology transfer or diffusion process.

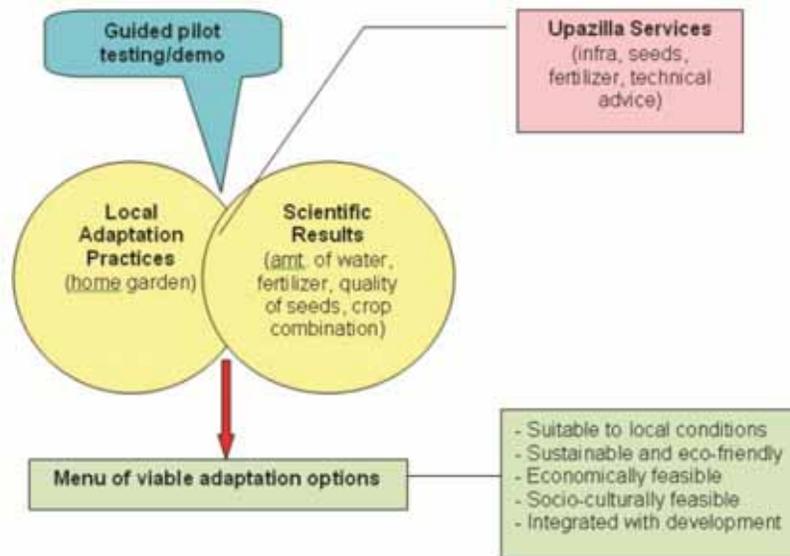


Figure 5. Process of merging local and scientific knowledge: one of the results of FFS in LACC project

d. Facilitates and extends participation as farmers see the need to discuss and learn together

In Nachole, for example, farmers reported that C/FFS enabled them to appreciate the value of discussing with one another. Whereas before, they were used to do just doing their own thing and keeping their own problems to themselves, now they see each other more often even informally to discuss matters of common concern and come up with solutions.

e. Generates more proactive stance to seek for more and different knowledge inputs

In Nazirpur, farmer-participants have become more proactive seekers rather than passive receivers of information. For instance, on their own they requested for more information about compost preparation and where services on this may be sought.

Similarly, they acquired additional information on how dried water hyacinth can be used more effectively as potato mulch.

f. Promotes messages about climate change through folk media

CFS promotes messages about climate change through the use of folk media such as folk songs and drama. Local knowledge are usually captured and stored in these cultural media. In Nachole and Bhandaria, folksongs like gambhira and jarikan take on new lyrics incorporating climate change and adaptation messages and are sung during community gatherings or field days. They not only serve as media for climate change messages, but an added dimension is the symbolism attached to them as expression of social inclusion and participation among the local folks.

2.9 Overall Assessment of LACC Communication Component

The study undertaken shows evidence that the LACC project does have a number of communication activities. In fact, LACC is undertaking notable efforts at both national and local level, such as:

- advocacy, awareness raising and outreach at national level for up-scaling and mainstreaming adaptation practises;
- field-based demonstration and community mobilization initiatives for the participatory identification and testing of adaptation options at local level;
- production of communication materials for awareness raising at local level; and
- analysis of perception on climate-related risks at local level.

2.9.1 Information and Communication Strengths

Based on the assessment conducted, a number of communication features, both at the institution-stakeholders and the community levels can serve as good starting points for building up the communication aspect of the LACC project.

a. Existence of a bigger program of which LACC is a subcomponent

LACC being part of the bigger CDMP makes it easier to situate it in the overall scheme of things. It can anchor its communication messages and approaches as a strategy for achieving the bigger goals of CDMP. This can also serve as reference for framing messages towards promoting long-term adaptation strategies in addition to the short-term ones. Likewise, the other related activities being conducted under CDMP help create awareness and visibility of LACC. For example, when people talk about disaster management, the livelihood adaptation options being worked out by LACC easily come into the picture. In human information processing, the presence of a bigger context helps bring about appreciation of why smaller efforts have to be undertaken at the individual or group level. This reinforces the learning retention process as well.

b. Link with a pool of knowledge generators and providers on technologies for CCA

The formal link of the project with a number of government service departments and research institutes (e.g. BMD, BRRI, BARI) that generate the needed technical data for identifying adaptation options is a good practice on the part of LACC. These data and information constitute the content solutions that only need to be processed and packaged based on the farmers' needs and capacity to process. LACC does not really have to reinvent the wheel but may need to only provide a systematic link between the current and future knowledge generators and users.

c. Strategic communication approach of Climate Change Cell

If there's any good model of doing strategic communication for CCA, this is exemplified by the CCC. Though its work concentrates more at the national level, the planning process that includes audience segmentation, baseline studies, quality material production, specific communication activities, systematic distribution of information materials and deliberate attempt to multiply its efforts through the creation of climate change cells in other government ministries are good practices in themselves. These can be replicated at the local level.

d. Presence of potential partners in communication

Mapping of stakeholders led to the finding that there are other government organizations and NGOs with impressive work on communication. The AIS, for example, though not formally attached to LACC project, can be tapped in the future to

provide its mass media services at the national level for LACC. Though this national concern falls greatly on CDMP and the CCC, it provides an important link for LACC in bringing up local experiences and lessons learned from the field up to the policy makers and researchers at the higher level of the government hierarchy.

e. Massive reach of DAE's extension workers at the grassroots level.

The broad-based distribution of about 12,000 agricultural extension workers of DAE is an asset that is now being tapped by LACC at the community level. Together with LACC field project and monitoring officers, they provide the necessary assistance to the pilot project participants on a more regular basis. The level of commitment exhibited by the SAAOs, at least during the field visit, indicates strong hope that with them as partners, efforts on CCA will surely go a long way.

f. Perception of SAAOs as trusted sources of information

The prevalent perception of SAAOs as trusted sources of information at the village level is a great advantage for LACC communication work. This indeed makes them key links in the information dissemination and knowledge sharing processes, especially at the interpersonal level. Their presence would hasten the otherwise lengthy learning process, thus, also reducing the transaction cost in integrating improved CCA options with the local knowledge base.

g. Integration of ICTs in grassroots communication efforts

Cognizant of the immediacy of information for CCA especially at the local level, efforts have been started to integrate ICTs such as email, fax machines and mobile phones in highly risk-prone areas. CDMP has started this with the establishment of DMICs at the union level and the provision of the necessary equipment, gadgets and capacity building to make the system run. Parallel effort is being carried out by BNNRC, AIS, and BTN. The latter are all potential resource which LACC may consider in expanding its communication support at the village level using ICTs.

h. Existence of local knowledge for CCA

In all the pilot sites visited, there exists local knowledge on a number of adaptation options that local people resort to in response to changing and varying climate. These

include the use of drought-resistant and saline rice variety such as Bridhan 47 and floating gardens in Nazirpur; excavation of minipond for reserve irrigation in Nachole; Boro rice cultivation in Dacope; homestead gardens in Lalpur; and use of sarjan or elevated plant beds in Bhandaria. Such local knowledge serves as the base and entry point for participatory social learning among the farmers. Based on scientific recommendations from the concerned research institutes, this local knowledge is now being improved upon. It can constitute as one of the main messages in CCA efforts of LACC.

i. Availability of local venues and communication materials

There are locally available materials and small infrastructures in the pilot sites that can be tapped and maximised in the LACC communication efforts. Rooms or village houses used for C/FFS can serve as communal meeting place, repository of materials, display area and access point for information, materials and other farm inputs needed by the villagers. Locally made flip charts made of durable cloth, posters, illustrated charts, plant signages, framed photos, compiled clippings and photo albums can form the initial bulk of materials that can be made available as learning aids and information references for both the extension workers and the farmers.

Existence of cultural and folk media like folk songs (e.g. ghambira) and dramas in which the local communities have closer affinity can be sustained as they proved to be educational and informative media as well.

In some areas like Bhandaria, local small markets called “hat” or pharmacies based in the village serve as communal area for watching TV, listening to the radio, and inquiry points not only for medical advice but also for local news and events. These can be considered later as distribution point of information materials and knowledge on CCA.

2.9.2 Information and Communication Gaps

a. Absence of a communication blueprint for LACC

Particularly, an approach similar to the FAO Communication for Development or ComDev is employed by various officers of the LACC project for their work at local level. Nevertheless, all these communication efforts have not been organized and are scattered across the different project stakeholders. For this reason, it is not possible to

analyse the results of such activities in an organic way, because baseline studies have also not been made.

b. Underutilized role of ICTs

Similarly, perception of communication potential particularly related to the application of ICTs at local level, has been widely recognized across project stakeholders at both national and local levels. This is also very much in line with the government's vision of Digital Bangladesh. However, potentials of ICTs have yet to be tapped and integrated into a more holistic communication plan for LACC.

c. Low access to information sources by farmers in pilots sites

Local communities visited have very minimal access to information given their geographic location. The little exposure to radio and TV, they get only when they occasionally go to the local markets and pharmacies and when extension workers visit them. It is, thus, not surprising that their knowledge level especially on climate change is very low and limited.

d. Bias towards printed materials among government research institutes

There is the apparent bias among the LACC partner research institutes such as BARI and BIRRI to produce more of the highly textual printed materials (leaflets, bulletins) for distribution to the farmers. Considering that farmers and other members of the communities in the project sites have low literacy level, this may need to be reconsidered. Future communication efforts may reinvest resources more on communication materials with more visuals and lesser texts to aid learning at the grassroots' level.

e. Less visibility of the LACC project at the community level

To establish a critical mass in the project sites who is aware and knowledgeable about the CCA, the project and its activities should be visible and be talked about by many in the community. More posters, signages, streamers or wall bulletins about the CCA efforts may need to be installed in strategic places such as the places of worship, farms and venues for C/FFS.

f. Weak process documentation of the learning experiences in the field

As livelihood adaptation options are being pilot tested, experiences on the difficulties encountered both on the technical and socio-economic aspects could have been systematically documented to capture evidences on what works and what does not and why. These are precious learning materials both for the farmers and the project staff as well as other practitioners in the field. Process documentation especially of pioneering works in CCA will surely help enrich the adaptive learning approach being built up in community-based development work.

To this aim, a systematic communication strategy will be needed if the LACC project will have to produce clear results based on a quantitative and/or qualitative analysis. An appropriate communication framework is proposed in response to this analysis. As an alternative, ad hoc solutions for single communication problems could be deployed; and accountability of results should nevertheless be prioritized if the communication dimension of the project would be broadened during the project lifetime.

III - Communication Recommendations for Lacc II

While a number of good practices are now happening in terms of communicating climate change adaptation at the national and field levels, there is a need to build upon these good practices so that the desired outcomes can be achieved, sustained and mainstreamed into national development planning and action programs.

3.1 Conceptual Framework

Livelihood adaptation is a human behaviour that can be learned or unlearned. To enable planners to help develop or achieve the desired behaviour outcome, learning situations must be created where stimuli in the form of nonformal learning and communication activities are designed to support the development of expected behaviour. Strategic communication then when properly infused into the process helps bring about the desired behaviour in the form of appropriate adaptation.

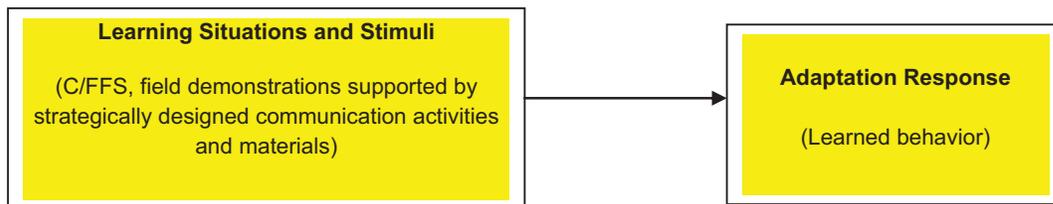


Figure 6. Conceptual framework for infusing communication into the project process

The proposed specific communication interventions will be carried out given the current LACC objectives as entry point. Communication plan or strategies cannot be done apart from the project context. Hence, communication has to be infused systematically into the project process so that they become constitutive organic parts of the process and not just mere adjunct or add on. Recommendations cannot be merely formulated based on the identified gaps alone, but based on how these gaps impinge on the entire project process. Based on the LACC project documents, the project as currently implemented can be visualized graphically in Figure 6.

The communication needs and immediate recommendations for LACC II are, thus, identified following this operational framework.

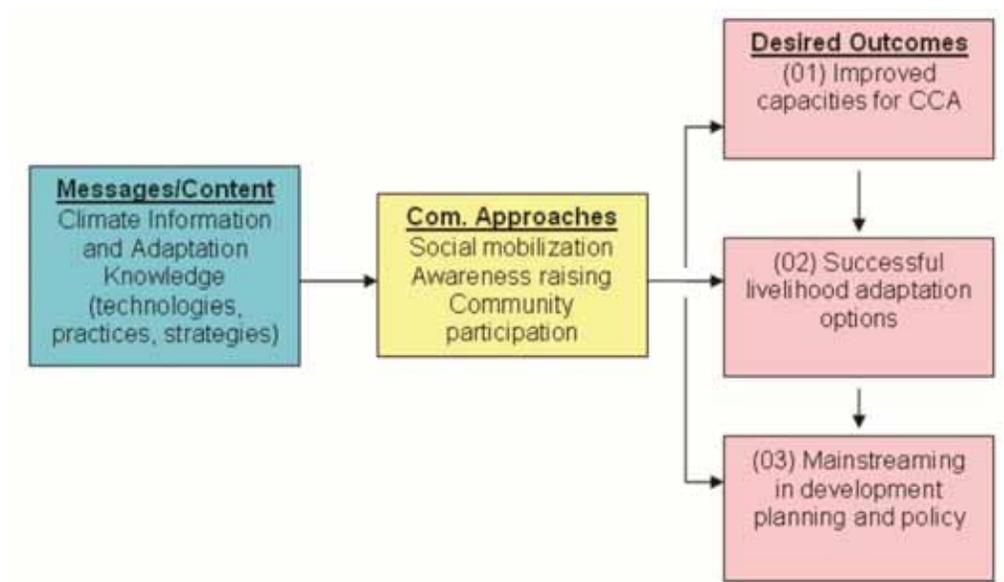


Figure 7. Operational framework of LACC project based on its objectives

3.2 Messages/Content: Climate Information and Adaptation Knowledge

Popularisation of technical content. The science of climate change is a technical field that may need to be translated further into laymanised or popularised version for the farmers and the villagers. LACC project staff and DAE agricultural extension workers need to acquire the skills and techniques of science communication and popularisation so that the communication materials on climate change would be more fitting to enhance social learning among farmers. Since literacy is also low in the rural areas, communication materials should veer away from the use of heavy texts (e.g. brochures) and should instead use more visuals (e.g., illustrated booklets).

More coherent topics and messages. While the project participants are aware of the livelihood adaptation options being worked out by the LACC project, they should be able to see the connection of these options to a bigger and longer-term value goal. For example, the different adaptation menus can be mapped and presented as supporting messages and part of a big idea associated with a major or core message (Figure 7).

The core message serves as the arrow head that would carry along all the other supporting messages together. The adaptation options as the supporting messages are also the programmatic messages in the sense that they contain the various technologies and prescribed practices that will insure a more efficient and sustainable adaptation.

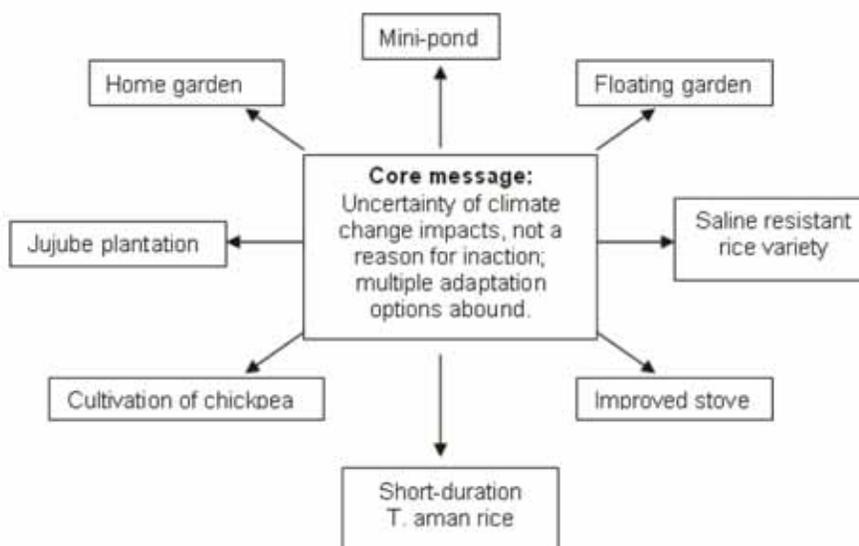


Figure 8. Adaptation options can be mapped with a core message

Management of local knowledge. Local farmers make rational decisions based on what they know and what they have been accustomed to for years. It is, therefore, important to capture, document and store this local knowledge then use it as basis for planning for change at the community level. LACC Project has actually made use of this during the assessment of current vulnerability, future risks and identification of adaptation options. This local knowledge can then be used as starting point in pilot testing certain options.

Enhancement of local knowledge and technologies. The changing times have brought about new challenges. Whatever the farmers might have learned from their predecessors and their previous experience on livelihood adaptations may not anymore be totally applicable today. The scientific progress in agriculture contributed by the research institutes should, thus, be continuously merged with local knowledge, as is currently being done. This provides value-added to the application of local knowledge. All things being equal, improving farmers' local knowledge base through

the merger with scientific and evidence-based knowledge will lead to better informed decisions and calculated actions on their part.

Positioning message for LACC. There is a tendency to always start with too many messages at one time. But since people are bombarded with many messages in their everyday life, it helps to have a single positioning message first that would identify or brand all LACC-related messages at any given time. This would facilitate easy identification of messages, recall and reinforcement of learning in the long run. It is based on the principle that people learn better by association. Positioning message is something that can be worked out during the participatory communication planning among LACC stakeholders. Its ownership must be shared so that participants will have it in their subconsciousness without much effort.

Climate information. Among the project staff, there is a lack of structured mechanism to collect information related to climate change adaptation at both technical level (e.g. publications, datasets) and networking level (e.g. conferences, partnerships). A preliminary solution could be the customization of a simple ICT application to gather all the relevant data on a semi-automatic basis, and then sharing it with the colleagues at NTIWG and UTIWG levels. An example to collect online data is given by RSS feed aggregators. These aggregate selected web content in a single location (e.g. into an email box) for being easily updated on a given topic. In this way, selected members of NTIWG and UTIWG could receive the relevant information directly in through their email addresses. On the other side, many free tools to share data and information exist: Dgroups is an example of a painless tool through which it's easy to exchange messages, manage file libraries and publicise events or announcements.

3.3 Communication Approaches, Methods, and Channels

Propriety of approaches and methods. There is no single best approach, method and channel in communication practice: it is always a combination of several (but carefully selected) appropriate ones that works. And the propriety issue is best addressed through strategic communication planning – a systematic process that yields the data needed for deciding on “what to say to whom through what channels and methods”. To put all communication efforts and materials of LACC into an integrated programmatic effort, communication planning involving key actors (i.e. LACC

project staff, farmers, women, research institutes, *upazila* agricultural extension workers and *upazila* and union officials among others) may be undertaken following participatory and iterative steps as follows: (1) situation/problem assessment, (2) rural communication appraisal, (3) communication strategy and message design, (4) communication materials development, (5) implementation and monitoring of strategies, (6) targeted communication interventions and (7) evaluation of outcomes/impacts in terms of change in knowledge, attitude and practices. In the absence of this process, communication approaches would tend to be more ad hoc, shot-gun and a “hit-and-miss” thing.

Propriety of channels. Sound communication practice dictates that mass media is best for creating public awareness and interpersonal communication is most suitable for enhancing practice. Findings at the community level, however, indicate that mass media (radio, TV, newspapers) ownership and access is very low among farmers. Hence, communal viewing and listenership should instead be established as an alternative. For example, TV viewing in local markets and radio listening in a local pharmacy or at the union office or the C/FFS should be strengthened. The use of AIS mobile van can also be considered a complementary channel, at least in the less remote areas.

Integration of ICTs at local level. While the IT infrastructure in Bangladesh is still poor and does not warrant massive integration of ICTs, pilot testing of ICTs to facilitate CCA in livelihood aspect and in strategically located areas can be tried. These ICTs include emails, fax, mobile phones and other computer-based mediations. Their use could help to pave the way for ICT future in the country. However, it should be noted that there are now parallel efforts being undertaken by AIS, CDMP and BTN on the use of ICTs at the grassroots level. LACC need not duplicate this costly effort and may instead make the necessary coordination with these groups to accommodate community learning of livelihood adaptation options through ICTs.

The power of other ICTs such as still photos and video cameras as well as mobile phones in empowering local communities should also be explored. This means that farmers should be given access and necessary skills on their use so that they can use these gadgets to document local events and happenings with bearing on the improvement of their everyday life. For example, the Fogo experience in Canada is a classical example of how video can be used to make people realize their current situation and what they can do to move on to improve their life. Having seen the

progress they made using the “before and after” video documentation which they themselves shot, they realized that their own community was capable of accomplishing something they have never thought of before. The sense of immeasurable pride among these lowly people has totally changed their lives for the better. In Nepal, an action research initiative allowed the Nepalese women in poor and remote communities to use video to communicate their climate change concerns and experiences to policy makers at local and national levels. This empowers women to become advocates for change instead of passive objects of research.

Another potential short-term application of ICTs at local level could be implemented for monitoring and evaluation purposes. For example, the use of a simple and cheap GPS add-on to project officers’ cameras may be piloted. This could make it extremely easy to keep track of demonstrations and other activities carried out at local level: every activity would be photographed, and the photo would automatically have coordinates and timestamp to prove it. Then the photos can be linked to a free online mapping tool (e.g. Google maps) with positive effects on LACC visibility too.

3.4 Desired Outcomes

a. Improved capacity for climate change adaptation

To achieve the objective of improved adaptive capacities for climate change among the farmers, there are intermediate behavioural objectives that would help bring this about. These include enabling the farmers to be more proactive information seekers than passive information receivers, and imbuing in them the process of analytical and critical thinking.

Farmers as active information seekers. Data gathered indicate that farmers tend to be more of passive information receivers. Because of their relative distance from the mainstream communities, they would rather just wait for any information to come to them. To address this, LACC can initiate activities by which the project and its activities can be made more visible especially at the local level. Display boards, streamers and signages can be installed in strategic places such as the local markets and local pharmacies so that they create the stimuli for people to ask and make further inquiry. The current project signages installed in the farmers’ fields indicating the name of the

project and the sponsors are good starting points. Perhaps, another one can be put up beside it containing information on the core message and the supporting messages on adaptation options from which they can choose from. In addition, the local microphones at the mosques can also be used to disseminate information about the current events happening related to climate change. In principle, LACC has to become more visible and audible so that people would inquire about it. Visual and audio communication materials are actually stimuli that can trigger people to seek more information.

Imbibing analytical and critical thinking. These are cumulative skills that would require exposing the farmers and other members of the community to constant situations allowing them to exercise such skills. The experiential learning methodology employed in the C/FFS addresses this fully well. The C/FFS facilitators should not lose sight of this during the process. While the technology being taught is as important, the process of engaging the farmers in critical decision making process is equally important. For non-C/FFS farmers, these skills can be imbibed through the constant use of participatory methods such as demonstration and field day.

b. Successful livelihood adaptation option

Documenting good practices and success stories. Pilot testing is a learning experience based on the learning-by-doing principle. As this entails resources, its process and outcome are worth documenting as learning outputs which others can emulate. Despite argument that no two learning situations are the same, there would definitely be some nuggets of wisdom that can be derived from any experience. Documentation can make use of combined print (case study write up) and audiovisual materials (video documentary or audiovisual presentation). A novel approach is for the project to undertake such documentation together with the farmers and the community so they themselves would appreciate the process they have gone through and sift through it for important lessons. It will also be a new learning experience for the local community for sure.

c. Up-scaling and mainstreaming in development planning and policy

Advocacy plan, materials and activities. Based on the documentation of pilot testing of the different livelihood options, advocacy plan can now be prepared so that successful adaptations can be institutionalized in development planning at the local, regional and even national levels. Communication materials such as policy briefs can

be produced and distributed to the policy makers. These should strategically contain information that policy makers usually look for such as issues to be addressed, magnitude of population to be benefited, potential savings generated or contribution to country's GNP and GDP, and value-added in monetary terms to the current livelihood of the farmers. An opportunity for local decision makers to listen to the success stories of the local people and the process that brought these about can be organized. For example, annual learning forums at the *upazila* level can bring the locals and policy makers face-to-face, and can empower the local people to give their voice in the formulation of policies affecting them.

Finally, it should be underlined that Bangladesh is widely recognized at the international level as the most important laboratory for testing sound adaptation strategies to climate change. In this sense, LACC is among the first projects in Bangladesh to work on the climate change frontline and has the potential to become visible at the international level to development organizations, donors and NGOs among others. Towards this end, the internet could be employed to disseminate project results at the national, regional, and international levels. A simple example could be to link up LACC activities with the Stockholm Environment Institute (SEI) "Adaptation map" on Google Map. SEI already knows LACC, thanks to the participation in the Community-Based Adaptation to Climate Change Conference held in Dhaka in February 2009.

IV- Communication Recommendations for Lacc III

4.1 Communication Action Plan: Framework for Putting Things Together

The proposed communication framework hopes to simply integrate the current communication efforts as well as recommendations into a strategic whole so that any communication effort contributes systematically to the desired outcomes of the LACC project. Figure 9 shows that while the communication efforts of the project will be concentrated at the community level, it is inevitable that they would be linked to the regional and national levels for sources of messages and for mainstreaming purposes.

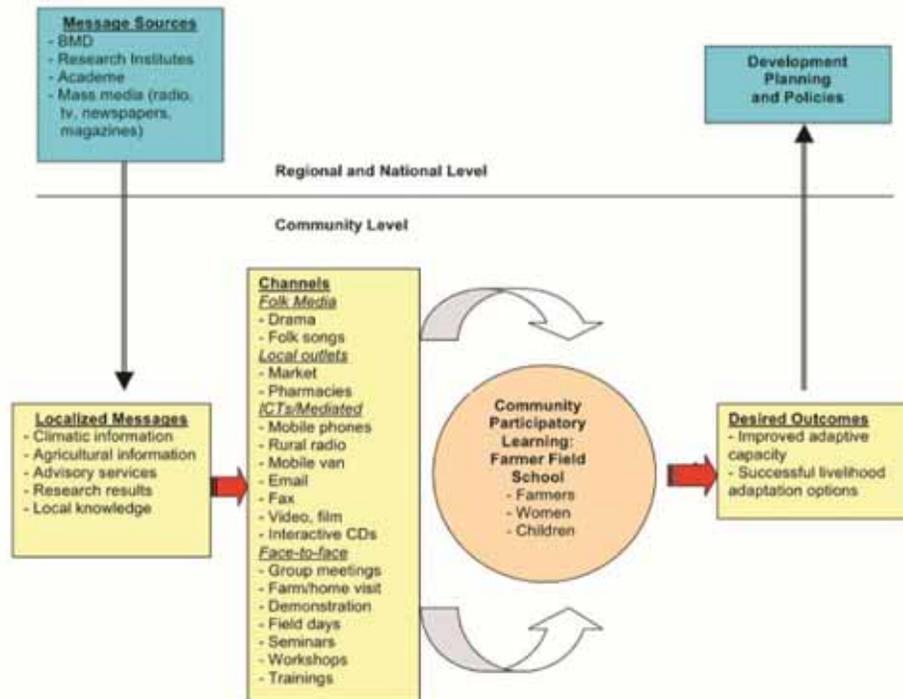


Figure 9. Framework for an integrated communication action plan for LACC III

4.1.1 Message Sources

Climatic information and forecasts will be sourced from the BMD, CDMP and CCC among other sources. Agricultural technologies for adaptation will be accessed from the government research institutes such as the BARI, BRRRI, BLRI, FRIF, SRDI as well

as academe doing studies on climate change and adaptation. Other relevant information may also be obtained from the mass media such as radio, TV, newspapers and magazines.

4.1.2 Localized Messages

These different information sets have to be localised, laymanised, and translated into climatic information, agricultural knowledge guide and advisory services relevant to the needs of the local community. They are to be popularised further for better understanding among the farmers.

4.1.3 Channels

Once transformed into usable forms, they can be shared using a combination of folk media, mediated and interpersonal communication including local information outlets reported by the farmers, such as the village markets and pharmacies. In all villages, folk song (e.g. gambhira) can be capitalized upon as a medium for knowledge sharing as it is very popular and well appreciated by the locals. At this juncture, the advantages of ICTs such as mobile phones, fax, emails, and other computer-based tools can be tapped especially for urgent and critical information that need to be relayed immediately to the concerned communities at the *upazila*. For more in-depth knowledge, video documentation, film and interactive learning materials may also be used whenever electric power warrants. The mobile telecenters of BTN and the mobile vans of AIS can also be made part of the knowledge delivery system through the films they show in the rural areas. Information and knowledge from all these can be reinforced by face-to-face meetings and more structured learning activities such as seminars, workshops, trainings and demonstrations.

4.1.4 C/FFS: Hub of the Community Participatory Learning

The root of the matter lies in being able to integrate these various messages and channels into a hub of participatory community learning through the already existing and time-tested C/FFS. Farmers, women and youth should, thus, be organized in the various pilot areas into learning groups or clubs so that they form a community of learners on livelihood adaptation to climate change. Serving as the platform for acquiring and sharing knowledge is the C/FFS. Through the season-long structured

learning (depending on the crop in season), climatic information and concepts can be integrated appropriately with the existing modules on crop and/or pest management. Establishing separate CFS may need to be reconsidered as farmers usually will not have the luxury of time to attend to another school. An initial major effort is to determine how the climatic concepts can be hewed into the existing IPM-oriented modules so that learning opportunity as well as time resources of the farmers and facilitators are maximized and would not compete with each other.

As the focal point for communication and learning on CCA, the C/FFS can further serve as the provider of communication services for community-based adaptation. Its management should be eventually turned over to the C/FFS farmers club with the *upazila* SAAOs and agricultural officers providing technical assistance.

4.1.5 Desired Outcomes

With the C/FFS as the point of convergence for all the communication efforts where the various messages would serve as knowledge inputs and the channels as venues and tools for learning, the participatory community learning will be geared towards accomplishing the desired outcomes of the LACC project namely: improved adaptive capacity leading to successful livelihood adaptation options. These outcomes shall eventually serve as basis for evaluating the communication efforts. Pending such evaluation, it is important that some baseline data be gathered and documented vis-à-vis these outcomes.

4.1.6 Mainstreaming into Development Planning and Policies

Successful livelihood adaptation options to climate change should not stay just in the nook and corner of a small village. They need to be made visible to the policy makers so that the issue of climate change may be addressed at the national level. Pilot testing is a way of confirming that the adaptation works based on the criteria agreed upon with the farmers. And what works should serve as reference for policy formulation and mainstreaming. Advocacy would form part of the long term LACC communication action plan including the tools to support it such as policy briefs and policy forums.

4.2 Long-Term Recommendations for LACC III

4.2.1 Participatory communication planning

As a first step, the key actors of LACC (i.e. project key staff, field monitoring officers, selected DAE staff, extension workers) need to undertake participatory communication planning themselves. For LACC III, it is ideal that communication planning comes as early as the start of the project phase so that communication activities can already provide value-added to the process of pursuing project objectives. The strategic communication plan can now be also used to guide communication activities of the project. It can pave the way for the institutional communication roadmap towards livelihood adaptation to climate change.

Communication planning would entail assessment of the psyche and sociodemographic characteristics of major actors in LACC, their information seeking and information sharing behaviour, access to communication resources, KAP (knowledge, attitude and practices) concerning climate change and livelihood adaptation as well as related government policies and programs. Based on the findings, an appropriate communication plan would be developed to address the gaps through appropriate communication strategies (content/message, methods, media), institutional arrangement for implementation, budget, schedule and M&E.

4.2.2 LACC Communication Service as hub of communication action plan

In the long term, a LACC Project Communication Service using the suggested framework in Figure 8 will be developed based on the planning exercise above. The C/FFS will serve as the core activity for communication-cum-education in LACC. This is because of the nature of “adaptation” as a learning process (i.e. learning-by-doing) and the existence of a considerable number of well established FFS in the pilot sites. Hence, the main communication method will be face-to-face in a nonformal education setting to be complemented by mediated (phone, internet) and mass media (radio, TV). Existing local communication centres such as the AICC and RKS would be among the local learning resources or adjunct facility of C/FFS. These would be the places where other communication materials and resources on livelihood adaptation for climate change, which cannot be provided by FFS, can be accessed. They can also be the venue for accessing ICT use by the local farmers. It is suggested that existing local

communication centres be tapped instead of creating new ones. This might need certain formalised arrangement such as memorandum of agreement with AIS, CDMP or even NGOs like BTN. For these learning resource centers to be feasible, they should be reasonably near the C/FFS.

4.2.3 Capacity building in communication

LACC project staff and selected ones from DAE would be trained on a number of communication skills to prepare them for the job. These would include training on participatory communication planning, popularisation techniques, process documentation, video and still photography, policy advocacy, preparing policy briefs, events organizing, use and application of ICTs, risk communication, managing social adaptive learning system, participatory M&E and knowledge management.

4.2.4 Systematic integration of ICTs at local level

Use and benefits of ICTs can provide new and better learning experience in a local setting as well as help capture and store local knowledge. Photo and video cameras and audio recorders are communication tools that can be used to capture the local knowledge which otherwise just remains in the farmers' heads. Learning exchanges in C/FFS, folk songs and dramas can be documented and written out so that they form part of the repositories of local knowledge which the local community can access, control and use for sharing with others. ICTs can also empower the farmers to document problems in their farms (such as pests and diseases) or to capture good practices (such as healthy potato plants using dried water hyacinth for mulching) and use these as learning issues in their C/FFS.

4.2.5 Development of an integrated information system for LACC

The institutions involved in LACC project may greatly benefit if there is an integrated mechanism for sharing data, information and knowledge. This would facilitate information flow of climate/weather from and to other agencies. Hence, this option should be carefully assessed by the parties, starting from gathering data and information already produced by them.

Creating a shared repository is free of cost but LACC would need a management information system to guide the implementation of the project throughout its whole workflow. This is important because the information flow in LACC is biunivocal, and in the validation of adaptation options, follows a cyclic path (i.e. development of an adaptation option, validation at national level, revalidation at local level, etc.). Towards this end, ICTs could play a key role.

Data collection and observation at local level. Mobile phones and handheld devices can support local officers in collecting data and information. These devices may be also linked to gauge/sensor devices through which local officers could support providing of information to research institutions.

Data collection at national/international levels. A web service, an expansion of the RSS aggregator described earlier, could gather and integrate relevant web data and information coming from the project stakeholders. In turn, this system would also create a useful archive for project planning and M&E.

Development of adaptation strategies. The use of a GIS with a related database management system could be employed for mapping current and future vulnerabilities, blending information coming from the project partners and observations carried out at local level. The GIS could be linked to information systems (e.g. soil database) already developed by partner agencies. As such, it would provide a support tool in identifying local adaptation options and in designing and upscaling local adaptation strategies. In this sense, the GIS-based agricultural and land resources information system which is already housed at BARC could serve as the concrete basis to build upon. .

Capacity building. An integrated (possibly web) platform could be put in place for awareness, advocacy and training of staff with audio-video tools and materials produced throughout the whole project activity. This application would also be helpful to provide a solid reference to the staff of DAE.

Monitoring and evaluation. The monitoring carried out regularly by the project staff at local and national levels are heavily time consuming and the information coming out of it is not structured in a way which could easily prove evidence of the work done, especially at policy making level. For this reason, the development of simple structured forms based on markup language (e.g. XML) could help project staff. These modules could be installed in mobile phones, PDAs or in staff computers. On one hand, this

would speed up the provision of data from local *upazila* to national level. On the other hand, the N/TIWG could receive data in a well-structured form, ready to be inputted into another system as a database.

Therefore, the introduction of an integrated information system could push for a rationalization of the information flow and ultimately foster knowledge sharing among project stakeholders and national authorities. Obviously, training would be needed or a partnership with appropriate institutions should be established because the capacity to use ICTs is scattered across the project stakeholders.

4.2.6 Integration of climate change science and CCA in formal school curricula and in the training programs of MoA

The science of climate change and CCA can be made part of the citizens' consciousness as early as their secondary schooling years with proper coordination with the Department of Education. By then, students have already acquired the foundational courses in science. A module on this topic can be prepared and students can take such module either in their regular classroom setting or in the C/FFS. However, whenever taken in their classroom setting, they should be provided with real or simulated field exposure so that they can observe the impacts of climate change as well as the successful community-based adaptations being undertaken in the field.

In the nonformal sectors, CCA can be integrated into the training courses curricula being administered by the Training Institutes of DAE and MoA. The project can initiate the action towards the development of the needed modules on climate change and CCA.

4.2.7 Mainstream CCA in national policy and program framework

A deliberate effort of mainstreaming functional livelihood adaptation for climate change in national policy and development planning should be carried out once pilot testing has shown strong evidence or proofs for such. Policy briefs can be produced and distributed to law makers and local officials. They should contain well analysed data and information that suit the policy makers' needs/preferences such as: advantages of the proposed options in terms of number of households or individuals who may be assisted, estimated monetary gains (increase in income), or eventual contribution to

the national GDP and GNP and the like. The policy briefs may also highlight the potential monetary losses and adverse social outcomes that may happen if the proposed recommendations are left unheeded. Popularisation techniques such as use of definitions, comparison and contrast, dramatic photos, and identification of “champions” of the cause being advocated can also be employed.

Likewise, learning forums can be scheduled yearly to enable farmers and other members of local community to share their experiences and learnings on CCA to DAE officers and *upazila* officials. This is also an opportune time for the local people to showcase their produce, technologies and other concrete outcomes of their CCA learnings. In these learning forums, the local people are given the chance to meet and dialogue with policy and decision makers on important matters pertaining to their livelihood.

Similarly, institutionalization of a planned communication as an important component of CCA efforts may need to be advocated among policy and decision makers in DAE and MoA. With assistance and back up support from CDMP and CCC, a review of DAE policy framework vis-à-vis CCA may be initiated through a meeting or workshop. By then, a draft policy recommendation on the matter should have been worked out by LACC in consultation with DAE key officials during some preliminary ground work.

4.2.8 Inclusion of a communication officer or staff in the LACC staffing pattern

All the above recommendations will not come to fruition without a warm body to attend to their planning, coordination and implementation. Since communication activities are anchored on certain communication/education principles, it pays to have a communication person do the job of coordinating, implementing and managing the communication plan. The mental frame of a communicator is needed to provide that strategic decision and action pertaining to the discipline and practice of communication for development. In the long run, this will be more cost-effective as the various communication activities even if being carried out by the other project staff will be more harmonized and integrated. There will also be a more deliberate planning for distribution of communication materials to the various intended stakeholders and monitoring of how they are being used to accomplish project objectives. If budget will be a constraint, existing communication expertise from CDMP, CCC, AIS or DAE may be tapped on part time or secondment basis with corresponding incentive allowable under

LACC. Eventually, it will be more advantageous to DAE if the capacity of an in-house staff will be enhanced as it will benefit not only the project but the entire organization as well.

4.2.9 Little things that matter

Pilot sites currently serve as venues for social learning among the farmers and other members of the local community such as women and children. As the project keeps on documenting what these people are doing, these communities deserve to have copies of such documented materials about themselves like still photographs or video, or written cases (in Bangla language preferably) . Ethically, they should not be mere subjects but also owners of such materials. They can keep these as part of their learning resources. More than that, these would surely give them a sense of pride and happiness as these materials also serve as memory pegs that once they have been a part of a learning program.

V- Conclusion

In terms of communication, it can be said that LACC I and LACC II have demonstrated certain strengths and good practices, among which are the following: use of social mobilization for community participation; integration of climate change science in C/FFS; capitalization of local knowledge as entry point for enhancing livelihood adaptation practices; and programmatic messages in terms of the various livelihood adaptation options. As LACC expands its pilot testing in other areas, it should build on these practices and move towards mainstreaming the lessons learned into development planning and policies at the regional and national levels. To accomplish this task, LACC could immediately undertake a number of communication actions that could help bring its phase II into a more meaningful closure, particularly among the pilot communities and policy makers, such as:

- conduct of learning forum at the *upazila* level;
- production of policy briefs for policy makers; and
- working out on the suggested little things that would matter a lot to the local people.

5.1 Summary for Action

5.1.1 Recommendations for LACC II

- Prepare at least one policy brief before the start of LACC III, in order to upscale good practices in livelihood adaptation for climate change and mainstream these to regional and national development planning and policies.
- Prepare a short video to be shot in two to three selected pilot sites to capture local knowledge and practices that demonstrate effective livelihood adaptation to climate change.
- Send to every local communities at least one photo of the activities undertaken with them (where such material is available) in order to improve their morale and reinforce the learning processes at local level.

- Pilot in two to three sites the use of mobile phones for monitoring LACC activities from the farmers' perspective through photos and small videos; also use GPS add-ons to local project officers' cameras to complement monitoring efforts, providing easy reference for mapping livelihoods adaptation initiatives.

5.1.2 Recommendations for LACC III

- Conduct participatory communication planning among LACC stakeholders, especially the project field officers and selected DAE extension workers; based on the findings, develop the appropriate communication plan addressing the gaps, defining the communication strategies (content/message, methods, media), institutional arrangement for implementation, budget, schedule and M&E.
- Develop a LACC Project Communication Service as the core activity for communication-cum-education in LACC; capitalize on the advantages of learning-by-doing, the existence of a considerable number of well established FFS in the pilot sites, the potentials of mediated (phone, internet) and mass media (radio, TV), and existing local communication centers (such as the AICC, RKS).
- Conduct specialized ComDev trainings for LACC field monitoring officers and selected DAE extension workers in the areas of participatory communication planning, popularisation techniques, process documentation, video and still photography, policy advocacy, preparing policy briefs, events organizing, use and application of ICTs, risk communication, managing social learning system, participatory M&E and knowledge management.
- Design and develop an ICT-enabled integrated information system for strengthening the adaptive capacity to climate change of LACC stakeholders and, broadly speaking, the relevant Bangladeshi national and local institutions. This would imply the development of: (1) a hub network service for data collection and management; (2) a decision support system to support both vulnerability analysis and adaptation planning; (3) an information management system for monitoring and evaluation of LACC activities and, broadly speaking, adaptation initiatives across Bangladesh; and (4) a communication platform for knowledge sharing, capacity building and outreach, integrating ICT with complementary media.

- Develop a module on science of climate change for integration in the formal curricula of primary and secondary schools and nonformal training programs of DAE and MoA.
- Make the deliberate effort of mainstreaming functional livelihood adaptation for climate change to the national policy and development planning; produce policy briefs and conduct annual learning forums as means for policy advocacy.
- Recruit a communication officer; for this purpose, available communication experts from CDMP, DAE or AIS may be tapped and be provided with incentives to assist in developing and implementing the LACC communication action plan.
- Provide pilot communities with copies of still photographs or video, or written cases (in Bangla language preferably) to serve as memory pegs for the learning experience they have undergone.

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***“People live the impacts of climate change, hence,
they need knowledge and communication to better cope with it”***

quote from the session “Advancing Adaptation through Communication for Development”
Third International Workshop on Community-Based Adaptation to Climate Change
February 2009, Dhaka, Bangladesh