



Collaborative Change

A Communication Framework
for Climate Change Adaptation
and Food Security



CSDI Communication for
Sustainable Development
Initiative





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Foreword

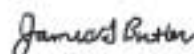
Nowadays, compelling issues such as climate change and food security require primarily multidisciplinary approaches and multistakeholder action in the process of social learning for adaptive livelihoods. This implies an increasing demand for information, knowledge and participation that puts the need for planned communication activities at the centre of development initiatives.

Within this framework, it is essential to support rural knowledge institutions and national programmes for climate change and food security in their capacity to deal with these complex issues. The use of participatory communication approaches can significantly help to enhance rural communities' resilience to external factors such as natural disasters and climate variability, while improving their livelihood options. Such processes imply bringing people and institutions together to plan for the future, which in turn calls for continued dialogue among peers, knowledge exchange and horizontal communication to foster **collaborative change** through appropriate **Communication for Development (ComDev)** approaches and strategies.

This document has been prepared within the context of the **Communication for Sustainable Development Initiative (CSDI)**, an FAO programme supported by the Italian Ministry for the Environment and Territory, that intends to strengthen institutions' and people's capacities in the use of communication methods and tools to meet today's development challenges. The CSDI programme is engaged in documenting and testing experiences in the use of ComDev for climate change adaptation and food security, focusing on strategies and services presently being supported at the field level in pilot areas in Bangladesh, Bolivia, DR Congo, and the Caribbean.

Furthermore, results are made available through regional communication platforms, virtual consultation and publications. These initiatives demonstrate the importance of enhancing ComDev in development institutions to ensure rural people's access to the knowledge and communication services they need to make a change in their lives.

The present document provides a preliminary framework for strengthening development institutions and programmes in their capacity to address the communication dimension of the new challenges related to climate change and food security. It calls for the systematic design and use of participatory communication processes, strategies and community media to share information and knowledge among relevant stakeholders, in a particular agro-ecological context, in order to encourage attitudes and practices that increase people's resiliency and offer livelihood options to cope with climate change. It also demonstrates the need to integrate ComDev in community based adaptation to give the most vulnerable groups a chance to cope with climate change and food insecurity, starting from their own resources through knowledge and communication processes. This framework has to be considered as a work-in-progress document that will be enriched along the way by the views of all those interested in experiencing and sharing a new path toward sustainable and equitable environmental and social change.




James Butler

Deputy Director-General
Knowledge

1

Knowledge and communication in natural resource management, climate change and food security





The present challenges related to climate change and food security require a number of measures focused on improving rural institutions, knowledge and information sharing, and people's participation to promote concerted action towards mitigation and adaptation.

World food security is threatened by new challenges related to climate change, bio-energy and soaring food prices. These global concerns were discussed during the High Level Conference organized by FAO (Rome, June 2008) and at the Third International Conference on Community Based Adaptation to Climate Change (Dhaka, Bangladesh, February, 2009).

The Rome Conference underlined the need to embrace a people-centred policy framework in support of rural people's livelihoods in developing countries, while increasing the resilience of the food production systems. In particular, the present challenges related to climate change and food security require a combination of immediate, medium and long-term measures to improve rural institutions, knowledge and information sharing, and people's participation in order to promote concerted action towards mitigation and adaptation.

The following elements have been cited as essential, among others:

- embrace a people-centred policy framework supportive of the rural poor and people's livelihoods, and increase investments in agriculture;
- increase the resilience of food production systems to climate change challenges;
- support climate change adaptation, mitigation, technology development, transfer and dissemination; and
- increase efforts of international cooperation on researching, developing, applying, transferring and disseminating improved technologies and policy approaches.

Understanding vulnerability and community adaptation within the framework of sustainable livelihoods

In addition to the previous principles, current thinking on community adaptation to Climate Change (CC) situates adaptation within the Sustainable Livelihoods Framework (SLF).

Within the SLF, key concepts are now widely recognized as follows:

- **Livelihoods are defined by capabilities and assets** (both material and social resources) and the specific activities required **for a means of living**;
- **A livelihood is considered to be sustainable when:**
 - (a) it can cope with and recover from stresses and shocks;
 - (b) it can maintain or enhance its capabilities and assets; and
 - (c) it can provide net benefits to other livelihoods locally and more widely (both now and in the future), but without undermining the natural resource base.

Additionally, the sustainable livelihood framework defines livelihoods as being a function of:

1. Livelihood assets and activities;
2. Vulnerability and coping strategies; and
3. Policies, institutions and processes.



Vulnerability

A basic principle of the Community Based Adaptation (CBA) approach to CC is the need to prioritize the most vulnerable households and communities. Rural communities are vulnerable to climate change, and least likely to adapt, whenever their livelihood resources and asset base are eroded.



Livelihood assets may include:

- **Natural resources** or natural capital: land, water, wildlife, common lands, flora, forest resources, and so forth;
- **Monetary resources** such as financial capital: savings, remittances, access to regular income, net access to credit, insurance;
- **Human capital**: labour power, health and nutritional status, skills and knowledge;
- **Social capital**: the social networks that people can draw upon to solve common problems. It can include family networks, group memberships, community networks and so forth;
- **Physical capital**: houses, vehicles, equipment and machinery, livestock.

Access to, and control over, these assets can also vary from household to household and within households as well. Gender, age, ethnic and religious differences may all be at play in how vulnerable groups manage assets in response to climate change.

Vulnerability thus depends on the asset base that people have prior to the crisis and their ability to engage in various coping strategies.

Resilient households are usually those with more livelihood assets. They may have enough savings or assets to trade in for cash to buy food when crops fail, for example, or have enough raw materials to quickly get back on their feet. Vulnerable households will have few assets at their disposal to utilize in response to a disaster.

Vulnerable groups

Individuals, households and communities are exposed to unpredictable events that can undermine their livelihoods and are more at risk of falling into poverty or destitution. Some events such as earthquakes may be sudden, while other vulnerable situations may develop over a period of time due to conflict or soil erosion, but all can have negative effects on livelihoods.

Another core principle of the CBA approach is that solutions must start with the identification of existing **coping strategies** that households and communities already use. Coping strategies are short-term responses to events that threaten livelihoods and may serve to either positively or negatively impact the long-term sustainability of the livelihood base. The various coping strategies will have different costs and each one will affect the social group in a different way.

Communities and households that have a wider asset base are likely to be more resilient because they have more resources at their disposal. Resilient households can find short-term strategies that enable them to cope with immediate climate change impacts. But poorer and more vulnerable households have fewer assets and thus are at greater risk of being harmed by the impact of climate change. Fewer coping strategies are available to them and those strategies are likely to be less sustainable in the long run. In many cases, such households may move out of agriculture altogether if their rural livelihood base is eroded and thus fall into an even more at-risk and vulnerable situation.

Coping strategies will vary from country to country and local agricultural context, but some common responses in the rural sector include, among others:

Income coping strategies

- Selling livestock for extra cash;
- Growing illegal substances such as drugs;
- Taking out a loan for food;
- Marrying off young children or bonding family labour;
- Moving some family members to relatives' households to share expenses;
- Trying to get extra work to supplement income;
- Selling any household goods that can be turned into cash;
- Requesting more remittances;
- Taking in renters;
- Cashing in on communal saving schemes.




Cutback strategies

- Eating less and going without meals;
- Watering down milk formula;
- Eating cheaper, more starchy and less nutritious foods;
- Using charcoal or firewood instead of cooking fuel;
- Taking children out of school to save money;
- Delaying any improvement projects;
- Avoiding the expense of going to the doctor or clinic.

Agricultural coping measures

- Sharing seeds with other farmers;
- Begging for food scraps from restaurants and other places to supplement livestock feed for hogs and cattle;
- Repairing sheds and structures with temporary natural materials (broom thatch, etc.);
- Participating in more “lend a day” farm labour activities to get and give help;
- Reducing farm inputs such as fertilizers and pesticides;
- Cutting grass for extra fodder for cattle;
- Keeping watch over remaining crops and livestock to fend off praedial larcenists (taking turns keeping guard, setting up traps and security systems).

resources



The challenge in community adaptation to climate change is to work with communities to identify coping strategies that will enable households to maintain, sustain or even improve their livelihoods in the face of CC, distinguishing them from those that may have long-term negative impact and result in their moving out of agriculture altogether.

Positive examples of community adaptation, mitigation and preparedness

Vulnerable communities at risk to the negative impacts of climate change are nevertheless not relying on outside assistance to identify positive coping activities and mitigation measures. In the agricultural sector, several examples of sound and sustainable adaptation practices have been documented.

Some of these include:

- Switching to dwarf varieties of fruit trees that are less susceptible to cyclone or hurricane winds;
- Planting hedgerows around and between high risk/vulnerable crops, such as bananas, to reduce wind impact;
- Growing only root and tuber crops that can withstand high winds during hurricane season;
- Planting altogether different crops that are more CC resistant;
- Sowing additional seedlings in seedling boxes prior to the hurricane season in order to have a quick source of new material that can be quickly picked up and secured in the event of a storm;
- Creating raised beds or platforms to avoid flooding;
- Improving food storage mechanisms prior to climate change effects (such as cyclones and flooding);
- Raising fish in low-cost cages in common property wetlands;
- Growing vegetables on floating gardens;
- Raising alternative poultry and birds, such as pigeons and ducks instead of chickens, in flood prone areas to increase household income;
- Identifying alternative sources of livelihood to rely on during more severe CC impact periods;



- Identifying hazard tolerant crops;
- Flood proofing housing and agricultural buildings;
- Removing yam sticks and/or switching to mini-set yam cultivation to mitigate damage to yam crops;
- Cutting back the leaves on banana plants to minimize wind impact.

Additionally, all approaches to CBA emphasize the need to build local capacity, empower local communities, and identify, through participatory learning methodologies, adaptation practices and sound local knowledge to improve rural services for CBA. Within this framework, it is generally agreed that the most vulnerable regions and communities are those greatly exposed to hazardous climate change effects and who have limited adaptive capacity. Countries with low levels of technology, poor information systems and weak rural knowledge institutions¹ have limited capacity to adapt and are extremely vulnerable to climate change.

Furthermore, in many cases these countries have the least capacity to conduct scientific investigations, assess the risks, and develop and disseminate useful adaptation strategies and practices.

¹ Rural knowledge institutions include national agricultural research and extension systems (NARES), as well as education systems



Climate change implies new challenges for research and technology development, and for knowledge and information exchange, especially to enable the identification of suitable adaptation options and responses to food crises. Despite these obstacles, human and institutional capacity to investigate vulnerabilities and adaptation options and effectively communicate about it with farming communities, exist to some degree in developing countries. While still limited, these research and communication capacities, when applied to climate change, become relevant in enhancing adaptive response and improving natural resource management to lessen vulnerability to climate change and food crises.


Therefore, a key path to reducing vulnerability to climate change is strengthening rural knowledge institutions while empowering rural people through improved access to relevant knowledge and information, and promoting their active participation in decision making. In this context, knowledge and communication processes play a special role and have to be considered as **strategic assets** in the livelihood approach to climate change adaptation. Nevertheless, this has not been fully recognized to date.



2

Enhancing rural communication systems and knowledge institutions to cope with climate change






Local adaptation practices imply the integration of local knowledge with scientific know-how, the active involvement of community stakeholders in decision-making, as well as capacity building in communication applied to climate change.

Adaptation to, and mitigation of climate change, call for a process of socio-institutional learning that involves different uses of information and knowledge at various levels and by different stakeholders. In fact, both mitigation and adaptation require support for strategic decision-making and capacity building efforts through **community participation** and **social learning processes**.

Successful local adaptation to climate variability and change requires multiple pathways with well planned, interrelated short- and long-term measures. Most of these are considered “knowledge intensive” and often involve negotiating and prioritizing difficult choices as follows:

- adopting physical adaptive measures (e.g., storage facilities for retaining rain water);
- improving existing agricultural practices (e.g., adjustment of cropping patterns, selection of drought-tolerant crop varieties);
- adjusting socio-economic activities such as livelihood diversification, and market facilitation;
- strengthening local institutions through self-help programmes and capacity building;
- creating awareness and promoting advocacy on climate change and adaptation issues;
- supporting research and extension and linkages between farmers; and
- providing access to adequate knowledge and to communication services.

Capacity building efforts are essential to helping technical and knowledge institutions to assist small farmers with the new challenges related to climate change.



Selecting among livelihood options for different agro-ecological and farming systems often stretches the “adaptive-response” capabilities of research institutions, extension services and producer organizations.

Local adaptation practices must engage and fully involve communities in the decision-making process through:

- communication and dialogue;
- working with farmers to test technologies (both indigenous and scientifically generated) as well as livelihood options and coping strategies;
- identifying sound economic and marketing practices; and
- disseminating knowledge through a range of extension and communication strategies, such as demonstrations, orientation meetings, field days, workshops and farmer field schools (FFS).

Furthermore, a holistic approach for strengthening rural knowledge institutions should be promoted in order for them to deal in a coherent and integrated manner with issues related to climate change. This also implies the integration of local knowledge with scientific know-how, the active involvement of community leaders and key stakeholders in decision-making as well as capacity building in communication, including the use of Information and Communication Technologies (ICTs) and more ‘conventional’ media (radio, TV, drama, and so forth).



3

Communication for Development: a key for climate change adaptation and food security





A ComDev approach to climate change implies the systematic design and use of participatory communication processes, strategies and media to share information and knowledge among relevant stakeholders in a particular agro-ecological context, to enhance people's resilience and offer livelihood options to cope with climate change.

The increasing demand for information, knowledge and participation puts the need for planned communication activities at the centre of development initiatives. In particular, community-based adaptation requires participatory methods and tools to bring together local and scientific knowledge for adaptive livelihoods.

Climate change adaptation and food security require multidisciplinary, multistakeholder action and a process of social learning for adaptive livelihoods. Within this framework, communication plays a key role. **Communication for Development (ComDev)**, an approach promoted by FAO and other development agencies that combines participatory communication methods and processes with a variety of media and tools ranging from rural radio to Information and Communication Technologies (ICTs), is central to this task.

ComDev strategies focus on responding to the knowledge and information needs of rural stakeholders, including both rural institutions and vulnerable groups, that are essential to addressing the complex dimensions of vulnerability.

ComDev calls for a holistic approach based on two-way, interactive and participatory communication processes that integrate the use of different media according to the characteristics and needs of the stakeholders in relation to climate change.



Communication and sustainable development

In order to understand the value of the ComDev approach in the context of climate change adaptation, it is important to acknowledge its participatory nature and distinguish it from other communication paradigms.

Behaviour change communication uses principles from marketing and psychology to influence people's attitudes and actions. Through audience segmentation and market research this model promotes messages meant to have an impact on people's values and change their attitudes. Social marketing techniques have been used extensively to develop public awareness campaigns, especially in the health and livestock sectors.

On the other hand, participatory approaches like ComDev claim to be more holistic². They emphasize and support the active engagement of stakeholders in defining problems, identifying alternative solutions and negotiating often difficult options.

ComDev places more emphasis on the process of empowerment and less on the media technologies used.



"Communication is important to support participatory development. Communication and participation are, in fact, two sides of the same coin.

Communication for Development means the planned use of different strategies (media and others) to help people become aware of and articulate their position, exchange knowledge and skills to take control over their lives, reach consensus and manage conflicts, and improve the effectiveness of organizations.

Communication is about bridging understanding within a human community by exchanging messages to enrich meaning and common knowledge, often with the purpose of embracing change³."

² Bessette G., 2006

³ Ramírez & Quarry, 2004, 4



In the agricultural sector, there has been a shift from an earlier emphasis on diffusion research and transfer of technologies to a broader understanding of how to involve multiple stakeholders in a process of innovation through communication activities.

However, striking the right balance between the two models is important, bearing in mind the situations that need to be addressed or solved. For a comparison of the different tasks entailed by the two approaches see Table 1⁴.

Table 1

From diffusion research to a process of innovation

Conventional steps in the adoption and diffusion research	New understanding of basic tasks in the innovation process
→ Knowledge	→ Working with people to identify and agree that there is a problem or issue
→ Persuasion	→ Thinking about and mapping the network of different stakeholders that are affected by the problem
→ Decision	→ Engaging stakeholders in defining ways to affect change and enhancing existing communication patterns
→ Implementation	→ Addressing the social costs of making the change
→ Confirmation	→ Critical evaluation and review


⁴ Leeuwis C., 2004

stitutions



In addition, however, it is important to recognize that communication might fulfill several distinct functions:

- **Educational Communication** is about sharing proven know-how including support to training and technology transfer. The trend is to move beyond simply delivering messages, to engaging the users in applying the information.
- **Policy Communication** informs about policies and laws. This typically involves the use of mass media and campaign formats, but further audience engagement is necessary when significant changes in policy take place.
- **Participatory Communication** can help stakeholders come together, innovate, and negotiate. Interactive group media are most often used to support such exchanges.
- **Organizational Communication** improves coordination among and within groups and agencies.
- **Advocacy Communication** helps people lobby for changes in policies and programs. Very often this function is implemented through a combination of campaigns and face-to-face interaction.

- 
- **Conflict Management Communication** uses methods and media to encourage negotiation and mediate conflicts. In this case, video has been used successfully to allow each party to explain their interests and then allow the other side to view the recording. It is a form of structured listening.
 - **Risk Communication** informs people about hazards, and supports people's participation in decision-making regarding risk management as well as encouraging behaviour change that will enhance mitigation.

It follows then that a communication strategy for climate change adaptation will combine several communication functions into a coordinated plan.

The following definition captures this integration rather well:

***Communication for Development** is the use of communication processes, techniques and media to help people gain a full awareness of their situation and their options to change, to resolve conflicts, to work towards consensus, to help people plan actions for change and sustainable development, to help people acquire the knowledge and skills they need to improve their condition and that of society, and to improve the effectiveness of institutions⁵.*

While it is certainly a discipline and a technical field in its own right, ComDev is best understood as a process that promotes respect and mutual understanding of the many different stances, voices and ideas involved in climate change adaptation. It is also a means to expand and deepen the interface among the many different issues and areas of expertise that are involved in climate change adaptation. ComDev, in fact, can ensure that all of the needed players and areas of expertise are included in the adaptation and mitigation effort. Without it, the areas that overlap from among the various fields remain unclear and disorganized, and sound action is thus much less likely to occur.

Various fields of work and knowledge domains are currently considered in community-based adaptation to climate change. Within each of these, efforts to enhance CBA are taking place, but it is only when ComDev is integrated that appropriate and participatory adaptation practices are promoted.

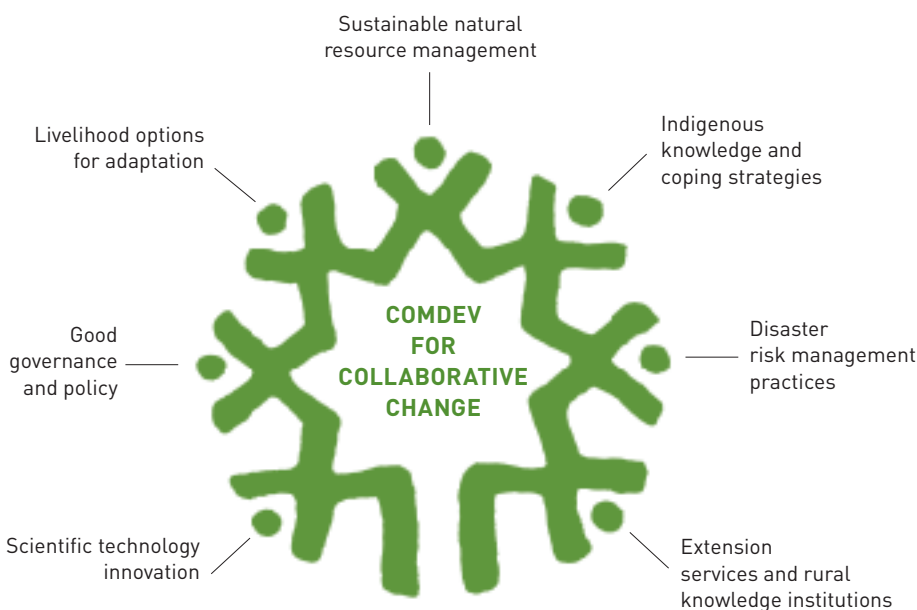
Figure 1 illustrates how this holistic approach to CBA is applied through ComDev.

⁵ Fraser & Restrepo-Estrada, 1998, 63



Figure 1

ComDev framework for Community-Based Adaptation to climate change



Source: adapted from Protz M., 2004

ComDev in climate change adaptation

A ComDev approach to climate change implies the systematic design and use of participatory communication processes, strategies and media to share information and knowledge among relevant stakeholders, in a particular agro-ecological context, in order to ensure attitudes and practices that enhance people's resilience and offer livelihood options to cope with climate change.



ComDev initiatives comply with a number of key functions related to climate change, such as:

- assess and agree on needs and priorities;
- improve negotiation and coordination;
- support good governance;
- share information and knowledge; and
- foster multistakeholder dialogue, negotiation, decision making and action.

Within this framework, a systematic ComDev approach allows for the identification of priorities and contents based on the needs of the local stakeholders, according to the following participatory and iterative steps:

1. Situation/problem assessment;
2. Participatory rural communication appraisal;
3. Participatory communication strategy and message design;
4. Communication materials development;
5. Implementation and monitoring of strategic, targeted communication interventions; and
6. Evaluation of outcomes/impacts in terms of changes in attitudes, knowledge levels and practices.

Knowledge

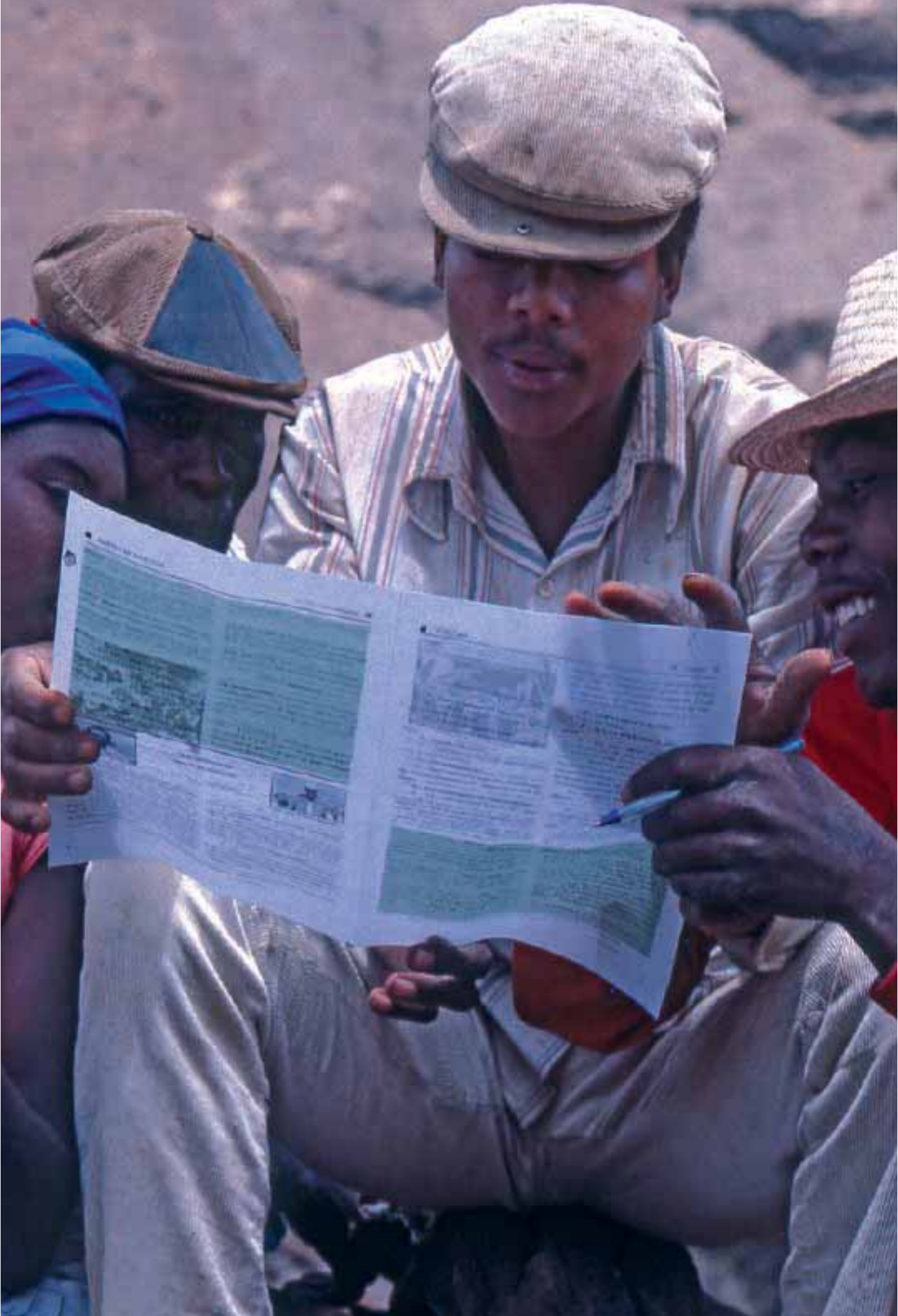


The above processes enable ComDev to appropriately frame climate change and the corresponding adaptation and mitigating measures within the biophysical and socio-political context of the various stakeholders.

Furthermore, based on the experiences of several field projects, the following main areas related to climate change have been identified for communication support:

- Technology innovation/adaptation;
- Sustainable natural resource management;
- Disaster risk management;
- Livelihood options for adaptation; and
- Environmental/local governance.

In this context, a systematic approach for the use of communication in the field of climate change is needed. This is especially true in connection with the provision of client-centred communication services that will complement and customize the technical information provided by different sources (such as environmental monitoring systems). It should also be noted that FAO is a pioneer in launching the first global programme focused on the application of ComDev strategies and tools for climate change and sustainable natural resources management: the **Communication for Sustainable Development Initiative (CSDI)**.



4

The Communication for Sustainable Development Initiative (CSDI)





FAO and the Ministry of the Environment and Territory of Italy have agreed to implement a joint programme named Communication for Sustainable Development Initiative (CSDI) to strengthen national efforts to apply ComDev approaches and strategies in the field of climate change, as well as to food security and rural livelihoods.

The overall objective of the CSDI project is to develop, test and implement communication strategies and tools to support sound environmental practices for sustainable rural development.

Special attention is given to the applications of ComDev activities to climate change adaptation in the agriculture, forestry, and fisheries sectors and to sustainable Natural Resource Management (NRM). CSDI aims at strengthening and upscaling decentralized environmental communication services in support of climate change adaptation and rural development programmes in selected countries, and at making the results available at the international level.

The systematic use of ComDev strategies and services at the field level contributes to the sustainable use of natural resources and to new development opportunities in rural areas by:

- facilitating equitable access to knowledge and information to improve rural livelihoods;
- promoting people's participation and collaborative NRM;
- enhancing development institutions; and
- supporting innovative research and advisory services.

The initiative is being implemented globally across four distinct areas:

- Democratic Republic of Congo;
- Bangladesh;
- Bolivia; and
- the Caribbean.



Networking and partnerships. As a strategy for capacity building and advocacy for mainstreaming ComDev services, the CSDI supports the implementation of regional and thematic platforms in collaboration with institutions and communication and environmental networks. These platforms are helping in: facilitating the sharing of knowledge and experiences in the applications of ComDev to NRM; promoting linkages between normative and field activities; and fostering cooperation among the different stakeholders involved in CBA.

Consultations are being promoted both at the national and inter-regional levels to ensure that lessons learned and best practices are assessed and improved during the process, with a view to generating policy recommendations.



Within this framework, a series of virtual consultations on the role of communication in NRM, climate change adaptation, food security and Disaster Risk Management are being held involving several countries and participants. Moreover, through the platform of Indigenous Peoples in Latin America⁶, virtual consultation are being held to contribute to special events during the sessions of the United Nations Permanent Forum on Indigenous Issues.

Furthermore, strategic partnerships at different levels should ensure the sustainability of project activities. Special attention is given to collaboration with FAO technical divisions and working groups, especially those dealing with NRM, forestry, climate change, Disaster Risk Management and food security issues. At the same time linkages with UN agencies, international environmental organizations and donors are being established to ensure project visibility and sustainability.

6 Plataforma de Comunicación y Desarrollo de los Pueblos Indígenas de América Latina.
<http://www.plataformaindigena.org>



5

The role of the **information and communication technologies**





By employing ICTs, the ComDev approach takes full advantage of the latest digital communication technologies, such as mobile telephony, SMS, the World Wide Web, and digital photography.

An important dimension of the ComDev approach applied to climate change is the role played by the new ICTs. Indeed, at the field level, ComDev takes full advantage of the latest digital communication technologies, such as mobile telephony, SMS, the World Wide Web, and digital photography, to name a few. Nevertheless, the application of these tools should be combined with complementary uses of conventional cultural media, such as edutainment and folk theatre, as well as rural radio, community TV and community publishing (newsletters, brochures, print media), when appropriate.

Choosing the most appropriate **ICTs for climate change adaptation and mitigation**, involves different strategies according to local conditions.

However, it is important to distinguish also in this context between what is meant by 'adaptation' and what is meant by 'mitigation'. Several studies have revealed that adaptation and mitigation play important roles in the struggle against the effects of climate change. Adaptation refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to lessen potential damages or to take advantage of opportunities associated with climate change. Countries with limited economic resources, low levels of technology, poor information and skills, poor infrastructure, unstable or weak institutions, and inequitable empowerment and access to resources have little capacity to adapt and are highly vulnerable.



In the early climate change related discussions, mitigation was understood as an anthropogenic intervention to reduce the sources of greenhouse gases or enhance their sinks. The potential mitigation opportunities and types of barriers were seen to vary by region and sector, and over time. The effectiveness of climate change mitigation can be enhanced when climate policies are integrated within sectoral and development policies and adequate measures are promoted at the local level. Improved knowledge on the part of civil society, institutions and rural communities on adaptation and mitigation facilitates dialogue for the identification of problems and solutions as well as collaborative action.

Invariably ICTs are useful in each of the following seven main steps in the adaptation process:

1. **Observation.** This phase is crucial to understanding how climate variations are occurring in a specific regional-national-local area. Observation can be carried out through data collection tools, such as remote sensing techniques and sensor-based networks. Data can then be stored in digital repositories and shared among the institutions committed to developing an appropriate adaptation strategy.
2. **Analysis and planning.** To plan and design sound adaptation strategy, data should be analysed and different strategies should be explored and evaluated by scientists and policy makers in a cooperative environment. ICTs support the analysis of climate change scenarios through software-based modelling systems, and then facilitate the design of adaptation strategies through Decision Support Systems (DSS), often used with Geographical Information Systems (GIS). What-if analyses for different sectors and adaptation plans can be defined on a multistakeholder basis.
3. **“Just in Time” Critical Decision-Making.** ICTs can help to get the right information to the right people at the right time to enable them to respond properly to risks.
4. **Implementation and management.** The degree and the typology of ICTs to be implemented vary depending on many elements, including the stakeholders, the sector and scale of application. Among the others, forecasting tools, early warning systems and resource management systems play a prominent role in this phase.



5. **Monitoring and evaluation.** The final stage of every adaptation process is monitoring and assessment. The performance of the initiative must be constantly verified in order to reach the objectives defined during the planning phase. ICT tools provide an effective way to analyse, store and communicate the impact of an adaptation strategy.
6. **Capacity building.** In this phase ICTs can be employed for awareness raising and advocacy (particularly through the use of the Internet), as well as for providing ad-hoc on and off-line training.
7. **Networking.** ICTs play a key role in producing, storing, retrieving and comparing information related to climate change issues. This allows both North-South and South-South knowledge sharing and the development of partnerships aimed at facing climate change challenges in different areas of the world.

Furthermore, field experiences show that to achieve an inclusive and adequate use of ICTs for climate change, these should be used from the very beginning of the participatory planning process according to users' information and communication needs, as well as infrastructure resources. In fact, in many rural areas, access to the Internet is still a problem, thus the mix of ICTs with popular media such as the radio may provide an alternative.


6

The way forward:

Towards a collaborative framework

For communication in natural resource
management and climate change adaptation





The need for rural knowledge institutions to apply ComDev strategies to climate change is becoming increasingly evident. The positive results of the CSDI programme demonstrate that sharing knowledge on good practices among peers may foster horizontal collaboration, capacity building and networking for improved adaptation options.

New opportunities to strengthen rural communities through knowledge and information are provided by the use of participatory ComDev approaches that integrate appropriate ICTs. Nevertheless, there is still a need to conceptualize their roles and develop a strategic framework for enhancing their applications to climate change.

One of the main activities should be to assess how knowledge institutions address climate change in their work with rural communities, and how they can be strengthened in their human and methodological capacities to cope with the following issues:

- facilitating participatory research and horizontal knowledge sharing
- improving the quality of advisory services for technology innovation
- enhancing adaptation processes and disaster risk management
- bridging the gap between global environment information, local knowledge and communities; and
- strengthening policy dialogue between institutions and small farmers

Nowadays, it has become evident that ComDev approaches and ICT applications are strategic tools that can be used to cope with climate change. Within this context, the same ComDev principles also apply to climate change adaptation:

- start by assessing people's knowledge, perspectives and expectations;
- build on existing communication systems;
- ensure equitable access to knowledge and information;
- promote local contents;
- use appropriate communication technologies;
- ensure financial sustainability;
- build local capacities.



Nevertheless, one of the main priorities in this area is to identify the best options and a strategic framework for strengthening rural knowledge institutions (research, extension, education) and communication systems, in their capacity to address the new challenges related to climate change. Special attention should also be given to the development and validation of appropriate communication strategies for climate change at the field level.

Through its CSDI programme, FAO is documenting and sharing good practices on the use of knowledge and communication for climate change adaptation, and is piloting communication strategies and services in rural areas of Congo, the Caribbean, Bangladesh and Latin America. The best strategies and services will be scaled up and mainstreamed so as to be institutionalized and sustained as part of the national rural knowledge systems. Furthermore, another strategic initiative aimed at advancing ComDev services and strengthen capacities, is the implementation of regional communication and networking platforms to enhance the application of communication for climate change.

The positive results of these initiatives demonstrate that sharing knowledge on good practices among peers may foster horizontal collaboration, capacity building and networking. This helps improve access to knowledge and information on climate change issues, while reaffirming the right of the rural population to access communication services.

Ultimately however, the CSDI seeks to emphasize and fully illustrate ComDev's impact on stakeholders' participation, mutual dialogue and decision-making among different knowledge bases. It also demonstrates the need to fully embed ComDev in CBA approaches if we want the most vulnerable groups to have a chance to better cope with climate change in the future.



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