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Trainer’s Manual on Agricultural Extension and Land Management
HANDOUT

MODULE 1 AGRICULTURAL EXTENSION
Session 1 Extension Principles and Methods

A. Meaning of Extension

- Extension is an informal educational process that aims to raise awareness, advance understanding, and transform farmers’ attitudes towards farming practices that boost up productivity and promote management of the soil and other natural resources.
- Extension is a process of working with rural people to enable them to improve their productivity and develop their capacities to conserve, protect and manage their land and natural resources.
- Extension is an essential mechanism for delivering information and advice as an input to sustainable farming.
- In the AFMA document (1997), "Extension Services" refers to the provision of training, information, and support services by the government and non-government organizations to the agriculture and fisheries sectors to improve the technical, business and social capabilities of farmers and fisherfolks.

B. Purpose of/Need for Extension

The AFMA, under Section 86, stated that:

“It is hereby declared the policy of the State to promote science and technology as essential for national development and progress. The State shall give priority to the utilization of research results through formal and non-formal education, extension and training services.”

Extension is needed:

- For government to respond to technology needs of farmers
- For government, non-government and people to address issues and threats to sustainable upland development together.
- As education component that will enable people to participate in planned change
- To facilitate decision-making
To mobilize communities and groups
To link knowledge generation and knowledge use
To facilitate implementation of government programs

C. Principles of Extension

1. Extension works under a harmonious complementation among local governance, government institutions, non-government organizations and people’s organizations/community organizations

2. Extension works with, “not for”, the people. Extension facilitates problem analysis, problem solving and decision-making by the farmers.

3. Extension is accountable to its clients, but the clients, too, must bear corresponding responsibilities.

4. The clients are the decision-makers and the implementers of solutions; they must be equally responsible for the success of extension.

5. Effective extension occurs only when the client fully understands the issue and is involved in identification and implementation of agreed solutions/action.

6. Extension is anchored on relevant, practical and doable knowledge or recommendations/solutions, thus the need for continuous linking for knowledge and skills enhancement

7. Local participation by men and women. Extension with farming groups, addressing both practical and strategic gender needs, and using gender-sensitive participatory methods

   - Local groups participating in extension must have strong institutional/organizational anchorage.
   - Extension must be local and accessible to facilitate regular contact and decision making at the local level.
   - Extension must bear economically interesting messages, with production and marketing services
   - Extension proceeds with proper infrastructure and mobility support and with responsive and timely capacity building program
   - Extension is long, stepwise process.
D. The Clients of Extension

**Adult Learners:**
- Farmers or the women and men in agriculture and fishery
- Out-of-school youth
- Communities/Organizations

**General conditions of the clients of extension:**
1. Resource-poor
2. Most neglected in terms of basic services such as extension, health, roads, markets
3. Poor access to information and technology options
4. Inappropriate farming/fishery practices
5. Typically individualistic (not interested to join organizations)
6. Dole-out oriented (due to experiences in past program/project approaches)
7. Rural, remote and exposed to peace and order problems
8. Have varied land tenure/arrangements issue
9. Have varied experiences in projects that have come and gone without sustaining (thus, might be cynical, pessimistic or distrusting.

E. Principles of Adult Learning

Knowles' (1998) and Brookfield’s (1986) established that adult learning should be grounded in the learners' experiences, and involve engagement between the trainers and learners. Relating with adult learner requires understanding of the following principles adapted from Knowles' (1998) and Brookfield’s (1986):

1. **The need to know** - Adults need to know what and why they need to learn before undertaking to learn it. Adults are more afraid to fail and want to make sure the undertaking is worthwhile.
2. **The learners' self-concept and self-direction** - Adults have a self-concept of being responsible for their own decisions and for their own lives. They resent and resist ideas “imposed” on them.
3. **The role of the learners' experiences** - Adults possess varying quantity and quality of experiences. This implies a wider divergence and difference within groups, or a high degree of heterogeneity; different biases that may influence their openness to incoming information/ideas, and the rate of adoption of the same.
It is important for the learning facilitator to draw from the participants’ experiences when starting a topic or discussion.

4. **Readiness to learn** - Adults become ready to learn those things they need to know and be able to do in order to cope effectively with their real-life situations.

   Adults question the truth or usefulness of the information they receive.

5. **Orientation to learning** - Adults are life-centered or task-centered in the orientation to learning. Adults learn to assist in performing tasks and dealing with problems.

6. **Motivation** - Adults are more responsive to internal pressures (e.g. self-esteem, quality of life); then external motivations (better production, higher income). It is necessary for the facilitator to raise their self-confidence.

7. Participation in learning is voluntary.

   Not all learning methods can be equally effective to all adult learners. Facilitators need to know be innovative to design appropriate methods and approaches.

F. **Core Extension Messages**

   In its articulation of special concerns, the Agriculture and Fishery Extension (AFE) points out that:

   “Appropriate technologies shall be used to protect the environment, reduce production cost, improve product quality and increase value-added for global competitiveness.”

   The **core extension messages** in the context of sustainable upland development are *production* and *conservation* though appropriate land management and farming system-– slope treatment oriented practices or **STOP**, soil and water conservation or **SWC** and trees- and fruit trees- based diversified farming system or **DFS**.

G. **Extension Methods**

1. **Individual method**: Personal and face to face but with individual client only.

   **Advantages:**

   😊 Better AT-farmer familiarity and rapport
   😊 First hand information on farmer and farm situation
   😊 Immediate feedback
More need-focused
Interactive
Most effective to teach skills

Disadvantages:
Time consuming
More expensive
Narrow reach/ less efficient

2. **Group methods:** Face- to- face but with a group, like in:
on-site, hands-on demonstration and return demo, field day,
result demonstration, field trips/ cross visits, Farmers Field School, meeting/group discussion

Advantages:
Immediate feedback
Time efficient
Reach more people at a time and space
Can be interactive and participatory
Promotes discipline, conformity to norms

Limitations:
Needs good facilitation skills
Deals with cultural differences/diversity
Consensus takes more time
Competition may arise

3. **Mass method:** Mass media - print, broadcast and film

Advantages:
Wide reach: reach more people at a time and transcend space
Can be facilitated to become interactive (live broadcast with callers/walk -in; school- on -the air with enrollees and the like).

Limitations:
Can be very expensive
Needs more specialized skills
Needs hardware/software that cannot be easily acquired or used when electricity is a limitation
Lacks experiential element
Evaluation of learning cannot be immediate
Feedback is not immediate
Can be too broad to cater to specific need; hit or miss target audience
More difficult to monitor reach and evaluate impact especially in open broadcast or readership

4. **E-extension**: computer mediated communication (CM) and information and communication technology (ICT)

This is web-based extension methodology being explored and used to serve the information and technology needs and updating of MAs, ATs, trainers, facilitators and a number of progressive farmers, fisherfolks and organizations.

**Philippine Experiences**:
- PCARRD: Knowledge Networking towards Enterprising Agricultural Communities (K-AGRINET)
- DOST-PCARRD: e-Consortia and e-Farm;
- PhilRice: Open Academy for Philippine Agriculture
- DLR and DAP: e-AGRIkultura.

**Advantages**:
- Very fast retrieval of information
- Practical for LGUs with access to internet
- Time efficient
- ATs/extension workers can be updated without necessarily leaving from work.
- Interactive; feedback can be immediate
- Centers/satellite in the different regions can facilitate access

**Limitations**:
- Expensive for individuals
- Applicable only to those with access to internet
- Dependent on efficiency of server or internet connection
- Needs computer skills from users
- Needs highly skilled and knowledgeable software developer
H. Extension Approach

Agricultural extension in the Philippine has evolved from technology transfer and technician-centered approaches to one that is participatory, client-centered and empowering.

1. Transfer of Technology (ToT) approach

1.1 MAO-LGU - led: Agricultural Technician (AT)

By official mandate, Municipal Agriculturist (MA/MAO), through the Agricultural Technicians (ATs), leads the implementation of agricultural extension and production programs of the local government unit (LGU).

Advantages of ToT:
- Faster adoption of technology
- Faster implementation of government programs
- Easy implementation of programs from

Limitations of ToT:
- Project pre-determined by region/national DA
- More dole outs
- Farmers are beneficiaries
- Not sustainable/ “projectized”
- Evaluation is usually quantitative
- Human Resource Constraints
  - Unmanageably big area coverage for each AT.
  - In reality, an AT serves as many as 5 barangays. This makes extension delivery very slow and inadequate.
  - Most ATs do not usually stay/live in their service barangays
  - AT turn-over due to status of appointment, change in leadership (LGU)
  - Priority for national/regional programs carves significant portion of ATs time for farmers’ priority extension needs.
  - LGU budgetary constraints

1.2 Barangay-led: Barangay Extension Worker (BEW/)

To provide communities more access to extension services, more than 130 barangays of some 31 municipalities in the provinces of Davao Oriental, Compostela Valley, Davao del Sur,
Sarangani and South Cotabato have adopted a barangay-led extension approach to technology dissemination by creating a Barangay Extension Worker or BEW post.

- BEW is an experienced farmer and adopter of good farming practices and has undergone a series of knowledge and skills enhancement exposures.

- Originating from upland context, the main task of the BEW is to speed up adoption of soil and water conservation and the diversified farming system among upland farmers.

- An earlier version of the BEW is the AMBET or Agrikulturang Makamasa Barangay Extension Technician, an innovation of the Province of Davao Oriental under the Agrikulturang Makamasa program of the Department of Agriculture.

2. Participatory approach

Farmers identify their extension needs and take active part in the delivery of responsive extension services. Other government and non-government organizations take part in extension delivery.

From “transfer of technology” model, extension shifts to be need and culture responsive and carried out in partnerships among farmer groups/organizations, government and private sector for service delivery.

2.1 Farmer-Based Extension (FBE) / Farmer-Led Extension (FLE)

- Farmer Led Extension (concepts and practices) draws on the experience of farmers, community workers, non-government organizations, researchers and policy makers in several countries.

- Focuses on challenges to agricultural extension; extension experiences, origins and examples of farmer to farmer extension in Latin America, Indonesia, India, Philippines and Vietnam; principles and methods in farmer to farmer extension

- Considers the range of knowledge, experiences and capabilities of farmers to manage their own production
systems, participate in agricultural knowledge seeking, knowledge sharing, and decision-making.

- Small groups of farmers at the village disseminating information to fellow farmers;

- Use of traditional cooperation mechanism like “bayanihan”, “alayon” or “dagyaw” in demonstrating technologies in the farms of interested adopters; involves farmers in knowledge development through the conduct of on-farm experimentation; undergo capacity building. Groups usually belong to Farmer-Led Organizations (FLO).

- Largely group methods and facilitation is highly important in this approach.

a. **Farmers First and Last (FFL)**

- A form of farmer-based extension

- FFL considers the farm families as the key actors and participants in the development process, and as such, extension must take their priority needs, conditions and circumstances as points of reference.

- FFL recognizes the farmers’ potentials and ability to develop and disseminate agricultural technologies.

b. **Farmer-to-Farmer Extension**

b.1 **Landcare approach**: Facilitators, Farmer Training Groups and Farmers Research Committees

Landcare is a farmer-to-farmer approach to rapid and inexpensive dissemination of land and natural resource management technologies.

Functionally competent Farmers Training Groups (FTG), Bantay-Wahig (water watch group), and Farmers Research Committees (FRC) are constituted to facilitate on site, hands-on knowledge development and knowledge sharing activities in farming communities.
b.2 Farmer promoters

Latin American experience where Farmer Promoters carry out farmer-to-farmer extension in the areas of agriculture, micro-enterprise, health and nutrition, housing, literacy, community organization, credit management and family planning.

Farmer promoters come from the grassroots; usually have little or no education but have undergone capacity building; volunteer, part time or full time; supported by NGOs, GOs, or community organizations/farmers associations.

2.2 Community-Based Extension Delivery Scheme

- Upland Development Programme (UDP)- tested participatory approach to extension

- This is a deliberate convergence of different “extensionists” from the municipal to the sitio levels, namely: AT, BEW and FTGs who constitute the community-based extension team or CBET

- Responsibility and commitment to extension is shared by MLGU, BLGU and Community (community organization). The organizational anchorage of each of the members of the CBET is as follows:
  - AT - MLGU
  - BEW - Barangay
  - FTG - Upland Barangay Associations (UBA or any appropriate, existing organization)

- This extension delivery scheme has been initially adopted by the 36 municipalities of the provinces of Davao Oriental, Davao del Norte, Compostela Valley, Davao del Sur, Sarangani and South Cotabato, through resolutions passed by the Associations of Barangay Captains (ABC) of each municipality.

Applies participatory, experiential and dynamic group methods like demonstration, hands-on, group meetings/small group discussions, study trips/field visits, farm planning, farmer-to-farmer training and farmers field school (FFS)
J. Qualities of a Good Extension Worker

The Professional (AT)
- Has appropriate academic preparation/degree
- Deep understanding of issues in sustainable development, especially those that directly relate to land and natural resource management
- Has good facilitating skills
- Has respecting and trusting leadership quality
- Interested in community/rural work and the uplift of disadvantaged farmers and fisherfolks
- Committed to continuing education and update of knowledge
- Local/resident in the municipality/ barangay or area of assignment
- Preferably adopter/model/user of good practices
- Credible
- Long-term/permanently placed

Farmer-Extension Worker (BEW and FTG)
- A farmer
- Experienced and adopter of appropriate farming technologies
- Credible, respected in the community and the local governance
- Interested in people and their well being
- Committed to voluntary extension work
- Respecting and trusting leadership quality
- Accessible and approachable
- Has good facilitating/communication skills
- Willing to make his farm an actual extension tool for experiential learning
- A team worker willing to learn and work with the AT/professional
- Resourceful
- Supportive family /household
Suggested References:


PhilRice. Pinoy Farmers' Internet, Open Academy for Philippine Agriculture.. http://www.openacademy.ph/


reconstruction, Overseas Development Institute. Southampton Row, London, UK.


MODULE 1  AGRICULTURAL EXTENSION

Session 2  Community Based Extension Delivery Scheme

A. Characteristics of effective delivery extension scheme

- Participatory
- Has efficient area coverage and work program
- Local/accessible/hands-on
- Has appropriate technical and organizational competencies or capacities to access, link, use and manage available extension resources (like the already established Regional extension networks in Region XI and XII)
- Can readily hold learning activities within the village (through the Learning Site)
- Has sustaining networks and partnership
- Has institutional support
- Is formally integrated/mainstreamed with government institutions and programs

B. The Community-Based Extension Delivery Scheme

- Participatory approach
- Developed and tested from experiences of the Upland Development Programme in Southern Mindanao (UDP).
- Has evolved following a progressive pattern, the extension scheme started with the ATs, then para-technicians who formally became the Barangay Extension Workers (BEW), then the Farmers Training Group (FTG) that cover the barangay but membership and tasks are equally distributed among the sitios.

Features:
1. Combines the strengths of government-led, and farmer-led extension approaches
2. Group, hands-on and participatory processes
3. More focused in terms of issues and area coverage
4. With institutional anchorage
5. Policy support for sustainability
6. Established and functional networks
C. The Institutions/ Extension Networks and the Key Players in the Extension Delivery System: roles and functions

1. Municipal Local Government Unit:

   **Local Chief Executive/ Mayor**

   The Mayor appoints and deploys to a particular barangay an Agricultural Technician who reports directly to the Municipal Agricultural Officer/ Municipal Agriculturist.

   **Municipal Agricultural Officer/ Municipal Agriculturist (MAO/MA)**

   Under the direct supervision of the Mayor, the MAO/MA:
   - Ensure inclusion of community based extension delivery in the Annual Investment Plan (AIP)
   - Plans and implements agricultural projects including soil and environmental conservation.
   - Facilitate assignment of full-time and regular/permanent AT in the barangay
   - Supervises the ATs assigned in the uplands, lowlands and coastal areas
   - Provides technical and moral support to project implementation
   - Identify training needs of ATs and requests PLGU and DA - RFU to provide such training
   - Provide incentives to extension personnel

2. Barangay LGU

   **Barangay Captain**

   - Appoints a BEW with the approval of the members of the council,
   - Provides appropriate policy and program support to extension and adoption of technology/practice
   - Allocates fund support for extension at the local level
   - Assists in monitoring and evaluation of extension
   - Facilitate requests (through resolution) for support from the extension network from the municipal, provincial and regional level.
3. Partner/Support Institutions/Network

In line with their vision, mission and goals, each member institutions can extend support to extension - training, technical inputs, organizational development, facilitation, information, education and communication (IEC). These institutions are:

- Regional/national government agencies: DA, ATI, SUCs, RAFCIs, others
- Non-Government Organizations

4. The community-based extension team:

- Agricultural Technicians (ATs)
- Barangay Extension Worker (BEW)
- Farmers Training Group (FTG)

The Municipal Agriculturist or MA (in some cases, Municipal Agricultural Officer or MAO), being the supervisor of the AT, serves as the “link” between the regional RD&E network and the CBET. Thus, it can be said that the regional and community extension tandem is as strong as the MA.
D. **Role of Agricultural Technicians or Agriculturists**

1. Lead the Community Based Extension Team
2. Implement cooperative extension service mechanism with the BEW and FTG with the support of BLGU, barangay organizations, and the community.
3. Access barangay and household profiles for data base in aid of extension planning
4. Facilitate in farm planning
5. Facilitate the appointment of BEW and the organization of FTG
6. Conducts periodic training for BEWs and FTGs
7. Provide coaching on agri-business, postharvest, marketing and savings mobilization to the BEWs, FTGs, and Farmers Associations
8. Facilitate farm classes/farmers field schools with farmers, women, out of school youths
9. Facilitate conduct of field demonstrations
10. Facilitate consultations at farmers field
11. Facilitate organization/ or enhancement of existing community organizations
12. Assist farmers in the preparation of loan and marketing documents
13. Assist farmers in securing tenurial instruments
14. Liaison work for linkages with processors and institutional buyers of products
15. Act as liaison to the LGU offices, through the MAO

E. Role of the Barangay Extension Workers (BEWs)

1. Assist farmers in putting up of recommended farming system-DFS, multi-storey, and the like.
2. Assist farmers on the layout of contour lines and establishment of hedgerows (if farm is sloping)
3. Attend farmers consultation on urgent farm problems
4. Update barangay council about extension activities through periodic reports and meetings
5. Report to barangay when needed

Selection of BEW

BEWs are barangay appointed paratechnician. Many of the BEWs receive modest honorarium from the barangay or the MLGU.

Basic Qualifications

In selecting a potential BEW member, the following basic qualifications may include the following:

1. Respected in the community
2. Adopter of quality DFS and appropriate soil and water conservation/land management practices.
3. Has undergone basic training on upland agriculture or natural resource management
4. Has good communication skills
5. Demonstrated leadership
6. Willing and confident to share knowledge, technologies and skills with other farmers
7. Willing to learn new technologies and approaches
8. Willing to work on voluntary basis and with a team

The criteria to be used in selecting BEW may be agreed upon by the barangay council, in consultation with the AT, members of the community and relevant groups.

F. Role of Farmers Training Group (FTG)
An FTG may be composed of 4-5 members, each representing a sitio or village within the barangay. They are nominated and selected based on agreed criteria (annexed as reference)

1. Together with the AT and BEW and under the leadership of the UBA/or farmers organization, manage a Learning Site as local field school where farmers learn good practices through participatory, hands-on methodologies.
2. Facilitate the adoption of sustainable upland farming practices and natural resource management strategies
3. Access external support to local extension initiatives and technology adoption

Roles of Each Member of FTG
At the Sitio level, a capacitated FTG member is expected must:

1. Assist fellow farmers in the sitio in preparing farm plan following the Slope Oriented Treatment Practices (STOP) approach.
2. Recommend qualified farmers for production or any other form of assistance.
3. Coach fellow farmers who are interested to adopt diversified farming and soil and water conservation.
4. Assist the BEW and AT in conducting hands-on training for groups of farmers or other interested groups.
5. Share own experiences, knowledge and observations with other farmers, including cross-visitors.
6. Develop own farm as model for sustainable upland farming and as satellite Learning Site where farmers from the sitio and from other places can learn appropriate technologies and practices.

Selection of FTG members

FTG members are selected using a set of criteria and a process. The criteria and process may be situation specific and agreed upon by stakeholders.

Basic Qualifications

In selecting a potential FTG member, the following basic qualifications may include the following:

1. Member of a community organization like the UCO, farmers cooperative, others
2. Respected in the community
3. Has undergone basic training on upland agriculture or natural resource management
4. Adopter of quality DFS and appropriate soil and water conservation
5. Has good communication and demonstration skills
6. Willing and confident to share knowledge, technologies and skills with other farmers
7. Willing to learn new technologies and approaches
8. Willing to work as volunteer and with a team
9. Family/household supportive of volunteer work.

The criteria to be used in selecting members may be agreed upon by the selection team which may be composed of representatives of UBA, BLGU, MLGU and other partners.

Selection

The selection of FTG members may follow the following process:

1. UCO nominates two candidates from the sitio using the basic qualification criteria
2. UBA, AT and partner (such as ICRAF) selects the member from the two nominees by way of interview
3. UBA presents the selected member to the members the Barangay Assembly
4. Barangay Council formally recognises new FTG member by way of a resolution
G. The Learning Site (LS):

Purpose of LS

1. The LS is the official site where the AT, BEW and FTGs learn and demonstrate recommended farming practices.
2. It is the local farmers field school for recommended technologies and extension messages.

Model Farmers (MF)

Interested farmers may enroll at the LS, apply technologies on his/her farm and graduate to become Model Farmers

Model Farmers (MF) are “graduates” of the Learning Sites run and managed by the Farmers Training Groups together with the AT and the BEW.

1. MF adopts good farming practices, especially diversified farming system and land management.
2. MF may volunteer to become an FTG member or as host of on-site demonstration or cross visits

H. Upland Barangay Association (UBA) or Similar Farmers Organization

The UBA/or similar organizationn is a barangay based organization of upland farmers. It is the institutional anchorage of the FTG. Other municipalities and baranagays may have other names of similar organizations. They are equally qualified to provide institutional home to FTGs. The UBA (or similar farmers groups) is committed to:

1. Help select FTG members based on agreed criteria.
2. Provide organizational anchorage to FTG, including support to capacity building.
3. Work with BLGU in the formulation of policy for development and sustainability of extension delivery system.
4. Coordinate or works closely with the AT, BLGU, BEW and FTG for the synchronized delivery of extension messages
5. Promotes production with soil conservation, agribusiness, farm records keeping, proper use and prompt repayment of
production loan, simple economic analysis, and savings and profit recycling, through its Agri-business Committee.

6. Helps establish market linkages and compiles listings of product processors

7. Enhance effectiveness of bagsakan centers (if any).

8. Promotes group acquisition of inputs and marketing of products

9. Helps the AT, BEW, FTG in monitoring and evaluation of extension.

I. Communities/ Farmers

The community, farmers or men and women in agriculture and fishery and rural households comprise the clientele and participants of agricultural extension.

Prepared by  Dinah Q. Tabbada  UDP Local TA, and Alexander U. Tabbada ICRAF Consultant and Project Team Leader, UDP-ICRAF Collaborative Project. With inputs from UDP, ATI and USEP.
Suggested References:


reconstruction, Overseas Development Institute. Southampton Row, London. UK.


MODULE 2  FACILITATION

Session 1  Facilitation Skills and Methods

A. The Meaning of Facilitation

Facilitation Defined

Facilitation is a conscious process of assisting and helping groups to reach a consensus to successfully achieve their tasks.

Facilitation is the process of enabling groups to work cooperatively and effectively, despite diversity in backgrounds, interests and capabilities.

Facilitation in Extension

Facilitation in extension means providing appropriate methodology for learner-centered learning, enabling support to interaction and providing practical/ doable technical support and options.

The paradigm shift from “directive” extension to participatory one established that facilitating learning (or “walk the learning path”) is more sustaining than just transferring technology.

B. Aims of Facilitation

◇ To make the process of consensus building, decision making easier for the members of the group
◇ To make group process more effective and efficient (less time, money, effort yet better results)
◇ To make learning process easier
◇ To promote respect for knowledge, experiences and thought of each participant
◇ Promote collaboration among participants
C. Principles of Effective Facilitation

Both the facilitator and the participants (group) must do their part to achieve their objectives. But facilitators, to be effective must take note of the following principles of effective facilitation:

- A Facilitator must be a neutral guide amidst group members;
- Stop, look and listen as participants come with different experiences, and thus, diverse views
- Methods and environments must ensure equal and quality participation;
- Methods must support knowledge sharing or exchange of ideas, and provide practical/doable options;
- With good facilitation, groups can capably reach good decisions;
- Motivating groups towards a goal starts with developing among members a sense of shared goals and ownership;
- Group processes need to be anchored on trust

A facilitator understands his/her role. The facilitator is many things to the group: moderator, process manager, model, a resource, etc. (Ball State University, 2005)

D. Core Values of Facilitation

Core values that guide the practice of facilitation:

1. Knowledge
   Awareness and understanding of the issue/problem by participants and facilitator

2. Group-defined goals and approaches
   The members of the group make the ultimate decisions. They freely define their own goals and agree on how to achieve them. Facilitator guides the group processes of goal setting and choosing from among options.

3. Shared satisfaction and accountability
   Participants are equally satisfied with the decision they have reached or option they have taken, and commit fully to its realization.
People must obtain adequate information to fully understand the issue. It is with full understanding that they are able to set goals, identify options and, through effective facilitation, are able to decide which action to take. Being the decision makers and implementers themselves, the members of the group will most likely commit themselves to the realization of the goals they have set.

E. The Need for Facilitation in Extension

From “transfer of technology” model, extension has shifted to be need and culture responsive, and has been carried out in partnerships among farmer groups/organizations, government and private sector for service delivery.

Farmers identify their extension needs and take active part in the delivery of responsive extension services.

According to Administrative Order no. 42, all agriculture and fishery extension or AFE programs are mandated to be PARTICIPATORY in nature and multidisciplinary in orientation, involving all stakeholders all throughout the program (from agenda setting, to planning, implementation, and monitoring and evaluation)... 

The above trends require bringing people together to get full awareness and deeper understanding of relevant issues; and identify, analyze and find solutions to their problems. As farmers or communities work in groups to plan, decide, innovate, implement, and share responsibility, the need for the following arises:

1. Facilitation that will help people get things done or accomplish effectively and efficiently what could not have been done by individuals only;

2. Facilitation skills and understanding of group dynamics that will improve interaction and working relationships among group members;

3. Effective facilitation that will help strengthens organizations and the relationships of members and leaders.

4. Facilitation that will develop creativity, facilitate conflict resolution or help prevent conflict. For example, skillful facilitator can clarify expectations and procedures at the start to prevent frustration, rift or tension.
F. The Role of the Facilitator

The facilitator’s role is to make easier the group process and make sure everyone is working on the same problem with the same approach; ensure participation and sharing of experiences in a respecting and facilitating environment. Specifically, a facilitator is expected to:

1. Plan appropriate group facilitation methods and manage an enabling process for a group to accomplish its work
2. Coach participants to enhance their participation in work that needs to be done:
   - works one-on-one with individuals and with the group to draw on individual strengths
   - support and motivate participants to enhance their competencies
3. Lead the change process, NOT DECIDE OR DISCUSS FOR THE MEMBERS

Facilitators are change process leaders only; they have no decision-making authority, nor do they contribute to the substance of the discussion.

G. The Key Values and Attitudes of Facilitators

According to Edward S. Ruete, 2004, a facilitator brings three things to her/his practice. These are Knowledge, Skills, and Self. Of these three, the Self is the most important.

The Self is everything facilitators are - their beliefs, values, and life experiences as they become manifest in their attitudes, needs, and motives.

The Self determines ones ability to use knowledge and skills.

- The Self sets mood and tone for the meeting.
- If the Facilitator is calm, the group will be calm.
- If he/she is hopeful, the group will be hopeful.
- If is focused about when to intervene and what process to use and getting the group to agree to process issues, the group will be mindful of process.
- If he/she trusts, the group will be trustworthy.
• If he/she communicates very clearly and takes the statements of others at their face value, participants will begin to communicate clearly as well.
• Simplicity by the facilitator makes the group process simple

Values

1. A Democracy
   Allows each person equal opportunity to participate in all group processes --- planning, decision making, problem solving, others.

2. Responsibility
   A facilitator is responsible for his/her plans and actions and how these affect content, participation and process. He/she must be sensitive to how much responsibility the participants at any meeting are prepared and able to take.

3. Cooperation
   The facilitator and participants work together to achieve their collective goals. (One might say that leadership is something you do to a group; facilitation is something you do with a group.)

4. Honesty
   A facilitator represents honestly his/her own values, feelings, concerns and priorities in working with a group, and should set the tone for an expectation of honesty from all participants. This also means that he/she must be honest with the group and with him/herself when gauging abilities and performing task.

5. Equality
   Facilitator recognizes that each has something to contribute to the group and provides a fair opportunity to do so; at the same time, he/she respects the right of the participant to choose not to participate at any particular point in a meeting or discussion.

Attitudes

Attitude is a combination of one's values, beliefs and judgment. Attitude is reflected in the person’s:
• Words and choices
• Tone of voice
• Body language, facial expressions, emblems, gestures
• Behavior in groups
• Attitude affects:
• Communication
• Participation
• Change process (submission/resistance to change)
• Relationships

A Facilitator must be founded with the following basic attitudes for working with others:
• Openness
• Sensitivity
• Empathy
• Interest

H. Facilitation Skills

1) Level I: Basic facilitation skills for group discussions or meetings, basically communication skills:

- Listening
- Observing
- Questioning and probing
- Summarizing
- Dialogue

2) Level II: group-centered skills

These are needed to work with ongoing work teams, self-directed teams, or cross-functional project teams. Facilitating a group requires knowledge of how a team develops over time and the ability to teach and demonstrate group processes and methods to the team. Group centered skills involve:

- Trust and confidence building
- Monitoring group stages
- Monitoring group roles
- Building group dynamics
- Encourage teamwork
- Encourage equal participation
- Conflict management/resolution

3) Level III: Learning-centered skills
This level needs high skilled, experienced facilitators who also understand the overall organizational situation and cultural issues confronting the group.

Facilitators:
- Identify learning opportunities and interest
- Encourage reflection
- Support analysis and adoptive action
- Encourage sharing
- Promote lateral thinking
- Support self-monitoring and evaluation

Foundation of the above skill levels are:
- Openness
- Sensitivity
- Empathy and
- Interest

I. Facilitation Methods

Appropriate methods and combination of methods can make facilitation tasks easier, but only when it is well planned and prepared for.

Practice using these methods and learn to be more effective or improved facilitator over time.

**Most Commonly Used Facilitation Methods:**

<table>
<thead>
<tr>
<th>Method and Description</th>
<th>Application</th>
</tr>
</thead>
</table>
| 1. Brainstorming       | - As ice breaker or entry to a topic  
                         |   - Generate different ideas  
                         |   - To assess degree of awareness, understanding, or experience of a group about an issue  
                         |   - To assess diversity/similarity of participants  
                         | **Items to brainstorm:**  
                         |   - Goals  
                         |   - Strategies  
<pre><code>                     |   - Ways towards improving conduct of an activity |
</code></pre>
<table>
<thead>
<tr>
<th>2. Buzz group</th>
<th>3. Lecture</th>
<th>4. Presentation or Sharing (of Small group work)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small group that discusses a specific topic, issue or question for a short period of time.</td>
<td>A lecture is a method used to present/ explain difficult or new content, or information to unusually large groups.</td>
<td>Small group output is presented or shared by a reporter to the other groups. Each small group takes turn in presenting.</td>
</tr>
<tr>
<td>This can be done by two or four members, depending on the task to be done or expected output.</td>
<td></td>
<td>Interaction follows after each presentation/ or until all the groups have</td>
</tr>
<tr>
<td>- Allow even the shy participants to discuss under a non-threatening environment</td>
<td>- For instructions in preparation to a demonstration, hands-on or fieldwork</td>
<td>- Exchange of ideas among small groups (facilitator must be quick to manage “show off”/conflict that may arise)</td>
</tr>
<tr>
<td>- Break, breather for facilitator after a long plenary</td>
<td>- To explain new concepts, theories or results of studies</td>
<td>- Train participants to speak in front of big group</td>
</tr>
<tr>
<td>- Chance for participants to discuss directly, instead of having side discussions during sessions</td>
<td>- Useful for large group</td>
<td>- Confirm/affirm/validate small group consensus with other groups</td>
</tr>
<tr>
<td>- Get feedback and assess agreement/disagreement about what has just been learned</td>
<td>- Practical when time and space are too limiting for participatory activities</td>
<td>- Chance for facilitators to assess articulate, skilled reporters/documenter</td>
</tr>
<tr>
<td>- Reflect or relate themselves to what has just been tackled/learned</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Cause and effects
- Beliefs, perceptions
- Unexpressed concerns
## Trainer’s Manual on AGRICULTURAL EXTENSION AND LAND MANAGEMENT

| presented. | 5. Structured Plenary discussion  
Discussing a specific issue in a bigger crowd; needs more time | ▪ Exchange of ideas in a bigger crowd  
▪ Problem solving, planning  
▪ Strategizing  
▪ Decision making |
| --- | --- | --- |
| 6. Demonstration Showing and performing a process or result of good practices | ▪ Teaching/Learning a procedure  
▪ Teaching/Learning to apply a technology  
▪ Teaching/learning how to operate a device  
▪ Effect experiential and action learning  
▪ Showing results of good practices |
| 7. Cross visit Arranged trip or visit by a group of learners to see and learn actual application and effect of good practices | ▪ Learning and believing by seeing  
▪ Learning from peers  
▪ Learning experiences of farmers of different environment but of the same issue  
▪ Farmer-to-farmer interaction |
| 8. Role play Dramatize presentation of a problem, issue or topic during which participants portray a character, reenact a situation or experience. | ▪ Present social issues that make human lives difficult  
▪ Presenting environmental issues affecting people  
▪ Present situations related to specific issue or problem  
▪ Training to face conflicting or stressful situation  
▪ Teaching interpersonal skills, communication or negotiation  
▪ Reflect environment or behavior that is less described by words  
▪ To encourage empathic behavioral patterns |
| 8. Energizers Group activities in games, action songs, body movements, and similar enlivening events. | ▪ To make introductions/acquaintance interesting  
▪ Stimulate creative thinking, mind cracking  
▪ Enliven sleepy or bored groups  
▪ Illustrate new concepts  
▪ Make learning fun |
Can also be an icebreaker/topic opener. Just make sure the chosen activity is related to the topic.

- Team building
Suggested References:


Center for Conflict Resolution. A Manual For Group Facilitators. 731 State Street Madison, Wisconsin 53703


Farrell, John and Richard Weaver. Facilitation Basic. 2004. Facilitators@FacilitationSource.com


HANDOUT

MODULE 2  FACILITATION

Session 2  Facilitating Community-Based Extension Delivery Scheme

A.  Review of the Community-Based Extension Delivery Scheme:

- Community-based Participatory approach to extension tested by Upland Development Programme (UDP)

- Deliberate convergence of different “extension workers” from the municipal to the sitio levels, namely: AT, BEW and FTGs who constitute the community-based extension team or CBET

- Responsibility and commitment to extension is shared by MLGU, BLGU and Community (community organization, like Upland Barangay Association). The organizational anchorage of each of the members of the CBET is as follows:
  - AT - MLGU
  - BEW - Barangay
  - FTG - Upland Barangay Associations (UBA or any appropriate, existing organization)

- This extension delivery scheme has been initially adopted by the 36 municipalities of the provinces of Davao Oriental, Davao del Norte, Compostela Valley, Davao del Sur, Sarangani and South Cotabato, through resolutions passed by the Associations of Barangay Captains (ABC) of each municipality.

- Applies participatory, experiential and dynamic group methods like demonstration, hands-on, group meetings/small group discussions, study trips/field visits, field days, facilitated farm planning, farmer-to-farmer training and farmers field school (FFS)

The Key Extension Players at the Barangay Level

Community-Based Extension Team (CBET)
1. Agricultural Technician (AT)
2. Barangay Extension Worker (BEW)
3. Farmers Training Group (FTG)
B. Setting Up the Community-Based Extension Delivery Scheme:

B.1 AT is appointed by the Mayor and deployed to a particular barangay

The Municipal Local Government Unit or the Mayor, with the Municipal Agriculture Office, recruits, designates and deploys an Agricultural Technician (AT) to a particular barangay.

B.2 AT Trains on Extension, Facilitation, Community Organizing and Land Management and orients on the Medium Term or the Current Municipal Extension Plan (MEP)

MLGU, through the Municipal Agriculturist (MA) and Human Resource Management Officer (HRMO) will arrange with Agricultural Training Institute or ATI in the region for the training of the ATs of the municipality.

ATI designs farm-based or on-site training identifying the nearest and appropriate Learning Site. The design must also include budget and cost-sharing by MLGU, ATI, DA-RFU, relevant institutions in the established Extension Network, or projects that may support extension.

ATI and the Regional and Provincial Trainers of Agricultural Extension and Land Management train the ATs.

These Regional and Provincial Trainers are those who have undergone and have passed the Training of Trainers (TOT) on Agricultural Extension and Land Management.

At present, the pool are from DA -RFU, ATI 11 and 12, State College and Universities, Regional Research Consortia, and the LGUs in the Provinces of Davao Oriental, Davao del Norte, Compostela Valley, Davao del Sur, Sarangani Province and South Cotabato, Sultan Kudarat, Cotabato Province, and the City of Davao.

ATI will soon expand its TOT to create resource pool in other regions and provinces.
B.3 Trained AT enters the Barangay of assignment

TASKS:

1. Consult with the barangay captain/barangay officials.

2. Introduce and inform the local leadership of his/her assignment in the barangay and the agriculture program. Show relevant documents to support verbal presentation.

3. Get the basic information tool, the approved Barangay Development Plan (BDP).

4. Study the land use plan, looking at the declared agricultural lands and forestlands. If BDP is not available or if land use is not clearly incorporated in the BDP, ask for alternative official document that may provide the same information.

5. Gather information on existing community organizations and other interest groups whose goals and activities relate to agriculture, natural resource management or community development.

6. Get to know the organization leaders.

7. Get to know the opinion leaders.

8. Get to know progressive farmers who are practicing recommended farming practices (good cropping systems, soil conservation/land management.

9. Plan and arrange with the BLGU officials for a meeting with as many local leaders/stakeholders as possible.

10. Get to know more leaders, potential partners that can help advance the extension agenda.

11. Facilitate a multi-stakeholder assessment of the situation in the agricultural lands in terms of farming productivity, adaptability and systems. Be informal, but polite.

12. Work on trust building. Be visible in the village, mingle among the people, and interact with groups and organizations. Be an observer, listener and absorber of information, not an arguer. Be able to see the different dynamics that may affect/guide your extension strategies.

13. Make a more thorough inventory of existing groups, organizations and institutions. Do this with the knowledge of BLGU and a few volunteers from the community.

Primary/first hand information to be taken:
• Nature, mission, goals
• Scope of assistance/services
• Capacities and resources
• Relationship/alliances with other organizations/groups
• Perceived lead/advantaged groups/institutions

The BLGU may have some information on those it has accredited and accepted members of special bodies in the barangay governance.

14. Present to the BLGU the community-managed extension scheme needed to be organized.

Facilitate the appointment of a Barangay Extension Worker or BEW by the barangay government.

B.4 **BEW is appointed by the Barangay Captain**

15. AT orients the BEW.

16. Then AT and the BEW facilitate the creation of a Farmers Training Group (FTG) by the farmers associations like the Upland Barangay Association or other similar groups that can give organizational anchorage to the FTG. If possible, FTG members are also members of prospective anchor organization.

B.5 **Farmers Training Group (FTG) is formed**

17. The FTG is constituted following the rules. Refer to Handout in Session 1 of the Facilitation Module.

B.6 **Learning Site (LS) is identified/ established**

18. AT, BEW and FTG select and establish a Learning Site (LS).

The LS can be a farm of one FTG member that is most accessible to all the members of the group.

**OR** Another model farm with a willing owner. It is more advantageous for the local extension team if the owner of the LS is also member of the FTG because he/she can always be available for FTG extension activities in the LS.

B.7 **Capacity building for the CBET**

19. MA and AT, together with BEW and FTGs identify training needs and plan for capacity building activities for the CBET, especially knowledge, attitude and skills, and group enhancement carried out through:

- Cross visits
On site training on technology, extension and facilitating skills, and volunteerism in community extension
- Farmers Field Schools
- Knowledge enhancement or updating through various media and sources
- Networking
- Team building
- Management training

The trained AT can be resource person or he/she may invite other trained ATs within the municipality, especially if the MA has a Municipal Training Team (composed also of ATs who really have potentials and skills of a trainer), can be tapped. The MA may also invite the Provincial Trainers through the ATI, PLGU or Head of Office.

B.8 Establishing partnership for agricultural extension network

20. One way of building the capacity of extension is establishing partnerships and a close working relationship with public and private organizations which are also aiming at increased farm productivity and income.

Formalized partnership facilitates cooperation and timely access to extension resources. In regions 11 and 12, the extension delivery network has been formally established to include the following:

- Department of Agriculture (DA)
- Agricultural Training Institute (ATI)
- Provincial Government and the Office of the Provincial Agriculturist
- Municipal Local Government Unit
- University of Southeastern Philippines
- University of Southern Mindanao
- Southern Philippines Agribusiness and Marine and Aquatic School of Technology
- Davao Oriental State College of Science and Technology
- Integrated Development Services (IDS)
- Balay Davao Sur, Incorporated
- Managing Alternatives Incorporated
B.9 Getting local government support, recognition and adoption

21. MA, AT, BLGU and partner conduct:
   • Consultation
   • Advocacy
   • Finding the basis for mainstreaming and the appropriate groups to advance extension initiatives
   • Meetings and Resolutions

B.10 Managing extension resources: keeping updated directory of extension and training institutions, partners and resources

22. MA manages enhancement of human resources under the following considerations:
   • Incentives, rewards for quality extension services
   • Continuing education and advanced trainings
   • Strengthening institutional anchorage especially in fund generation and management
   • Accreditation by mandated institution
   • Keeping track and close contact with members of extension network
   • Supportive environment and workplace for volunteerism and community work
   • Permanency (employment status) of AT in the barangay

B.11 Coordinating and tapping extension network to access right resource at the right time (resource persons, funding)

23. MA keeps track and close contact with members of extension network for support: resource persons, trainings, training funds, information, technology and the like.

B.12 Facilitating Extension Planning Implementation, Monitoring and Evaluation

24. AT, BEW and FTG identify information and technology needs:
   a. Consultation
      - Present situation
      - Needs and capability/resources assessment
   b. Target setting
   c. Strategizing (extension methods, fund sourcing, etc.)
   d. Tasking
   e. Documenting, monitoring and evaluating

B.13 MA/AT train on Participatory Monitoring and Evaluation (PME)
Monitoring and Evaluating Extension

**Monitoring**: continuous or periodic review of the implementation of activities to check if input deliveries, work schedules, targeted outputs and other required actions are being carried out according to plan.

**Value of monitoring:**
- Helps in seeing the groups successes and assessing its weaknesses.
- Early warning devise. Problems (potential and actual) are identified and anticipated; so are the solutions.
- Ensures adherence to standards and keep track so that activities are sufficient to achieve expected results.
- Provides an on-going picture, to determine whether activities are progressing as planned, or if not leading to objectives, so that early adjustments can be made.
- Better decision making and improved analytical skills by members of the organization.
- Communication between organizations is strengthened; results can be useful for other communities who experienced the same problems.

**Participatory monitoring**
Involves the clients in measuring, recording, collecting, processing and communicating information to assist both project management personnel and group members in decision making.

**Evaluation**: the systematic and objective assessment of the relevance, efficiency, effectiveness and impact of activities vis a vis their objectives.

**Indicators**: specific and objectively verifiable measures of changes and results. They are markers of progress such as tons of fertilizers delivered, hectares of farms cultivated, adoption rate, and income levels.

**Participatory evaluation**: Involves the clientele in the analysis. Monitoring data collected provide the basis for the subsequent analysis. The activity focuses on the assessment of the effects of the project on or for the intended clientele.
• The systematic analysis of project to enable project management to adjust, redefine policies or objectives, reorganize institutional arrangements or redeploy resources when necessary.

Purpose of PME:

PME is management tool to improve efficiency and effectiveness. It is also an educational process where participants increase their understanding of the various factors which affect their lives.

PM&E Process:

• Plan the framework, objectives and indicators (Technology application, institutions/organizations, extension capacity, landscape, lifescape, LGU priority for extension, etc)
• Gather data
• Analyze and interpret data
• Validate/use data
• Document, report and share information and enjoin management and groups to act on the recommendations.

Prepared by

Dinah Q. Tabbada, UDP Local TA. With inputs from UDP, ATI and USEP.
Suggested References:


A. Community Organizing Defined

- CO is both a method and a process
- CO, in the Philippine setting is a systematic, planned and liberating change process of transforming a community into an organized, conscious, empowered, self-reliant, just and humane entity and institution.
- As a method- the various interventions of the Local Government Unit’s (LGU), Agricultural Technician (AT) to help individuals, groups and organizations to engage in collective actions to solve community problems in a gender-fair and participatory manner.
- As a process- progressive cycle of identifying, clarifying and prioritizing needs and problems, formulating alternative solutions and deciding on the best option, organizing for collective action, implementation, monitoring, evaluation and reflection on experiences in the context of agricultural extension and development.
- During the 1994 National Rural CO Conference, CO was defined as a collective, participatory, transformative, liberative, sustained and systematic process of building people’s organizations by mobilizing and enhancing the capabilities and resources of the people for the resolution of their issues and concerns towards effecting change in their existing, poor conditions.

B. Reasons to Focus on Communities

The role of communities or people's organizations in development, in partnership with government and non-government organizations is very pronounced in the Local Government Code of the Philippines. Chapter 4 section 34 of the Code on the Role of People’s and Non-government Organizations states that “Local government units shall promote the
establishment and operation of people’s and nongovernmental organizations to become active partners in pursuit of local autonomy. Section 35, Linkages With People’s and Nongovernmental Organizations, specifically provides that “Local Government Units may enter into joint ventures and such other cooperative arrangements with people’s nongovernmental organizations to engage in delivery of certain basic services, capacity building and livelihood projects, and to develop local enterprises designed to improve productivity and income, diversify agriculture, spur total industrialization, promote ecological balance and enhance the economic and social well-being of the people”.

Helping and working with people must give priority issues and problems that affect the greater number—like land degradation and continuous abuse of the forests. And whether or not the extent of the problem is confined in one community only or extends to others, people should together take responsibility and play their role in finding solutions to these problems.

C. Purposes and Objectives

The primary aim of CO is to organize and empower the people to become a potent partner of government and non-governmental organizations in decision making and in undertaking activities towards achieving community development goals.

Particularly, CO aims to:

- Transform behavioral patterns and attitudes of individuals into a more productive and cooperative viewpoint;
- Educate, conscientise and motivate people to take responsible actions for the improvement of their situation;
- improve or develop capability of people to effect and manage changes in their community; and
- Forge a strong partnership between the community and supporting institutions

D. Five Key Elements of the CO Process

1. PEOPLE

- Each individual is a potential resource to the community. People have the creative capacity to change their situation.
Establishing good relationship and trust building are important foundations in community organizing.

2. PROBLEM

- Problem solving is one of the important goals of community organizing.
- Problems can be used to motivate and challenge people to organize themselves towards the desired change.
- Change can only be achieved if people plan and carry out appropriate actions together.

3. PARTICIPATION

- People's participation is the heart of community organizing. It is the right of all people to participate in decision making on issues affecting them.

4. PROCESS

- In community organizing, process and relationships are as important as the solutions to the problems. People learn best by working together and learning from their concrete experiences.

5. POWER

- People empowerment is the goal of community organizing. There is strength in number only when people are organized. If people work together, they become stronger.
- Organized community can be capacitated through training and education so that it can partner effectively with other institutions for community development.

E. Major Component Processes of CO

1. Training and Education
2. Organization Building
3. Developing mechanisms and structures for organizations to function effectively on a sustained basis in the context of collective leadership, free and equal participation and organized action.
4. Mobilization
5. Sustaining group action to respond to immediate and long term needs.
6. Principles of CO

CO, according to the tenets espoused by the International Institute for Rural Reconstruction, should follow the following principles:

1. Start with and build with the people.
2. Start where the people are; do not end where they are; let the people decide.
3. Learn, plan and work with the people. Begin with small issue and work towards bigger and complex ones.
4. Teach by showing, learn by doing. Popular education and intensive, experiential leaders training.
5. Participation in political processes and influence in decisions.
6. A vision to guide the change process. Not piecemeal but an integrated approach.
7. Not relief but release.

7. The CO Process

<table>
<thead>
<tr>
<th>CO Stages</th>
<th>Basic CO Steps</th>
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</thead>
<tbody>
<tr>
<td><strong>I. AWAKENING</strong></td>
<td><strong>CO Phases/Steps:</strong></td>
</tr>
<tr>
<td></td>
<td>1. Social investigation / Entry to the community</td>
</tr>
<tr>
<td></td>
<td>2. Integration / Deepening</td>
</tr>
<tr>
<td></td>
<td>3. Problem Identification, Analysis and Priority Setting</td>
</tr>
<tr>
<td></td>
<td>4. Goal Setting</td>
</tr>
</tbody>
</table>

Facilitator’s task:

- Facilitate people’s realization that they have needs and that they possess to meet these needs.
- Facilitate people’s analysis and prioritization of common/shared problems
- Facilitate Identification and training of potential leaders
II. EMPOWERMENT

CO Phases/Steps:

1. People are able to agree on solutions and strategies
2. Facilitating people's coming out with a plan
3. Implementation of the Plans
4. Participatory Monitoring and Evaluation (PME)
5. Reflection

Facilitator’s task:

- Enable people to create activities and manage their resources to answer their identified and prioritized needs.
- Facilitate education programs on organizational leadership and resource mobilization for the leaders so they could manage these activities efficiently and effectively.

III. MAINTENANCE/ INSTITUTIONALIZATION

CO Phases/Steps:

1. Organization Building
2. Turn-over
3. Phase out

Facilitator’s task:
Facilitate development of formal, viable and self-sustaining organization with a set of functional policies and guidelines, continuing education and strengthening programs and membership expansion.

Facilitate an turn-over of organizing and technical responsibilities to the trained and functional leaders.
8. Change Facilitator/ Community Organizer

The Community Organizer (CO) is a facilitator, animator, enabler and catalyst (Murphy, 1987).

By assuming the role of a CO Worker, the AT has multiple roles and as such, s/he is a very crucial point person in the community development process.

S/he becomes a generalist and by order of task priorities, the AT empowers the community and the community-based organization by doing the following intervention.

**Facilitator**

The CO uses methods and practices that make easier a group process. He/she makes sure everyone is working on the same problem with the same approach; ensure participation and sharing of experiences in a respecting and facilitating environment.

The facilitator’s responsibility is to ensure that members of the community communicate, participate, and are satisfied with and committed to the decisions taken.

**Animator**

The CO helps the community discover and use all its potentials for creative and constructive teamwork.

He/she motivates the people to share their concerns, information and opinions, analyze their issues/problems, set goals, make decisions and plan action.

**Enabler**

The CO as enabler facilitates heightened awareness and understanding of issues/problems so that participants are able to make sound decisions, draw practicable actions and promote self-reliance through collective action and social education.

The CO empowers people to act by developing shared relationships, understandings, and tasks which enable them to gain new resources, new understanding of their interests, and new capacity to use these resources.
Catalyst

The CO helps hasten the process of planned change. He/she makes sure the organizing process is fully understood by people.

The CO also serves as a model, not only in words but also in deeds.

9. Qualities of Change Facilitator/Community Organizer

Community organizers think strategically about their work while always keeping the final goal in mind and continually making contributions to the goal.

This is especially important in community organizing campaigns to enact or change policies.

Qualities include:

- Sense of Humor
- Blurred vision of a better world
- An organized personality
- Strong ego/sense of oneself
- A free, open mind, and political relativity
- Ability to create the new out of the old (Saul Alinsky, 197)

10. Support

- Local Government Units
- Government Agencies
- Non-Government Organizations
- Peoples Organizations
- Imagination

Prepared by Nelson P. Casiano, UDP-CIDE Coordinator, and Dinah Q. Tabbada, UDP Local TA. With inputs from UDP, ATI and USEP.
Suggested References:

Beckwith, Dave and Cristina Lopez Community Organizing: People Power from the Grassroots. Center for Community Change. www.comultiversity.org.ph/community_organizer.htm


MODULE 3 COMMUNITY ORGANIZING

Session 2 Organizing Communities for Land and Natural Resource Management

A. Role of Communities in Land and Natural Resource Management

- Communities depend on land and natural resources for subsistence
- Communities are the primary recipient of benefits from the land and natural resources
- The problems on land and natural resources are too complicated and interrelated to be solved by the government alone
- The effects of the problem extend beyond household, farm lot and even village boundaries
- Communities are a party to the problem, by their inappropriate farming practices, misuse and/or neglect of land and natural resources
- Communities, especially when organized, can be empowered to address said problems
- In terms of sustainability, communities can be strong local partners of LGUs
- Organized communities can produce pressures on and challenge LGU leadership for needed support
- Organized communities can facilitate implementation/enforcement of policies, ordinances or laws

B. The Community Organizing Process

I. PRE-ENTRY/ENTRY INTO THE COMMUNITY

At PRE-ENTRY stage, it is ASSUMED that:

1. Prior arrangements have been made by MLGU with BLGU
2. The land and natural resource management agenda is recognized by the MLGU
3. Agreements have been made among MLGU, especially MA, and MENRO, BLGU and other parties involved
4. Focus barangay has an approved Land Use Plan (LUP) or land use-based Barangay Development Plan (BDP)

ENTRY

This is the initial step towards integrating into the barangay. It is important for the AT/CO to project credibility. The Agricultural Technician (AT) or the Community Organizer (CO) will:

1. Officially enter the barangay.
2. Meet with local leaders, barangay officials and other key contacts in the community, in most cases, with the barangay officials first and/or with Council of Elders in Indigenous Peoples (IP) or similar tribal communities.
3. Review with the BLGU and others in attendance the previous discussions/arrangements referred to in the above ASSUMPTIONS
4. Obtain a copy of the LUP/BDP and get a range of information on the barangay, its profile, people, institutions, resources, problems, issues and others. AT/CO may also verify, update or get additional information from the barangay government and from existing non-government organizations, if any.
5. Identify a core group to be composed of few men and women representing the sitios of the focus barangay

II. COMMUNITY IMMERSION

In basic organizing, community immersion is the process where the CO stays or lives in the community for a deeper understanding and experience on the community’s way of life and to develop the much needed good relationship with them.

Following the Local Government Code, ATs are residents of the barangays within the municipality they serve. This was why, in the Upland Development Programme (UDP) in Southern
Mindanao, establishing rapport and mutual understanding by the AT/CO did not take so much of this type of “immersion,” but rather by frequent visits, meetings and interaction with as many people as possible.

Rules of conduct for the AT/CO:

1. Must respect the community people especially the poor and conducts self in a respectable manner
2. Must project a humble, friendly and approachable character/image
3. Must be honest (not make promises that he/she or the project cannot fulfill)
4. Must be observant, open-minded and sensitive to the environment to analyze situation properly and intervene effectively
5. Must adjust lifestyle with the cultural environment
6. Must be mindful of her/his safety and must keep updated of peace and order situation, tension and the like.

III. CORE GROUP FORMATION

AT/CO recruits a few men and women (representing the sitios) from the community to help facilitate the eventual formation of a community based organization or CBO. The AT/CO shall:

1. With a gender sensitive perspective, select members for the core group based on the observed leadership, credibility, availability, willingness, knowledge and skills
2. Ensure that sitios are represented in the core group.
3. Orient the core group about the purpose and the processes of the activity or project
4. Clarify roles of each and of other stakeholders involved
5. Clarify conditions, especially the voluntary nature (no monetary compensation) of their participation
6. Facilitate constant dialogue or query from the members.
7. Prepares the Core Group for the CBO formation by facilitating:
   ◦ Discussion of the state of agriculture and forest as seen from the Land Use Based Barangay Development Plan (LUP-BDP).
IV. FORMATION OF THE COMMUNITY BASED ORGANIZATION

A Community Based Organization or CBO is an association of people living in the same geographic location and sharing the same problems and potential solutions that the Core Group has identified and discussed based on the LUP/BDP.

Within the CBO and under its structure, people are provided with leadership, membership and capabilities to undertake problem solving process, with facilitation coming from the AT/CO.

The Core Group will:

1. Organize the community meeting specifying purpose, agenda, place, date and time
2. Send notice/invitation to the members of the community. Include existing CBO/s, if any.
3. Present the initially identified, analyzed and prioritized problems on land degradation and abuse of forest and natural resources in the barangay, based on the existing LUP-BDP.
4. Present the idea and get approval for the formation of the Community Based Organization (CBO) for Land and Natural
resource management, OR for the integration of land and natural resource management issues into the existing relevant/appropriate CBO,

5. If using existing CBO, discuss on integration of land and natural resource management issues into its organizational agenda and actions.

6. If new CBO, present the idea to elect CBO leaders and discuss about the process for nomination and election.

7. Present the responsibilities of CBO leaders and their term of office.

8. Start the nomination process. Allow candidates to respond to their nomination.

9. Conduct election in clear and transparent manner. Tally votes and announce election results.

10. Allow newly elected CBO leaders to respond to their election. Meeting should end on time after the election.

11. Discuss to decide on the place, time and agenda for next meeting.

12. Record minutes in writing.

Note: After the Elections and Meeting, the CO will:

◦ Meet with the newly elected CBO leaders, OR the leaders of the existing CBO after the community meeting.

◦ Arrange the time, place and agenda for the immediate formal meeting to discuss about Land and Natural Resource issues.

UDP worked with new organizations, the Upland Community Organizations (UCO) organized at the Sitios, and Upland Barangay Associations (UBA) organized at the Barangays.

V. CAPACITY BUILDING

Capacity Building is the process of developing or enhancing the knowledge, skills, attitudes and experience of the CBO leaders and members to ensure participation, shared accountability, and sustainability.
Capacity Building Process for the UBAs and the UCOs (or similar organizations):

1. Participatory information and skills needs assessment for CBO leaders and community leaders
2. Capacity building plan which included training, orientations, cross visits, forums, consultations, demonstrations and similar participatory activities to develop/enhance knowledge and skills on:
   - Facilitating organization and community meetings
   - Recording of minutes of the meeting
   - Community diagnosis
   - Planning, monitoring and evaluation
   - Communication skills
   - Management skills
   - Organizational development

VI. PARTICIPATORY COMMUNITY ASSESSMENT FOR LAND AND NATURAL RESOURCE MANAGEMENT

This is the facilitated process of identifying specific land and natural resource problem sites, guided by the LUP/BDP. It enables the community, AT/CO and the CBO to:

- Identify which agricultural practices need to be corrected or mitigated, and which part of the forestland can still be protected.
- Determine technical, social and financial resources and support needed
- Determine sources for technical, social and financial support
- Determine what special committees or working groups to create
- Determine range of activities, linking and networking
- Determine sustaining activities/components like sustainable agriculture, natural resource management, enterprise development, savings and credit, marketing and infrastructure such as water and roads.

The LGU, MA, MENRO, AT/CO and BLGU counterparts are needed to participate in this process.
VII. PARTICIPATORY COMMUNITY PLANNING

This is the facilitated process of participatory planning for Land and Natural Resource Management by the CBO and community, based on the above assessment of problems, needed resources, partnerships and concerted efforts towards community problem solving.

Community planning allows members to participate in decision making, thus owning a stake in the problem solving process.

The Plan includes:

1. Objectives
2. Components: sustainable agriculture, natural resource management, enterprise development, road maintenance, institutional development and extension
3. Target groups
4. Tasks
5. Persons/Committees/Groups responsible: AT, BEW, FTG, BLGU, Forest Protection Task Force and similar groups
   At this point, the CBO may create an education/advocacy group like the Farmers Training Group that can work with the AT and BEW specifically on the farming related land and natural resource management concerns, like of slope management, soil and water conservation and trees-based diversified farming systems.
6. Capacity building
7. Resources and sources
8. Strategies
9. Monitoring and Evaluation

VIII. COMMUNITY MOBILIZATION

Community Mobilization is the process of pooling and moving people and their resources towards addressing Land and Natural Resource Management issues of the community.

Capacity building is continuing. CBO may register with appropriate agency for a legal personality. It must put in place its Constitution and By laws and other group agreements.

With the facilitation of the AT/CO, the CBO Leaders will:
1. Oversee and direct the implementation of projects and activities
   Clarify roles of groups/members in projects or activities
2. Delegate responsibilities to appropriate participants
3. Pursue continuing information campaign or advocacy to motivate members to support the projects and activities
4. Follow up commitments of stakeholders
5. Lobby with LGU for resources for the projects or activities.
6. Conduct regular consultation and feedback with community members, LGU, support organizations or partners
7. Manage conflict and initiate team building activities.
8. CBO/AT/CO Lead stakeholders, regularly monitor the implementation process and activities to check, whether the results are achieving the objectives of the desired change.
   Likewise, evaluation must conduct to assess impact, by the community at the completion of the activities.
   Evaluation is the process of assessing the impact of the projects and activities of the community. It is concerned with determining the accomplishments of goals and objectives. The community members should conduct the evaluation themselves at the completion of a project or activity.
9. Organize Participatory Monitoring and Evaluation (PME) Committee to join the AT/CO and partners.
10. Effect prompt reporting

IX. EXIT

Exit is the process whereby the will AT/CO gradually leave management and ownership of the CBO project/activities with the CBO until the organization has achieved self-reliance and capacity to sustain.

A thorough assessment and preparation must be facilitated by AT/CO, LGU and supporting organization to ensure sustainability of the CBO and its commitment to land and natural resources management.

In UDP:

1. UBAs have seats in Barangay Development Councils
2. UBAs had been registered with appropriate agencies; others joined existing coops and become members of the Agriculture and Environment Committees
3. UBAs are linked with LGU and service providers for opportunities for income and resource generation
4. Regional Extension Networks have been formally established among respective PLGUs, MLGUs, BLGUs, State Colleges and Universities, Department of Agriculture, Department of Environment and Natural Resources, National Commission on Indigenous Peoples, Agricultural Training Institute and various Civil Society Organizations
5. The Community-Based Extension Delivery Scheme composed of AT, BEW and FTGs have been mainstreamed into the LGUs and into the Regional Extension Networks.
6. Medium-Term Municipal Extension Plan by the Municipal Agriculturists, “Forestry Extension or Forest Protection” Plan of the MENRO, and the Road Maintenance Plans of the Municipal Engineer have been facilitated to be included in the Annual Investment Plans.
7. Local policy/ordinances supporting conservation farming and tree-based diversified farming systems are well-placed especially at the BLGU and MLGU.
8. A number of LGUs have started working on local policy/ordinances supporting barangay forest protection and management schemes; some few have some already in place..
9. Replications are being facilitated with neighboring municipalities
10. Continuing education and advocacy for sustainable Land and Natural Resource Management has been continuing with the different LGU levels, State Colleges and Universities, Department of Agriculture, Department of Environment and Natural Resources, National Commission on Indigenous Peoples Agricultural Training Institute, various Civil Society Organizations
11. Training of ATs and MAs are mainstreamed with the ATI, in partnership with the LGU and the extension network in the region.
12. Policy support at the national level is being worked out by the Local executives with the facilitation of UDP.
13. A number of agencies having similar themes developed interest in the UDP Land and Natural Resource Management Scheme. This means more sustaining networks when UDP phases out in 2006.
Suggested References:

Beckwith, Dave and Cristina Lopez Community Organizing: People Power from the Grassroots. Center for Community Change. www.comultiversity.org.ph/community_organizer.htm


Pestelos, N. Basic Social Preparation Process At Community Level Extracts from a paper presented at the ASEAN Training Center on PHC Development, Bangkok, Thailand. 1984October.


HANDOUT

MODULE 4  LAND MANAGEMENT

Session 1  Slope Treatment Oriented Practices

A. Importance of the Uplands

1. Uplands are areas above 100 meters above sea level meters (masl) and with slopes above 18%.

2. Importance of the uplands
   • Life support system of the lowlands and aquatic areas;
   • Refuge for the poor;
   • Offer opportunities through farming, mining and forestry;
   • Contain the endangered tropical forest ecosystem;
   • Amplified, yet unattended issues on environmental and socio-economic conditions like poverty, peace and order; and
   • Vast potentials for sustainable development and socio-economic progress.

B. Upland development issues-

The State of the Uplands

1. Denuded landscape
2. Shrinking land vis-a-vis increasing population
3. Inheritance pattern
4. Tenurial forms
5. Degraded soils, soil erosion
6. Increasing agricultural activities

Agriculture in the uplands: trends, issues and concerns

1. Massive encroachment and expansion on “forestlands”
2. Farming and cultivation on steep slopes
3. Destructive farming practices that contribute to soil erosion
4. Poor, degraded soil and
5. Poor and declining yields
6. Monocropping and other inappropriate farming systems
7. Inadequate extension services
8. Settlement, unrestricted cultivation and impracticality of depopulating upland farming communities - the need for practical solutions towards sustainable upland agriculture.

9. The need for land management that promotes appropriate farm planning, integrates soil and water conservation, and shift from monocropping to diversified farming system (DFS) that includes forest and fruit trees, in combination with short and medium-term farm components.

C. Land Management

Definition of Land Management

- Land management is the process of managing the use and development of land resources in a sustainable manner. (From Wikipedia)
- Sustainable land management - is the use of land to meet changing human needs while ensuring long-term socioeconomic and ecological functions of the land

Scope of Land Management

Land management must be integral to both the lowlands and the uplands.

Sustainable land management combines technologies, policies, and activities aimed at integrating socioeconomic principles with environmental concerns, so as to simultaneously:

- sustain and enhance production (productivity)
- reduce production risk, and enhance soil capacity to buffer against degradation processes (stability/resilience)
- protect the potential of natural resources and prevent degradation of soil and water quality (protection)
- be economically viable (viability)
- be socially acceptable, and assure access to the benefits from improved land management (acceptability/equity)

(Smyth and Dumanski, 1993)

Land Management Technologies for the Uplands

1. Slope Treatment Oriented Practices or STOP
2. Soil and Water Conservation or SWC
3. Diversified Farming System or DFS
D. The Slope Treatment Oriented Practices or STOP

**Definition of STOP-**

A tool for land suitability classification designed for farm planning recommending appropriate site-specific soil and water conservation (SWC) measures and land use options.

**Purpose of STOP-**

Promotes appropriate farm planning where:

1. Crops and other components are appropriately matched with slope of the parcels of the land, soil type, depth, slope gradients and other agro-ecological factors
2. Soil conservation is integrated

**The practice of a farm scale land management through STOP**

*(With illustrations in the STOP Field Guide)*

I. Determining farmer’s objectives, farm size, labor, markets for products and current land capability.

II. Steps in conducting STOP

1. “Bird’s eye view” mapping of the various farm land units
2. Measuring the slopes of the various land units by using the slope indicator
3. Determining soil texture and measuring soil depth/presence of top soil
4. Using the STOP table and determining the appropriate conservation treatment and intensity of land use. Note that with STOP, as slopes get steeper and soils become sandier thus:
   - Annual crops are replaced by agroforestry and forestry
   - Spacing of cross-slope barriers gets closer
   - On 45-55% slopes: plant tree crops in micro-basins, preferably using seeds, to encourage a long taproot
   - No hedgerows needed
   - Only forest cover is to be developed from seed above 55%. Tap-rooted species preferred.
5. Filling up the Land Unit Prescription Forms detailing the proposed crops and SWC measures for each land units.

NOTE: There are examples of how to use the LAND UNIT PRESCRIPTION FORM, one showing projected inputs for SWC, and the other showing projected incomes per land unit.

6. Drawing of second map showing the appropriate development interventions

Specific STOP interventions

STOP 1:
Land unit farming- contour farming/ cultivation that promotes terracing and emphasizing appropriate spacing between barriers/hedgerows.

STOP 2:
Multi- storey tree cropping- mixture of fruit trees and industrial crops with different heights replace annual crops on steep and long slopes.

STOP 1- LAND UNIT FARMING

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<th>Slope</th>
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<td>12-25%</td>
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<td>36-45%</td>
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STOP 2: MULTI-STOREY TREE CROPPING

Profile of a slope planted with trees to produce a multi-storey effect

STOP 3:
Mulching and zero tillage- applied where soils are too shallow (less than 100 cm deep) for forming terraces by maintaining present soil depth by preventing further soil movement down slope. Crops that efficiently use ground moisture are recommended.

Prepared by Benhur Viloria, UDP SAD Coordinator.
With inputs from Alexander U. Tabbada, ICRAF Consultant and
Kenneth Proud, UDP Expatriate TA.
VISUAL AIDS FOR FARM PLANNING FOLLOWING STOP APPROACH

Slope Indicator (SI)
Trainer’s Manual on
AGRICULTURAL EXTENSION AND LAND MANAGEMENT

Farm Mapping

Visioning

Classifying Land Units

A = Arable land (12-25% slope)
AF = Agroforestry (25-45%)
TC = Tree crops (45-55%)
F = Natural Forest (>55%)

Give no inputs for cultivating this land
ADDITIONAL READING:

REGULATING AGRICULTURAL LAND USE IN THE UPLANDS

Introduction

A number of countries in the Asian and Pacific Region use land capability classification (LCC) to place strict limitations on certain lands according to their location in the landscape, their slope, and soil depth, texture, and pH. By grouping land units according to their suitability for specific kinds of land use, unsustainable land use practices are avoided on fragile lands, soil and water resources are preserved, and the health of the land maintained until technologies are developed which permit sound exploitation.

In other countries, commercial logging is prohibited on lands above 40%, due to the damage to the watershed functions from logging roads and skid trails. Such areas tend to be classed as protection forests or protected areas. Similarly, slopes above 30% are generally considered unsuitable for oil palm plantations. The cost of building and maintaining the roads, needed to get the palm kernels to the processing plant within 24 hours of harvesting, adversely affects the profitability of the venture, while the 25-40% decline in yields above 400 m elevation, increases the risk of investments.

Classification of the uplands in Southern Mindanao

The uplands in Southern Mindanao are dominated by very steep slopes (>40%) with relatively infertile and fragile soils. Technically speaking, these lands should have been classed as protection forests or protected areas, and access strictly controlled. However, people have been allowed in to settle, and clear the forest cover from very steep slopes of critical watersheds to plant corn and other crops, without any restrictions.

Mountains and hills that should be covered with forests releasing water for irrigation of crops in the lowlands, or for industrial uses lie bare and abandoned. Jungle fruits, resins, and rattans, which could provide additional income to farmers, have all but disappeared. Flooding due to the siltation of rivers has caused billions of pesos worth of damage to productive land and infrastructure in the lowlands.
The 1999 Planning Atlas for Region XI\(^1\) considered the general land development suitability of much of the UDP project areas either as forest conservation areas or not suitable for upland crops or for orchard development. The JICA land capability classification maps of the Davao Gulf Provinces classify over 90% of the UDP-covered barangay areas as not suitable for upland crops, with about 50% of the UDP area considered unsuitable even for orchard crops.

JICA’s gloomy assessment has been validated by reports of declining crop yields and periodic crop failures due to soil erosion caused by cultivating corn and cassava and coconuts on steep slopes. Throughout the UDP area farmers say soils are over 50 cms shallower than 20 years ago. This reduction of 2-3 cm per year is similar to World Bank estimates of soil losses made in the 1980s. In some areas the soils may be too shallow to store enough water to support tree crops, which require soil moisture in the root zone throughout the year. There are indications that extensive areas are degrading into skeleton soils, in which the fine clay and silt particles have been washed away, leaving only the granular, gravelly and stony elements behind. Such “soils” are useless for agriculture have no potential for reforestation.

The Financing Proposal for the Upland Development Programme (see Section 12.1 of Annex 4 of the FP) acknowledges that it is too late to move the one million people living in the uplands onto other land, adding that the solution to arresting the environmental degradation in the uplands can only be tackled by changing the “present farming system of annual corn-based cropping to one which is more appropriate with permanent and diversified cropping systems”.

**Slope Treatment-oriented Practices (STOP)**

While JICA’s blanket assessment that the uplands are unsuitable for upland crops and orchards holds true at the macro-level, there are a number of fairly extensive, but localized areas where these crops can be grown sustainably. These areas are mainly restricted to hill tops and slopes <55%, with loam and clay-textured soils. Within these areas, a number of low-cost, low risk, soil and water conservation interventions involving slope management, yield-increasing cropping strategies, and tree planting techniques have been identified. If followed correctly, these should promote a more

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sustainable agriculture, and improve farmers’ incomes, provided they diversify their farming system.

Consequently, UDP has developed a slope treatment-oriented practices (STOP) land capability classification, for micro-planning at the farm level. The cultivation of annual crops is restricted to minor valleys and flat to gentle slopes, or upper slopes where terrace formation has reduced slope gradients. Steeper slopes are reserved for planting mixtures of tree crops that mimic the multi-storey canopy of the original rain forest. Shallow, truncated soils may be able to support certain short-term crops (e.g. *monggo* (mung beans), pigeon pea and pineapples) without turning the soil, provided zero tillage techniques are used to plant the crops through deep layers of mulch.

By taking into account the wide range of soil and environmental conditions, farm sizes and farmer objectives that occur in the project area, STOP enables field technicians to identify the appropriate site-specific land management strategies for a given farm. Significantly, STOP recognises that leguminous hedgerows (e.g. SALT) are not effective in controlling soil erosion on long slopes, particularly on slopes steeper than 20%.

**Using STOP to regulate land use in the uplands**

While barangay development plans zone the areas into broad land use classes, STOP is used to map out and sub-zone the farm level into slope classes (land units) and to provide prescriptions recommending the crops and SWC measures needed for each slope class.

STOP can be used to support policy intended to regulate land use in the uplands and prevent further degradation of erodible lands. For example, for an upland farmer to receive a land title, he should be required to present two maps of his land: one showing the distribution of the various land units based on slope, and the second showing the SWC measures to be applied. Prescription forms, giving details of the soil textures and depths and proposed land uses, must accompany the maps. The BEW should verify the accuracy of the maps, and the MAO should approve the prescriptions regarding crops.

In the past, DA programmes aimed at job creation and agri-business have inadvertently encouraged the use of very erodible, sloping land for clean-tilled crops such as corn and cassava. To avoid this happening in future, a farmer wishing to participate in such programmes should first present the maps and land unit prescriptions as part of the applications. These will show whether the farm has the gentle slopes, sufficiently
deep soils, and the appropriate SWC measures already in place, to ensure he will both make money while maintaining the productivity of the land. If the soils are too shallow to store enough moisture to meet the crop’s requirements, or if the SWC measures are inadequate, or slopes too steep, then the application should be rejected.

Similarly, cassava cultivation programmes should ensure that participation does not cause irreversible damage to the land, for example, by requiring the farms to have deep free-draining, preferably loamy soils, with little stoniness, on flat to gentle slopes (<12%) or on properly terraced upper slopes. Applicants should be rejected if their farms do not meet these basic requirements, or if the areas suitable for cassava production do not meet the minimum area needed.

Before being accepted on any programme, farmers should be required to show they have diversified their farming systems, to the extent that other crops are providing them with sufficient income to meet their daily needs and to cover the interest payments on loans from the programmes. Otherwise, participation could lead to an increase in poverty.

The STOP prescription forms enable farmers to compare the incomes expected from different crops on the same area of land. Many farmers have found that they are spending more money on labour and inputs producing crops such as corn and cassava than they get from selling the crops. Even farmers with corn yields as high as 18,000 kg/ha/yr (from three crops) are discovering that a switch to bananas and fruit trees will give them higher returns, and free their labour for use elsewhere, while reducing soil losses by erosion.

However, there are many areas where soil and water conservation interventions cannot be safely implemented without increasing the erosion hazard, due to the configuration of the land (slope length and shape), highly erodible lahar soils, or severely truncated soil profiles. The DA and UDP should leave the decision to the DENR Secretary as to whether it is in the public interest that upland farmers be permitted to continue to try farm to these lands.
References:


STOP Fieldwork Guide

STEPS IN USING THE SLOPE TREATMENT ORIENTED

STEP 1: Draw a map showing the distribution of land units on farm

- Go to the highest point on the farm, if practical, and draw a “bird’s eye” view of the whole farm (not an oblique view of one hectare).

- Obvious changes, or breaks in slope indicate a change from one land unit to another.

- Identify each land unit with a number on the map.

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<td>Cross-slope barriers (Napier, etc)</td>
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<td>Direct planting from seeds</td>
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<td>Eye brow terraces</td>
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Ring weeding and mulching

WW | Contour ploughing

LAND UNIT AND SLOPE MAP
STEP 2: Determine the slope using SLOPE INDICATOR

The Slope Indicator (SI) is a tool used to estimate the slopes to guide various land use options. It is made of a handy and durable acetate sheet with horizontal and a vertical axis. It can help locate the least steep areas or those with best potential for arable cropping.

1. Attach a weight, e.g. a large paper clip or a ball pen, to a 30 cm long piece of string or thread. This is the *plumb bob* that ensures the *Slope Indicator* is level.

   a) Clip the *plumb bob* securely to the *Slope Indicator* using a bulldog clamp or paper clip and position the *plumb bob* so it coincides with the vertical axis on the *Slope Indicator*.

![Diagram of Slope Indicator](image)
b) Hold the *Slope Indicator* upright and tilt it until the string of the *plumb bob* exactly follows the vertical axis. The *Slope Indicator* is then level. Keep the *Slope Indicator* level and line it up along the farm slope. Note which lines on the Indicator the farm slope falls between. This is the approximate gradient of the land.

**STEP 3: Determine the soil texture in the field**

It is important to know the texture of the soil because this is one factor that affects soil erosion and water holding capacity or water retention.

For example, sandy and sandy loam soils are more erodable than other textures, especially when cultivated/plowed. These soils also have lower water holding capacity. Crops may tend to suffer from severe moisture stress, even during the rainy season.

After determining the slope of the land, follow the instructions in the following *Hand Tests to Determine Soil Texture in the Field* to identify the soil type on the land. For each major change in slope you should check whether there has been a change in soil texture.
HAND TEST TO DETERMINE SOIL TEXTURE IN THE FIELD

The extent to which moist soil can be shaped by the hand is indicative of its texture.

METHOD

1. Pick up a handful of soil (without stones) from the slope.

2. Slowly drip water on to the soil and mix it well into the soil until it starts to stick to the hand.

3. Form the sample according to each picture below until the next one is no longer possible:

1) The soil remains loose and single grained and can only be heaped into a pyramid:

   ![SAND (1)]

   SAND (1)

2) The soil contains sufficient silt and clay to become cohesive and can be shaped into a ball that easily falls apart:

   ![LOAMY SAND (2)]

   LOAMY SAND (2)

3) The soil can be rolled into a short thick cylinder:

   ![SILT LOAM (3)]

   SILT LOAM (3)
4) The soil can be rolled into a cylinder about 15 cm long: LOAM (4)

5) The soil can be bent into a U: CLAY LOAM (5)

6) The soil can be bent into a circle that shows cracks: LIGHT CLAY (6)

7) The soil can be bent into a circle without showing cracks: HEAVY CLAY (7)

Note: Texture classes (1) to (4) are sandy to silty soils and generally have good infiltration. Texture classes (5) to (7) are clayey soils that have generally poor infiltration but have a higher potential for arable agriculture.

STEP 4: Using the STOP table, determine the appropriate conservation treatment and intensity of land use. *Note that with STOP, as slopes get steeper and soils become sandier thus:* Fill out the land unit prescription form (attached)
STEP 5: Fill out the land unit prescription form (attached)

**NOTE:** There are examples of how to use the LAND UNIT PRESCRIPTION FORM, one showing projected inputs for SWC, and the other showing projected incomes per land unit.

STEP 6: Prepare the map showing layout of SWC measures.

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Cross-slope barriers (Napier, etc)

0 Direct planting from seeds

● Eye brow terraces

Ring weeding and mulching

WW Contour ploughing
Discussion Points for Participating ATs:

1. What do you think of regulating agriculture land use in the uplands?
2. What do you think hinders farmers to practice proper land management in their area?
3. Considering the detailed requirements and specific steps of STOP, do you find this practical/feasible for most upland farmers?
## LAND UNIT PRESCRIPTION FORM

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<td>Corn: sacks kg</td>
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* Describe as Crest, Ridge, Spur, Upper Slope, Mid-slope, Foot slope, Minor valley  
+ Describe as: Convex, Concave, Straight or Compound (i.e. Concavo-Convex)
LAND UNIT PRESCRIPTION FORM

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Cooperator: __________________________________________  Signature ________________________________
MODULE 4 LAND MANAGEMENT

Session 2 Soil And Water Conservation In The Uplands

A. Role of soil and water in upland agriculture

Soil and water are the primary resources in upland agriculture. Nutrients needed for plant and animal growth, whether these are applied or naturally occurring, are mostly found in the topsoil. Soil organisms that are beneficial to plants are also found in the soil.

Water is another vital resource for plant growth. However, if this is not properly managed, it can become a threat to the soil.

When the topsoil is removed by soil erosion, the nutrients are also removed, thus, depriving the plants of the needed elements. Biological activities in the soil are also affected. Eroded soil settles on riverbeds, lakes, irrigation canals, or on low-lying fields, usually in the lowlands.

Water constitutes 80 to 90% of agriculture. Crops and animals need it for growth and development. When water is limited, agricultural production is also limited.

B. Soil erosion and the factors affecting it

Soil erosion is the detachment of soil by rainfall or other agents such as wind and gravity, with water is the most important agent. What is removed during erosion is the topsoil, the most fertile part of the soil profile. Large amounts of soil humus and available nutrients are lost resulting to loss of soil fertility. In various parts of the globe, loss of soil fertility has been identified as the major cause of poverty in the uplands.

(Note: The Resource Person presents the diagram showing the effects of soil erosion on soil fertility and productivity and its impact on poverty.)

The extent of soil erosion is affected by a number of factors.
1. **Rainfall.** High intensity and long duration makes rainfall more erosive.

2. **Soil erodibility.** The vulnerability or resistance of the soil to surface erosion is affected by some certain properties such as:
   - Texture - the fineness and coarseness of soil particles
   - Structure - the arrangement of primary particles into aggregates
   - Depth - the depth of the remaining top soil, if any

3. **Vegetation.** More and wider plant or tree cover reduces the erosive effects of rainfall on the soil. Leaves break the velocity of rain thus reducing impact on the soil.

4. **Slope.** The steeper and longer the slope, the degree of soil erosion is higher as an effect of velocity.

5. **Farming practices.** Continuous open field cropping, especially on steeper slopes, enhance soil erosion. Monocropping leaves some areas uncovered thus rendering them open to erosion. Also, “kaingin”, and the so-called “clean culture” or “weed-free” approach to farming are in fact doing more harm than good as it makes the soil vulnerable to erosion.
THE CYCLE OF POVERTY IN THE UPLANDS

A. U. Tabbada, 2005
The Cycle of Poverty in the Uplands

- The lack of awareness on appropriate farming technologies, coupled with the lack of concern of farming households on the value and importance of soil & water conservation (swc) influence their decisions as to what farming practices they should use in the light of their available resources.

- Lack of concern on the value of soil & water conservation can be reflected by the inappropriate farming practices. These practices may not have swc measures.

- Inappropriate farming practices lead to soil erosion and degradation as an effect of surface run-off. Without the top soil, where nutrients for plant growth are found, crops are deprived of food.

- Soil degradation leads to low productivity and income of upland farms. In short, poverty.

- If there is no change in the attitude or concern on soil & water conservation, the farming practices may remain the same, if not worse, even if there may be an increase in farm income.

- If there is no improvement on the farming practices (towards swc), soil erosion and degradation will continue until such time that there is no more top soil left.

- If soil erosion is not checked, farm productivity and profitability get lower and lower.

- If farm productivity and income remain the same, or keep on declining, the farmer may not even consider instituting swc measures, especially if these are unfamiliar to him/her and would involve additional cost (money and time or labor) and result to reduction in production area.
The Cycle of Poverty in the Uplands

- Inasmuch as the farmer has the decision, any intervention to break the cycle of poverty should be directed to him/her.

- Possible interventions: value re-orientation, awareness building and capacity building.

C. Soil and water conservation: principles and strategies

Erosion can be controlled by (a) protecting the soil, (b) reducing soil susceptibility or (c) combining protection and reducing susceptibility.

The soil can be protected by canopy or ground cover provided by trees and crops. Materials from the farm or from external sources can be used to increase soil cover and reduce exposure to erosive elements such as rainfall.

Reducing the length and steepness of slope reduces velocity of runoff, thus, protecting the soil also.
Improved soil management such as incorporating crop residues, animal manure and other forms of organic fertilisers improves soil structure, thus, increasing water holding capacity.

Minimising tillage or cultivation and proper cropping sequence and arrangement protects the soil and reduces vulnerability to erosion.

D. Soil and water conservation practices: options for upland farmers

Upland farmers have a basketful of soil and water conservation practices to choose from. Depending on the slope (length and steepness), soil depth and texture, available materials and farming objectives, a strategy option may involve one or more of the following practices:

**Agronomic practices**

1. **Diversified or integrated farming** - establishing different components (i.e., annual crops, fruit and/or forest trees, livestock, inland fish, leguminous hedgerows, etc.) that support one another. The components are located in appropriate parcels or parts of the farm such that cultivation in steep slopes is minimized or avoided while providing barriers to erosion in gentle slopes.

2. **Multiple cropping** - the cultivation of two or more crops on the same piece of land to increase farm productivity, diversity and soil stability. The practice makes efficient spatial use of resources by matching the crop combinations to the various bio-physical environments of the farm.

   a. **Intercropping** - growing two or more crops simultaneously in the same field with the period of overlap being long enough to include the vegetative stage. Intercropping increases productivity and marketing opportunities while providing protection to the soil from erosion by means of vegetative cover. Competition for soil nutrients, moisture and light should be avoided if optimum productivity is to be desired. Compatibility between and among the different crops must be taken into consideration in order to avoid problems on pests, diseases and allelopathy.
b. Relay cropping - planting of two or more annual crops simultaneously such that the second crop is planted between the rows of a standing crop with minimum soil disturbance after the latter has flowered or nearing its harvest. For example, mungbean or peanut may be relayed to corn. This practice reduces soil erosion as it maximises the utilisation of residual soil nutrients and moisture.

3. Agroforestry - planting of trees on farm to increase farm productivity and profitability while protecting sloping lands and regenerating degraded soils. The kind or species of trees to be planted may respond to the needs for wood, food, medicine, fertiliser, soil conservation, fodder, fuelwood and others.

4. Alley or strip cropping - growing crops in alleys or strips between leguminous hedgerows or other barriers along contour lines. With alley cropping, soil erosion is minimised as sediments are trapped at the base of the hedgerows or other barriers that also reduce surface runoff velocity. The barriers facilitate the eventual formation of bench terraces over time.

5. Minimum tillage - growing of crops with minimum soil cultivation for erosion control and moisture conservation. This method also saves on labor cost particularly on land preparation. Where there is only a thin layer of topsoil left, minimum tillage is a logical option.

6. Cover cropping - planting of leguminous cover crops such as forage peanut (*Arachis pintoi*) and kudzu (*Pueraria phaseoloides*) to protect the soil from erosion, help conserve soil moisture and provide nitrogen. Like minimum tillage, cover cropping is worth considering especially when the topsoil is almost gone.

7. Mulching - utilising materials from the farm such as dried leaves that can be used to cover the soil for erosion control, weed control and moisture conservation. When decayed, the mulching material becomes an organic fertiliser for the plant.

8. Contour farming - cultivation and planting along the contour. Using devises such as the A-frame, contour lines are established and used as guides in tillage and planting operations.

9. Application of organic matter - increasing the organic matter content improves soil structure thus enhancing the water holding
capacity of the soil. Organic matter can be produced in the farm by composting plant and animal wastes. Plowing in or leaving crop residues in the soil also increases organic matter.

Vegetative barriers

1. **Contour hedgerows** - shrubs are planted along the contour line to serve as barriers to soil erosion. The spacing between hedgerows is dependent on the steepness of the slope. Commonly used hedgerows are leguminous rensonii and flamengia. Non-leguminous vetiver grass is also used because of its good soil-holding quality. Hedgerows reduce the length of the slope thus reducing the effects of surface runoff.

2. **Natural Vegetative Strip (NVS)** - low-cost approach to soil conservation. NVS is formed by simply leaving a half-meter-wide grass strip along the contour during land preparation. The NVS is maintained by pruning before and during succeeding cropping seasons. The soil erosion control function of NVS can be enhanced by planting additional barrier plants such as leguminous shrubs. Like a planted hedgerow, NVS breaks the length of the slope.

Non-vegetative/Physical barriers

1. **Bench terrace** - construction of benches along the contour (or across the slope) using the “cut and fill” method to break the flow of runoff water. The width of a bench depends on the slope. When done manually, this practice requires lots of farm labor.

2. **Rock wall** - piling of rocks following the contour line in order to establish a physical barrier to soil erosion. This is an appropriate option and alternative to leguminous hedgerows when there is an abundance of rocks in the farm or in the area.

3. **Pole barrier** - construction of fence-like structure along the contour using ipil-ipil or other locally available poles. The poles can be reinforced with twigs, branches and other farm materials.

4. **Trash bund** - piling of farm trash such as small stems, branches and twigs of trees and shrubs; banana stems and coconut husks along the contour line to help minimise erosion. Stakes as support may be needed to prevent the trash bund from being carried away by runoff water especially during heavy rains.
Drainage and diversion structures

Contour ditch/drainage canal - following the contour line, construct ditches to serve as drainage for water and minimize erosion losses. It is better to start constructing ditches at the upper portion of the slope. The distance between ditches depends on the slope. This may follow the hedgerows or vegetative strips. As a general rule, the steeper the slope, the closer the ditches.

E. Soil And Water Conservation Measures

Some Advantages and Limitations

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<tr>
<th>SWC Measure or Practice</th>
<th>Advantages</th>
<th>Limitations/ Requirements</th>
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<tr>
<td>AGRONOMIC</td>
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<tr>
<td>Diversified/ Integrated Farming</td>
<td>Responds to short, medium and long term needs for food, income and soil protection Components are inter-related to one another</td>
<td>Needs much time to analyse and plan the development of the whole farm system</td>
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<tr>
<td>Multiple cropping (farm-wide)</td>
<td>Increases productivity per unit area Increases crop diversity and soil stability</td>
<td>Needs analysis of crop combinations to avoid or minimize crop competition, spread of pests and diseases and allelopathy</td>
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<td>Intercropping</td>
<td>Increases productivity per unit area (more crops grown at the same time in the same piece of land) Increases crop diversity Increases vegetative cover</td>
<td>Needs analysis of crop combinations to avoid or minimize crop competition, spread of pests and diseases and allelopathy</td>
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<tr>
<td>Relay cropping</td>
<td>Increases crop diversity Maximises utilization of residual fertilizer and moisture</td>
<td>Needs care in planting relay crop so as not to damage standing crop</td>
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<tr>
<td>SWC Measure or Practice</td>
<td>Advantages</td>
<td>Limitations/Requirements</td>
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<tr>
<td>Agroforestry</td>
<td>Reduces soil disturbance, Responds to short, medium and long term needs, Rejuvenates degraded soils (by way of nitrogen-fixing trees and OM from leaves of trees, especially leguminous ones), Increases biodiversity, Increases vegetative cover</td>
<td>Needs analysis of tree-crop combination to avoid or minimize competition, spread of pests and diseases and allelopathy.</td>
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<tr>
<td>Alley or strip cropping</td>
<td>Responds to short, medium and long term needs (if trees are planted in the farm), Increases diversity, Provides barriers to soil erosion, Components are inter-related to one another</td>
<td>Reduces cropping area, Needs analysis of crop combinations to avoid or minimize crop competition, spread of pests and diseases and allelopathy</td>
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<tr>
<td>Minimum tillage</td>
<td>Reduces soil disturbance, Saves on labor</td>
<td>Reduced soil aeration</td>
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<tr>
<td>Cover cropping</td>
<td>Provides physical cover to the soil (and reduces impact of rainfall), Contributes to soil fertility (when leguminous crop is used as cover), Conserves soil moisture</td>
<td>Needs additional investment on seeds or other planting materials</td>
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<tr>
<td>Mulching</td>
<td>Utilises farm wastes, Conserves soil moisture</td>
<td>Needs labor in spreading the mulch</td>
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<tr>
<td>Contour farming</td>
<td>Provides barriers to soil erosion</td>
<td>Involves time in locating the contour lines</td>
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<tr>
<td>Application of organic matter</td>
<td>Increases water-holding capacity of soil, Increases soil fertility, Improves soil structure</td>
<td>Needs supply of organic materials, Needs labor in application</td>
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<tr>
<td>SWC Measure or Practice</td>
<td>Advantages</td>
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<tr>
<td>VEGETATIVE BARRIERS</td>
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<tr>
<td>Contour hedgerows</td>
<td>Breaks the length of the slope, thus, reducing velocity of run-off</td>
<td>Reduces production area Additional investment (on seeds of leguminous hedgerows or other plant materials during establishment)</td>
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<td>Natural Vegetative Strips</td>
<td>No additional investment in establishing Breaks the length of the slope, thus, reducing velocity of run-off Provides barrier to soil erosion Does not compete with crops in the alleys Easy to maintain</td>
<td>Limited biomass</td>
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<td>NON-VEGETATIVE BARRIERS</td>
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<td>Bench terrace</td>
<td>Reduces effects of surface run-off</td>
<td>Needs lots of labor for “cut-and-fill”</td>
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<td>Rock wall</td>
<td>Utilises rocks or stones in the area (thus, clearing the area of rocks)</td>
<td>Needs lots of labor to establish</td>
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<td>Pole barrier</td>
<td>Utilises poles and other farm debris available in the area</td>
<td>Reduces vegetative/tree cover</td>
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<tr>
<td>Trash bund</td>
<td>Utilises farm trash</td>
<td>Cannot last long as it</td>
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<tr>
<td>SWC Measure or Practice</td>
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<td>Eventually decays and becomes fertiliser</td>
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<td>May harbor pests</td>
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<td><strong>DRAINAGE AND DIVERSION STRUCTURES</strong></td>
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<tr>
<td>Contour ditch/drainage canal</td>
<td>Diverts water and reduces effects of erosion</td>
<td>Needs labor in establishing and maintaining ditches and canals</td>
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Prepared by Alexander U. Tabbada, ICRAF Consultant and Team Leader, UDP-ICRAF Collaborative Project.
Suggested References


Contour lines are usually established with the aid of surveying equipment, but practical instruments could also be used. A simple, easily constructed and most commonly used instrument is the A-frame. This is cheap and could be constructed using locally available materials.

I. Making an A-frame

1. Secure the following materials:
   - three wooden or bamboo poles about 4 cm in diameter, two of which should be around 2 m in length and the other about 1 m
   - sturdy string for tying or nail
   - a rock about the size of a fist or any similar heavy object to serve as bob

2. Tie tightly or nail the two longer poles at one end, about 10 cm from the end. The poles will serve as the legs of the A-frame. Make sure the poles are securely fastened to prevent them from slipping.

3. Spread the A-frame's legs and brace them with the shorter pole to make a figure “A”. Tie tightly or nail the crossbar (about 10 cm from each end) to the middle of the legs of the A-frame. The crossbar will support the legs of the frame and will serve as guide in determining the level ground position.

4. Tie one end of the string to the midpoint where the two legs of the A-frame are joined.

5. Tie the other end of the string to the rock or any object for weight to serve as bob. The object should be heavy enough so that when suspended, it will not sway with the wind. The rock should hang about 20 cm below the crossbar.

II. Calibrating the A-frame

Before using, it is necessary to calibrate the A-frame to ensure accuracy. Calibrating the A-frame is finding its level mark. The following are the procedures in calibrating the A-frame:
1. Locate a reasonable level ground and place the A-frame in an upright position. Mark the spots where the legs (A and B) touch the ground. Mark on the crossbar where the bob string crosses.

2. Reverse the position of the A-frame’s legs such that leg A is exactly on the same spot where leg B was and vice versa. Again, mark on the crossbar crossed by the bob string.

3. If the two marks are exactly on the same spot, this means that you have found the level mark of the A-frame and that the A-frame is standing on level ground. If the two marks are separated, mark the midpoint between them and that becomes the level mark of the A-frame.

4. Two points on the ground touched by the A-frame legs are of the same level if the bob string crosses at the level mark of the frame.

5. Check calibration from time to time.

III. Establishing the Contour Lines Using the A-frame

1. One person holds the A-frame while another marks the located contour lines.

2. Drive the first stake at the boundary of the area and position one leg of the A-frame beside and just above it.

3. Locate a spot in the ground that is of the same level with the first leg by adjusting the location of the second leg, such that the bob string crosses at level mark of the A-frame. Mark this point on the ground by driving another stake just below the second leg.

4. Make the A-frame and place the first leg to exactly where the second leg previously was. Repeat steps 1-3 until the contour lines are determined for the whole area.
Suggested References:


MODULE 4  LAND MANAGEMENT

Session 3  Diversified Farming System

A. Diversified Farming System and its components

1. Definition/description -
   
   Sustainable farming system that highlight the function and integration of its various components namely:
   
   • Farm household
   • Food lot
   • Cropping area for short, medium and long term
   • Livestock and fisheries production area
   • Agroforestry component
   • Soil and water conservation measures
   • Spring water source and protection measures

   Maximizing farm production per unit area by adding/integrating more crops (both sequentially or spatially) and recycling of farm wastes to be use as organic fertilizer or even fodder for livestock

   Various technologies that are similar and containing DFS principles
   
   • Sloping Agricultural Land Technologies (SALT 1 to 4)
   • Agroforestry
   • Land Care and Natural Vegetative Filter Strips (NVS) technologies
   • Conservation Farming
   • Integrated Farming Systems

B. The advantages and limitations of monocropping farming system

1. Monocropping means easier farm planning and management
2. Monocropping leaves farmer no options/alternative products in case of crop failure
3. Inadequacy/inability of farm to produce basic food to meet the nutritional needs of the family, and uncertainty of food security
4. Diminishing soil fertility which cause declining crop yields leading to poverty
5. Proliferation of undesirable soil micro-organisms, insects and pests accustomed to monocrops thus enhancing infestation and rapid disease outbreaks.
6. Monocropping leads to soil nutrient imbalance and eventually poor soil quality
7. Soil degradation is not only brought by erosion but hardening of the soil structure due to insufficient level of organic matter.
8. Family labor is constrained during the monocrop planting periods and is unequally distributed within the year.
9. Portions of farm remain idle in certain parts of the year thus lessening production opportunities.
10. Monocropping is ecologically and economically unstable.

C. The advantages and limitations of farm diversification

1. Maximum production and profitability with sustainable utilization of farm resources
2. By maximizing income on limited land, DFS minimizes the land pressure on forest land caused by encroaching and expansion of unsustainable farming practices
3. Reduce risks and function as a back-up system for mono-crop failures due to factors like pest, diseases, drought etc. Diversity of marketable products also serves as an effective buffer against economic and biological risks.
4. Increase in vegetative cover brought about by multi-cropping also mean reduced soil erosion problems. Biodiversity could also be enhanced by providing a conducive environment for more variety and balanced population of organisms.
5. Establishment of permanent crops like timber and fruit trees which serve as “pension” and “education” plans for the household and double as permanent vegetative cover for soil and water conservation.

6. Equitable distribution of farm labor all year round providing more opportunity for self-employment.

7. As crop rotation is a necessary practice in DFS, there will be reduced incidence and economical control of crop pests, diseases and invasion of weeds.

8. DFS shows the possibility of harmonizing the concerns on resource conservation and improvement of income.

9. Integrates indigenous knowledge and local practices.

D. Considerations for a successful and functional DFS

1. Production that would address various household needs-
   - Clean and safe food for the family
   - Additional Income
   - Shelter
   - Fodder for livestock
   - Fuel wood
   - and even medicine (trees with medicinal properties and herbal gardens)

2. Environmental service which has long term impact and benefits
   - Establishment of barriers and SWC measures that would arrest land degradation
   - Soil amelioration and restoration of soil fertility
   - Establishment of more trees and vegetation that provides shade and soil cover facilitates cooling and even micro-climate change
   - Tree establishment, not only as boundary markers/fence but function also as windbreaks

3. Socio-economic benefits specifically for securing land tenure and proper land management that could assure technical and financial assistance in the future.

4. Facilitates the ready adoption by other farmers not only of its economic and environmental benefits.
E. Activities that promote DFS and proper agriculture land management

1. Crop matching that emphasize integration and crop suitability to existing soil characteristics and other agro-ecological factors (e.g. weather, slope limitation etc.)
2. Establishment of appropriate soil and water conservation measures
3. Proper land cultivation and soil management that help in moisture retention, nutrient regeneration and improvement of soil pH)
4. Use of improved quality of planting materials and livestock/fish breeds
5. Relay cropping, crop rotation technologies and multi-storey farming technologies
6. Judicious use of inorganic fertilizers (as a fast acting nutrient source) in complement with organic fertilizers (for improving soil texture and long term quality) for improved crop production
7. Practice of integrated pest (including weed) management technologies
8. Improved farm practices from land preparation, grow-out to harvest, post-harvest and marketing

Prepared by Benhur Viloria, UDP SAD Coordinator.
With inputs from Alexander U. Tabbada, ICRAF Consultant.
Suggested References:

(Various UDP publications on DFS, IFS and STOP.)

Additional Reading:

AN INTRODUCTION TO DIVERSIFIED FARMING SYSTEMS (DFS)

Much of the uplands are dominated by very steep slopes and infertile, shallow, highly erodible soils unsuitable for the sustainable production of annual crops. There are also distinct climatic differences between the northern and southern parts of the project area.

Diversifying farming helps promote viable smallholder livelihoods in poorly endowed biophysical and socio-economic environments. However, it also requires recognition that the land itself imposes limitations on what is ecologically sustainable.

Slope treatment-oriented practices (STOP) have been developed to assist extension workers identify appropriate site-specific solutions that take into account the wide range of soil and environmental conditions, farm sizes and farmer objectives that occur in the project area.

Diversified farming systems have the potential to ensure food security, both in terms of increased production and productivity and in terms of income generation.

UDP strategy for DFS

The following strategies encourage DFS:

- Lessen dependence on a single crop by encouraging a mixture of short-term, medium-term and long-term crops.
- Move towards dualistic cropping systems where the area under perennial crops is increased, while the area under annual crops is reduced. UDP recognises that self-sufficiency in food is a more important consideration to many upland farmers than the higher income provided by cash crops. Farmers are encouraged to produce sufficient food to feed their households until such time as tree crops produced regular and reliable incomes sufficient to purchase household staples.
- Switch from crops with weak market prospects to ones for which the demand is likely to increase.
- Encourage the production of crops that have an assured local market, but discouraging high-input of labour low-output cash crops, such as cassava and corn, which also cause severe erosion.
- Encourage crops that can be processed by local industries (bananas, mangoes), excluding corn and cassava.
Include small animal production units in the farm (goats, chickens, fish ponds).

By increasing the profitability of farming and by reducing the areas of land required to meet the demand for staple crops, both the need for and the possibility of diversification of agricultural production can be increased.

A simple way of increasing farm income is to grow crops that produce a high value per unit area. Table 1 shows the areas needed to generate one month’s income (n.b. not monthly incomes) for a range of crops. Cassava and corn produce low incomes from large areas, while fruit trees and vegetables generate high incomes from small areas.

Table 1. Crop yields vs prices and areas needed to generate one month’s income of P4,800 (production costs not included)

<table>
<thead>
<tr>
<th>CROP (year of data)</th>
<th>Ave. Yield mt/ha/yr</th>
<th>Farmgate price (PhP/ kg)</th>
<th>Av. Yield (kg/10m^2/yr)</th>
<th>Income (PhP/10m^2)</th>
<th>Area of UNIT needed to earn one month’s income of P 4,800 (Sq metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASSAVA (2000) 1</td>
<td>6.42 *</td>
<td>3.55</td>
<td>1.93 (dry roots)</td>
<td>5.78 (SMC price)</td>
<td>8,307</td>
</tr>
<tr>
<td>COTTON (2003) 2</td>
<td>0.9</td>
<td>19</td>
<td>0.9</td>
<td>17.1</td>
<td>2,807</td>
</tr>
<tr>
<td>CORN (2004) 2</td>
<td>4.0 (from 2 harvests)</td>
<td>7.0</td>
<td>4.0</td>
<td>28.0</td>
<td>1,710</td>
</tr>
<tr>
<td>LANZONES (2003) 1</td>
<td>3.04</td>
<td>20.53</td>
<td>3.04</td>
<td>62.41</td>
<td>769</td>
</tr>
<tr>
<td>EGGPLANT (2000) 1</td>
<td>8.31</td>
<td>8.34</td>
<td>8.31</td>
<td>69.31</td>
<td>693</td>
</tr>
<tr>
<td>PAPAYA (2003) 1</td>
<td>14.67</td>
<td>5.85</td>
<td>14.67</td>
<td>85.82</td>
<td>559</td>
</tr>
<tr>
<td>OKRA (2003) 1</td>
<td>9.00</td>
<td>9.58</td>
<td>9</td>
<td>86.22</td>
<td>557</td>
</tr>
<tr>
<td>BANANAS (2003) 1</td>
<td>13.1</td>
<td>6.70 (lakatan)</td>
<td>13.1</td>
<td>87.77</td>
<td>547</td>
</tr>
<tr>
<td>MANGO (2003) 1</td>
<td>6.42</td>
<td>18.55 (carabao)</td>
<td>6.42</td>
<td>120.02</td>
<td>400</td>
</tr>
<tr>
<td>DURIAN (2003) 1</td>
<td>3.45</td>
<td>42.65</td>
<td>3.45</td>
<td>147.14</td>
<td>326</td>
</tr>
<tr>
<td>PINEAPPLE (2003) 1</td>
<td>35.61</td>
<td>6.73 (Hawaiian)</td>
<td>35.61</td>
<td>239.66</td>
<td>200</td>
</tr>
</tbody>
</table>
The advantages of diversifying into medium- and long-term crops are obvious. A combination of one unit of lansones, four units each of bananas, mango and durian, with 6 units of pineapple, and a vegetable patch of one unit each of eggplant and okra, earn the farmer P 100,000 (21 months’ income per year) compared to P4,800 (one month’s income per year) from the same area of 8,300 m² if he grows cassava*. (N.b. the income from mangoes is reduced by 60-70% if a contractor’s services are used for spraying, bagging, harvesting etc. Nonetheless, with the right mix of crops, and optimum spacing of plants, an annual income of P100,000/ha/yr is realistic)

Okra, eggplants and bananas can become monthly income generators. Adding goats, pigs, fish ponds etc. will give the farmer extra income. The wider the range of production units the less the impact on the household’s income should there be a drop in the price of several of the products.

Farmers are now becoming aware that corn and cassava as cash crops are losers in all senses: they lose income, lose soil and waste labour. The six or so operations needed to get a harvest of corn involve the equivalent of one person walking 80 km!

Examples of the “end product” of DFS and dualistic farming can be seen in some barangays in Santa Cruz, Davao del Sur; and in many areas of Davao del Norte. In these areas the farmers have multi-storey plantations of coconuts and fruit trees, with small areas for growing vegetables for home consumption. The income from the fruits is sufficient for the family needs, covering household food requirements, education, etc. Because little labour is spent on growing food the people are able to further boost their incomes by working for other people.

Farmers with only very steep slopes to cultivate are being encouraged to switch from corn to bananas and fruit trees. Widespread and continuous cultivation of corn and cassava on steep slopes is reducing soil depths by 2-4 cm per year. If this continues, there is a danger that there may be insufficient soil left to support any crop. In Vietnam, for example, the continuous cultivation of hill rice and cassava has resulted in over one million hectares of skeleton soil with no potential for forestry or agriculture. Farmers are now realizing that, unlike

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* For example, SMC needs one million ha of cassava to supply their product requirements. Newspapers (e.g. TODAY, Jan 27 2005 edition) report that farmers are being told they can earn up to P45,000/ha/yr at a farm gate price of P3.0/kg of dried cassava. But this requires fresh weight yields of 50 tonne/ha/yr of cassava, whereas the national average production of cassava dropped from 8.4 t/ha/yr in 2000 to 7.0 t/ha/yr in 2002. (BAS/ PCARRD).
the declining yields of corn and cassava, groves of fruit trees produce increasing yields and income over time.

Diversification of crops is easier for farmers whose land includes minor valleys, where irrigated vegetable production is feasible, and gently sloping hilltops and ridges, which can be terraced. Unfortunately, the destruction of forests is reducing the potential for irrigated vegetable production annually as streams and springs dry up. Farmers who only have access to steep slopes are encouraged to adopt multi-storey tree crop production, in which a range of trees of various heights is planted to cover the slopes. Nonetheless, where slopes are too steep or soils too shallow, it is in the public interest that attempt to exploit these be curtailed.

Current needs for DFS

The results of agronomic research on water and nutrient management need disseminating in the uplands. More attention is needed regarding pest and disease ecology particularly on crop combinations that minimize disease infestations. Machines need developing to handle mixed cropping systems, particularly as zero-tillage or no-till systems become essential on soils with depths severely truncated by soil erosion. The introduction of appropriate mechanization options into diversified farming systems will increase land and labour productivity to higher levels than currently achieved. Enhancing labour productivity requires special attention.

Learning sites need additional support to ensure the development and adaptation of technology options appropriate to the range of production systems in the uplands. The following programmes would benefit from government support:

- Farmers’ field schools for
  - integrated nutrient and soil fertility management;
  - integrated pest, disease and weed management;
- Small-scale supplementary irrigation at specific places.
- Introduction of crops adapted to the bio-physical conditions in the uplands;
- Introduction of alternative mechanized farm operations for smallholders to enhance labour productivity (e.g. improved harnesses for draught animals and hand tractors);
- An information and communications technology program.