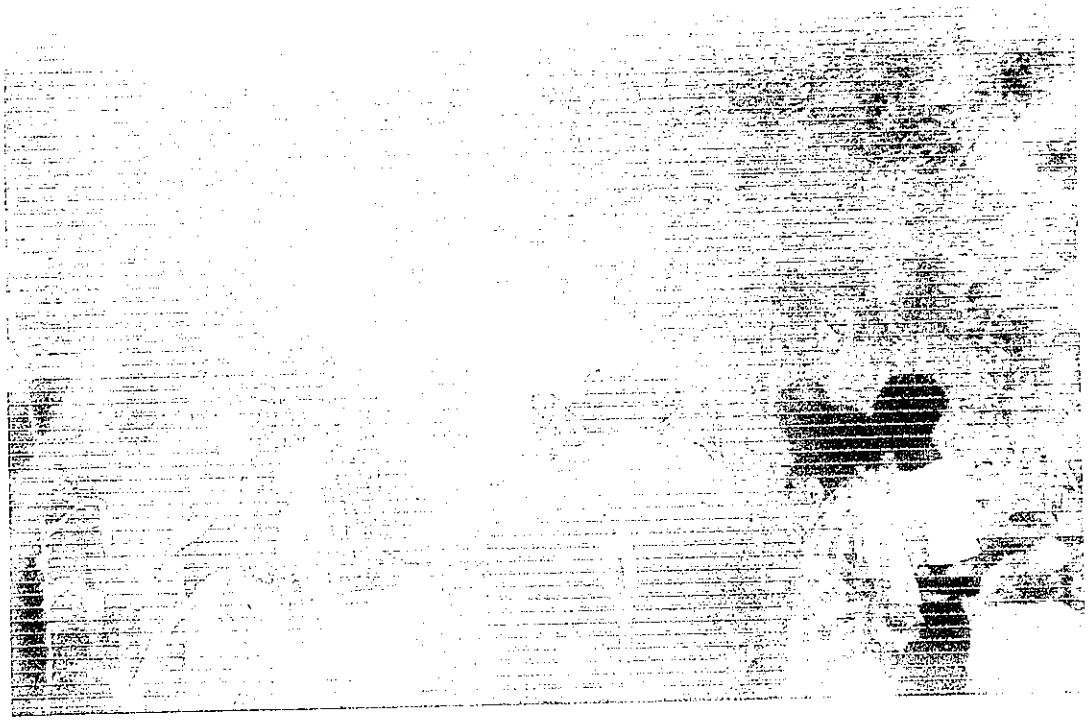
PROCEEDINGS OF AGROFORESTRY AND FORESTRY EXTENSION TRAINING WORKSHOP FOR FRINGE COMMUNITIES AROUND WOROBONG FOREST RESERVE

$25^{TH} - 28^{TH}$ MAY 2004



ITTO/ PTFDWIC /FC PROJECT

IRNR TEAM
KNUST
KUMASI

AGROFORESTRY AND FORESTRY EXTENSION TRAINING WORKSHOP FOR EIGHT COMMUNITIES AT THE FRINGES OF WOROBONG SOUTH FOREST RESERVE

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FOREWORD

This report covers proceedings of the four-day training workshop on Agroforestry and Forestry workshop for eight communities involved in the Participatory Tropical Forest Development by women in indigenous communities (PTFDWIC) project. These communities are Akoradarko, Ahomahomasu, Besebuom, Amokrom 1&2, Peseator, Kukrutu and Kronkroso. The training workshop was held in Besebuom on the 25th -28th April for 10 representatives from each of the communities making a total of 80 representatives selected out of about 600 members. The workshop was organized by the Institute of Renewable Natural Resource (IRNR) team, under the auspices of the International Tropical Timber Organization (ITTO), Participatory Tropical Forest Development by Women in Indigenous Communities (PTFDWIC) and Forestry Commission (FC) project.

The workshop was designed as a training of trainers programme to ensure that knowledge and skills are imparted to the selected farmers such that they can become community extension agents and train others. At the end of training workshop the trainees should be able to acquire knowledge and skills to:

1. Undertake extension in Forestry, Agroforestry, Agriculture, Health, Formation of Cooperative and credit union.
2. Gather input to finalize manual covering the above topics and other relevant issues.
3. Establish demonstration plots to facilitate extension activities on Agriculture, Forestry and Agroforestry.
4. Develop mechanism for sustainable Monitoring and Evaluation for community extension agents.

The training workshop took the form of lectures, discussing paper presentations, field visits and field demonstrations to enable the participating members to have a feel of practical issues in Agroforestry, Forestry and Agriculture. It was expected that by using a participatory approach the trainees would be in a better position to impart both theoretical and practical knowledge to the other members and non- members within the various communities. In order to ensure that there is a smooth flow of information, a monitoring and evaluation action plan for six months was developed by members with support from the facilitators. The action plan hinged on:

1. briefing the entire community on issues discussed during the workshop
2. providing educational and awareness creation on issues
3. establishing demonstration plots specifically on Agriculture and Agroforestry
4. Developing of monitoring and evaluation scheme to ensure that activities are on course.

The key questions, discussions and interactions that took place during the paper presentations, field visits and at the demonstration sites have also been included after the relevant presentation. On the whole, the training workshop was successful and more interactive, having offered the participants an appropriate platform for interacting with the resource persons. In addition to this, participants were involved in field visits outside their communities and in the establishment of Agroforestry and Agriculture demonstration plots.

The consultants were satisfied with the active involvement of the participants and the resource persons in discussing the five broad issues outlined in Table 1. It is believed that the issues taught and discussed would provide the participating members of the project the requisite knowledge to ensure that they can effectively educate other project members and the entire community members back home. This could be seen in the development of action plan to provide extension services on issues learnt, to other members who were not present.

It is hoped that knowledge and skills acquired would enable them to continue to work effectively on the project, when the management structure changes.

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ACRONYMS AND ABBREVIATIONS

AF	Agroforesty
CFMU	Collaborative Forest Management Unit
GHS	Ghana Health Services
DWM	31st December Women's Movement
FC	Forestry Commission
RMSC	Resource Management Support Centre
FSD	Forest Services Division
IRNR	Institute of Renewable Natural Resources
ITTO	International Tropical Timber Organization
KNUST	Kwame Nkrumah University of Science and Technology
MOFA	Ministry of Food and Agriculture
NTFP	Non Timber Forest Products
PME	Participatory Monitoring and Evaluation
PTD	Participatory Technology Development.
PTFDWIC	Participatory Tropical Forest Development by Women in Indigenous Communities

PART ONE: OPEN SPEECHES

Introduction of Workshop Programme- Mercy Derkyi (Mrs.)

Mrs. Mercy Derkyi took the participants through the program for the four days training workshop. The objective of the workshop was explained to be the acquisition of knowledge and skills, so that at the end of the workshop the selected groups would be able to:

1. Undertake extension in Forestry, Agroforestry, Agriculture, Health, formation of Cooperatives and credit union.
2. Gather input to finalize manual covering the above the topics and other relevant issues.
3. Establish demonstration plots to facilitate extension activities on Agriculture, Forestry and Agroforestry.
4. Develop mechanism for sustainable Monitoring and Evaluation for community extension agents.

It was emphasized that the training workshop would help to establish a link between the trained members and the above-mentioned organizations in the district in order to sustain the project when the external funding ceases. The report of the needs assessment carried out by the team revealed that the participating groups do not need only Agroforestry and Forestry extension but extension in the areas of Health, Cooperative Formation, Agriculture, and other issues such as Conflict Management, Leadership Skills and Interpersonal Relationship. In view of the findings Resource Persons within the District were contracted to provide extension trainings in areas such as Health, Agriculture, Forestry and formation of Cooperative. The other resource persons were from Kumasi and Koforidua. (See appendix for TOR for Resource Persons).

Box 1 depicts the training areas and issues where the capacity of the respondents was built.

The trainees were grouped into to five groups. In each group, there was one representative from each community making eight (8) people in a group. The five groups were; the Health extension group, Cooperative extension group, the Agroforestry extension group, Forestry extension group and the Agriculture extension group. (See appendix for the list of members in each group). The rationale behind the formation of the five extension groups was for the trainees to go back to other project members and the entire community members and educate them on what they have learnt and also to link them up to the Resource Persons especially those within the District whenever the need arises.

Box 1: Training areas and issues where the capacity of the respondents were built.

1. **Leadership / interpersonal skills/ conflict management**
   - Communication skills and human resource management
   - Leadership skills
   - Awareness creation techniques
   - Good interpersonal relationships
   - Conflict management
2. **Cooperative and credit union formation.**
   - Cooperative formation
   - Credit union formation
   - Credit facilities available
3. **Health**
   - General hygiene
   - Nutrition
   - Malaria control and prevention
4. **Agricultural**
   - New or improved farming techniques
   - New varieties of seeds and crops
   - Processing and storage technology
   - Veterinary services to livestock /poultry
5. **Agroforestry concepts and extension packages**
   - Definitions and concept of agroforestry
   - Types of agroforestry technologies / practices /systems
   - Different extension packages
   - Tree-crop combinations
6. **Forestry concept and extension packages**
   - Forest tree management techniques
   - Pruning, thinning, pollarding, coppicing etc
   - Nursery establishment,
   - Seed identification
   - Green (Fire) belt establishment (suitable tree species)

Historical Background and Way forward of the project –Mr. Alex Asare –Manager, CRMU-RMSC

Mr. Asare took trainees through a brief historical background of the entire project. With respect to the Agroforestry and forestry extension training , he said the aim is basically to train participants on issues like Forestry, Agro-forestry, Agriculture, Health and Cooperative formation all aimed at improving the lives of the fringe communities. He said learning has no limit and that it is essential for them to pay attention to what is to be taught and teach members of the communities they represent about current changes that have occurred in agriculture land use system to improve their lives by getting good returns for the work they do.

For many years he said, farmers in our part of the world have continued to slush and burn before planting their crops and this has no positive impact on their life styles and it was about time they adopt improve methods of farming to improve their living standards to merit the hard work they put in their farming activities. It was said that the Bible gave human beings 70-80 years to live on this earth and if one is lucky one could live healthy life, have water, food, happiness and this should even extend to one's children, but unfortunately farming which is very lucrative does not guarantee farmers the happiness they so much desire. This is so because of varied reasons like lack of rains, difficulty in preparing land for farming and expensive farm inputs and poor farming practices.

Farming does not guarantee farmers the wealth they need compared with foreign counterparts who are better off in terms of productivity by adopting improved agriculture techniques to get more money and enable them send their children to Universities, build good houses and harvest plentiful. The question posed at this point was why these disparities in their conditions of live? Responding, it was said that it is lack of knowledge in agriculture practices that have contributed to this but assured them that gradually they can learn to change their situation.

It was again said that if after several years they have not changed and continue to do the same things their forefathers did before they will not get the necessary benefit from their work and appealed to them to strive and improve their situations by practicing what they would be taught. It was again emphasized that there are two things they can do to get money: 'how to get income (money)' and 'how they spend money'. They were advised not to spend their resources on funerals and drinks but instead invest in their children's education, build houses and eat nutritious meal to nourish their minds.

Basically the advice to them was to practice what they are to be taught to improve their lives. He also said forming co-operatives would also assist them to access credit, get good market for their farm produce to improve their lives. With the selection of their representatives for the training it will be easier for them to learn improved farming techniques from their own community members instead of extension officers from government agencies who periodically visit them. Representatives could be experts in the field of their training and help the entire community when the project funding ceases. Funding will be available for experts to teach farmers on different topics when required. With the knowledge to be acquired from the 4-day program they will be empowered through the skills to enable them get what they need and be able to pay taxes for developmental projects in their communities instead of depending so much on external support. They were urged to work hard to add value to their products instead of allowing market middlemen or / women to cheat them by offering any price for their farm and livelihood products.

In his closing remarks, Mr. Aasre said knowledge is power so they should strive to acquire knowledge for their own good.

PART TWO: TRAINING MATERIALS

LEADERSHIP SKILLS

Mercy O. Ansah (Mrs.)
Collaborative Resource Management Unit -RMSC

Mrs. Mercy Owusu- Ansah took participants through leadership skills, which she said were essential for the work they were to do in their respective communities. A leader was then defined as: "**Someone who plans, organizes, directs and monitors group activities, programs and projects in consultation with group members**". A leader does not do things in isolation but with the consent of the group.

She asked the group what criteria they used to select a Chairman or Secretary in their communities and these were the characteristics enumerated by the group:
A leader should be:

1. Sincere/fair
2. Humble//love/compassion/sympathetic
3. Hardworking
4. Sensible/knowledgeable
5. Patient
6. Time conscious

After this they were asked whether or not the above traits were present (self assessment) in them? To this question they were told that it was not possible for a single person to have all the traits but at least a good leader should possess at least four of the above characteristics.

Leadership functions and roles

1. Group mobilization and encourage group members to be happy with the work you are doing to ensure success of the project in question. So if they have decided to plant trees then they have to ensure that it is done.
   They were asked to set goals and plans well so that by the end of the year they will be able to plant 10 hectares of seedlings in the degraded areas.

   Ensure that all logistics required for the execution of work are acquired before planting begins: money, land, seedlings, and proper planting methods.
   Get knowledge and transfer.

   Foresee problems and how to deal with those problems.

2. It is essential for a good leader to plan ahead and have alternative solution to original plan so that when one plan is not adopted the other could be used. So there should always be plan 'A' and 'B'. She said they have set a goal to plant 10 hectares of degraded land with trees relying mainly on rainfall but if the rains fail do they use

watering cans to water the plants? A leader should have a deep knowledge in whatever she/he is doing and be smart in picking information from the group members.

3. Manage his/her time efficiently, an example to others and ensure control of the group without deviations.

4. Very firm in monitoring and controlling activities and make appropriate byelaws with the group to govern their activities and deal impartially with all group members. For example the Chairman will be removed after absenting himself/herself from meeting on four continuous occasions without expressed permission.

She concluded by urging all leaders to be firm, fair and impartial in dealing with all group members to ensure sustainability of their respective groups and achieve their set goals.

IMPROVING INTERPERSONAL RELATIONSHIP

Yaa Konadu Pokuaa
Collaborative Resource Management Unit
RMSC-FC

Introduction

All organizations, whether business, educational or social, are made up of people with different economic, social and cultural background. To achieve objectives successfully people in organizations should maintain cordial and mutual relationships with each other.

Human Relations deal with the study of how people interact within an organization. The organization may be a factory, educational institution, market, and 'compound' household in the Ghanaian context or any social gathering where human interactions are necessary for the achievement of objectives. Human Relations is the study of individuals and their peer groups and their interactions with one another, the main objective of which is the achievement of organizational objectives.

The scope of human relations refers to human relationships and interactions in any situation. It takes various forms, depending on the nature and type of activities carried out and the size of an organization. For example, the scope of human relations in a manufacturing organization may be different from that in a service or utility organization such as health care center.

The scope of human relations is very wide. It covers not only the business field but also any field where many people are involved, such as sports, religion, education, dining traveling, etc. For the purpose of our studies we shall confine ourselves to human relations at the community level.

Some indicators of poor human relations

The relationship between a group leader and member in a group is sometimes characterized by squabbles. This may be the result of the leader's concern for profit maximization for expansion and workers agitation for increased wages, salaries and allowances. Where two such opposite requirements are not equally, balanced unsavory relations are likely to develop between a group leader and members. When this happens, relations between a leader and members are likely to end on a sour note.

Group leaders and group members who use abusive language dehumanize members and subject them to humiliation.

Another is an authoritarian leader who does not reason with his group members to find solution to problems. Some authoritarian leaders disregard the opinions of group members and treat them very badly. This practice is an embodiment of bad human relations and one likely to impede the successful achievement of group objectives.

We often make statements or comments such as: 'He is not polite, 'He's rude, 'He is not tolerant, etc all of which have unfavourable human relations implications.

In a working environment tribalism is a factor that can affect human relations

How to ensure good human relations

Group leaders are to regard their fellow –members as human beings who should be treated as such.

Good human relations ensure that group leaders, show empathy towards their members and understand the realities and impact of the orders given. Group leaders should not demand from members more than is necessary, nor more than they themselves could do. Every leader should assess his subordinates' aptitude, capability, efficiency, weakness and other relevant qualities before giving orders. It goes that every handicapped person should not be given the same assignment as an intelligent person

Close and cordial relationship between a leader and members enable the former to have a better appreciation of what the latter can and cannot do

A good human relation also enjoins leaders to be impartial when it comes to the settlement of disputes, among members. A good leader exhibits good human relations by critically and objectively analyzing complaints from aggrieved members and applying the commensurate disciplinary action without partiality.

Leaders are to

- ✓ Communicate effectively
- ✓ Criticize constructively
- ✓ Be open and receptive
- ✓ Don't gossip
- ✓ Value the ideas and contributions of others
- ✓ What is important to the other person must
- ✓ Be as important to you as the other person is to you
- ✓ Apologizes sincerely when you make a withdrawal

Benefits of good human relations

A harmonious supervisor-worker relationship is one of the factors that contribute to increased productivity. The supervise should recognize the worker as a human being who should be treated, as such and the worker should recognize the supervisor as an authority whose legitimate instructions should be carried out successfully.

Workers may underachieve if they are given orders without adequate explanation or guidelines relating to what specifically needs to be done.

In a democratic working environment, where leaders constantly involve members in decision-making process, a healthy and pleasant atmosphere is likely to prevail and this will almost certainly improve productivity.

Good participation of members in all activities.

Good attendance of meetings.

Conclusion

It is a well-known fact that a business cannot thrive on squabble, hatred, antagonism and other associated with human interactions. For this reason business organizations spend a lot of money on recruitment and training to enhance good human relations

These are important to every business organization both because of their need to achieve their operational objectives and they go a long way to influence the extent to which customers maintain their loyalty to a particular business.

It is necessary to emphasize that judicious expenditure incurred in the development and enhancement of good human relations yields positive returns as it fosters cordial relationships among all employees who interact to accomplish results.

CO-OPERATIVES AND CREDIT UNION FORMATION
BY MR. ASARE BEDIAKO

CO-OPERATIVE FORMATION

How is a cooperative formed?

The initiative for forming a cooperative society usually emanates from two main sources:

1. A group of people may voluntarily decide to form a cooperative
2. An outsider may act as an animator and talk to a group about the virtues of cooperation.

In order to determine whether there is a need to form a cooperative one must:

1. Find out whether there is **a Felt Need** for a cooperative in the areas. For instance if it is a farming community what the farmers may need most is a tractor. The desire to secure a tractor is therefore the felt need among the farming community. Ask yourselves the following questions.
    a) Are present needs met satisfactorily?
    b) Can they be improved?
    c) Are these services not being catered for as they should?
    d) Are people concerned about present lack of service?
    e) Would they be prepared to do something about their 'felt need?'
2. The group must share common identity, which is referred to as common –bond. In the example given the common –bond is that the group is a farming group.
3. Legal requirement: any person above the age 18 years, who is capable of entering into legally enforceable contract and who resides within the area of operation of the society or owns a piece of land within the area can be a member of a cooperative. The law debars minors (those below the age of 18years) from becoming members of cooperative societies. Also minimum number of people who can form society under the law is ten.
4. Their would –be responsibilities, obligations and duties would be explained to them
5. Management committee members of seven members are elected to run the society
6. A cooperative society is governed in its day –today operations by three legal instruments.
    i. The cooperative societies Decree 1968 (NLCD 252)
    ii. The cooperative societies regulation, `1968 (L.I.604)
    iii. The Bye –laws of the society.
7. All societies must keep the following books
    i. Cash book
    ii. Ledger
    iii. Journal
    iv. Cash payment voucher
    v. Cash receipt book
    vi. Stock book
    vii. Minute books
    viii. Share register
8. Mobilized more savings and opened bank account

How is a cooperative managed?

A cooperative society is administered by the following, General Meeting, Committee and Secretary.

Duties of Members

1. Provide Capital
2. Loyal/patronize
3. Assist in membership drive

4. Elect capable committee members
5. Attend meetings regularly and contribute to decision makings

Duties of the Committee

1. Appoint a competent secretary
2. Formulate policies for the secretary
3. Supervise the work of the secretary
4. Keep members informed of on-going activities
5. Present annual account

Duties of a Secretary

Q. Write minutes of meetings in consultation with the chairman
R. Keep minutes book
S. Correspondence

Our Co-operatives Values

1. Self-help
2. Equity
3. Self responsibility
4. Solidarity
5. Democracy
6. Equality

Our ethical values:

1. Honesty
2. Openness
3. Social responsibility
4. Caring for others

Advantages of cooperative society

1. They improve the standard of living of members
2. They act as potential sources of improving income of members
3. Profit accruing from the business are shared in proportion to how much each member buys from and sells to the society
4. A cooperative society encourages people of different skills and capital to pull their resources together.
5. The pride of joint ownership keeps member loyal and devoted
6. Control and management is democratic
7. Cooperatives do education and welfare work among the members
8. They improve the abilities of members to act in leadership positions.

What is a credit union?

A Credit union is a group of people who

a) Are united by a common bond
b) Voluntarily organize themselves in a cooperative societies
c) In order to mobilize savings from individuals /members
d) Make loans to one another at low rates of interest
e) For provident and productive purposes

f) For provident purposes means to pay tax or for education or medical bills for his /her family
g) For productive purposes for a member to produce more or increase his/her earning from his work. E.g. He may need seed and fertilizers.

A common bond among members is necessary, for this bond guarantee that they know and understand each other's problems.

Credit facilities availabilities

It is only in the credit union savings as a tool, that you can turn doubts in realities. The Ghanaian experience, the question is, does one only have to save when there is a surplus fund? And is it possible to have surplus funds judging from our income level in Ghana. Most of the credit union members who have understood the credit union concept would reply in the negative. In Ghana, our income levels are not realistic. For example the current income levels are far below a rate that permits households to live above the poverty line. Therefore it becomes almost impossible for people with fixed income to save. Another question that arises is whether the low and middle-income groups have access to credit? The answer is virtually 'no'. It is only in Ghana that people pay for anything they buy with cash basis whatever the cost. The level of mistrust among one another has grown to a level that no one has confidence when it comes to the extension of credit. The fear has culminated to the extent that no one even wants to enter into partnership with another person. However we cannot remain and develop as individual entities if these fears are not alleviated.

People need to develop trust in one another and that is why credit unions have become one of the most important human development institutions. With credit unionism, people with the same interest can develop and manage a common financial pool out of which they can grant loans among themselves for both productive and provident purpose. This can make them masters of their destiny. Our weapon is accumulating capital through regular savings for our own development. Saving from surplus fund is obviously impossible to the average Ghanaian but credit union members are making it possible. We believe that people can still save under this condition provided they have faith in God and a strong desire to develop themselves as well as a well defined purpose in life. To credit union members, saving may be defined "As the interest, willingness and ability to minimize one 'consumption (expenditure) habits in order to set aside a fractional part of one' own income for development."

In Ghana saving is a sacrifice. It means one has to set up his or her own priorities right and design suitable (short, medium or long term) plans depending on ones income and his or her current level of development.

The individual monthly saving contribution varies among members. It does not necessarily depend on the income level of the member but rather what one wants to achieve in life. By gradually saving with accredit union, members can borrow reasonable amount with less complications and systematically develop themselves socially and economically while they are still alive. Credit union assist members to construct or furnish their homes, educate their children, bury the dead, receive better medication, and participate positively in other social activities, which are beneficial to a society. Credit unions have provided loan facilities as capital for small and medium scale business entrepreneurs as well as agricultural producers. People must have access to credit at all times, be it a business man or woman, a farmer, a salaried employee or a house –wife. That is what the credit union movement in Ghana is doing today –using members as agents and objectives of development

Conclusion

Formation of Co-operatives to assist each other financially in times of difficulties is the key successes in everyman lives. An individual farmer **felt need** could be a **tractor** and how to acquire it may be impossible. However people in cooperative and credit union could easily mobilize resources to buy the tractor for the group than just one person trying hard to acquire one. Your current conditions could be changed for the better if you form Co-operatives to assist each other.

Health Extension
Mr. Simon Eshun

The health representative in the District, Mr. Simon Eshun took participants through basic function of food to the body and the importance of eating right especially for children since they are growing and need good nutrients to build their bodies. He said that Ghana Health Services (GHS) has observed that maternal and child deaths have increased in the district so he took the opportunity to give a pictorial presentation of situations where Traditional Birth Attendants (TBAs) should avoid the temptation of assisting delivery of babies in their centers and refer all those cases to the Health Post.

He also took the participants through the prevention and control of malaria since it is the number one disease in Ghana and kills most people. He said the best option is to prevent the breeding of mosquitoes in and around houses and also the need to sleep in well-treated mosquito nets.

He concluded by asking the participants to visit the health post regularly to avoid complication before one is brought to the hospital, where little could be done to save their lives.

IMPROVED CROP AND LIVESTOCK PRODUC TION TECHNIQUES TO FARMERS AROUND THE WOROBONG SOUTH FOREST RESERVE

G.K. OCLOO- District Director (MOFA)

Date of training: 27th –28th May, 2004

Subject area: Agroforestry and Forestry extension for fringe communities around Worobong South Forest Reserve

Objective: 1. Improved crop and livestock production techniques to farmers around the Worobong Forest Reserve

2. Take farmers on a field trip to observe improved plantain production techniques and improved rural housing for livestock and poultry

3. Establish mini demonstration plots with farmers at Beseboum

Target groups: 8 selected farmers from beneficiary communities

Training module: Interactive approach was used to make the training more participatory.

Training areas

1) Maize: [a] Varieties – the need to grow improved varieties, e.g. Obatanpa
[b] Spacing – 80 cm x 40 cm was given as the recommended spacing
[c] Harvesting – yields of 4.5 –5 tons/ha.
[d] Storage –using the narrow crib or improving upon what farmers are doing.
[e] Comparative advantage between growing the improved as against the local was stressed.

2.) **Plantain**: - participants were taken through the following:
[a] Selection of suckers
[b] Paring to remove roots and debris
[c] Putting pared corms into jute sacks
[d] Hot water treatment. (50^0C -55^0C) for 20 minutes.
[e] Lining and pegging
[f] Planting -3mx 21/2 m

3) Cassava: [a] improved varieties- name of improved varieties. E.g. Afisiafi, Abasafitaa, Tekbankyi and Gblemoduade were mentioned.
[b] Planting: a spacing of 1m x1m given
[c] Harvesting: at one year with yield ranging 30-35 tons/ha were given as against 13-15 tons .ha for the local varieties.
[d] Processing: processing into gari, konkonte, agbelima and cassava starch were given as the main uses of the improved varieties though Tekbankyi and Abasafitaa at some stage are poundable

Mr. Wayo the veterinary officer began his presentation with these questions and the participants responded to them. The following were some of the key questions and their responds.

Q. Do you need to rear animals along your farming activities?

A. Yes

Q. Why do you think so?

A. We could use the animals for food, sale in order to get money to pay our children school fees.

Q. How do you rear your fowls?

A. We leave them to roam about and we loose them to both hawks and moving cars as well.

The participants were informed that any farmer who deals only in food crops without animal rearing to get money from animal sales is a 'half farmer' so they should add livestock production to their crop production. They were again cautioned that it is important to confine the fowls and feed them properly so that they can lay all the required eggs and make chicks to increase the number.

The presenter then informed participants about the importance of rearing livestock to supplement the family budget and also to get the required protein for the family especially growing children.

[I] Poultry and small ruminant [i] the need to vaccinate local poultry against Newcastle disease with the I-2 vaccine was treated. Control of Ecto and Endo-parasite infestation was also treated.

[ii] Vaccination of small ruminants (goat, sheep) against PPR was also illustrated.

[iii] Housing that ensures that the animals do not lie on the bare floor nor come into contact with their droppings was also demonstrated

Participants were encouraged to collaborate effectively with the extension officer in charge of the area and the district staff. Poverty he said was prominent among farmers but this can be reversed if proper methods of farming practices are adopted. He hinted that from July this year MOFA will organize a training workshop for farmers to help them improve their storage facilities.

After the classroom work participants were taken to the field to see how crops and animals grow well when methods taught in class was adopted.

AGFORESTRY TECHNOLOGIES AND EXTENSION PACKAGES FOR FRINGE COMMUNITIES AROUND WOROBONG SOUTH FOREST RESERVE.

Mercy Derkyi (Agroforester)

Subject area: Agroforestry and Forestry extension for fringe communities around Worobong south forest reserve

Objective:

1. Concept and technologies of Agroforestry extension to farmers around the Worobong forest reserve

2. Take farmers on a field trip to observe some Agroforestry technologies within the district

3. Establish Agroforestry demonstration plot with farmers at Beseboum

Target groups: 16 selected farmers from beneficiary communities (Agroforestry & Forestry groups)

MODULE 1:

Why Agroforestry?

In Ghana the rural sector where most of the country' food is produced faces a crisis of rapidly increasing pressure on limited land resources. Majority of the nation's subsistence farmers practise traditional bush fallow, slash and burn at short intervals to grow annual food crops. The rising demand for fuel wood, poles and timber, fodder and agricultural land has greatly accelerated deforestation of the once rich forest resources. This has consequently resulted in soil erosion, fuel wood shortage, depleted soil fertility leading to low agricultural production and poor rainfall pattern among others. With respect to the above coupled with rising human populations' mean the situation will worsen unless certain measures are put into place to improve the use of the available land. Access to free resources such as NTFPs, poles, firewood, timber, and medicinal plants among others would be a thing in the past. Farmers must therefore be able to produce food, fodder, fuel wood and building materials on farmlands without opening new land for cultivation.

Agroforestry is an approach to sustainable land use that does not require **a lot Investments**. Trees in Agroforestry land use systems help stabilize the soil; improve fertility by fixing nitrogen and pumping nutrients from deep in the soil, conserving water and ameliorating the microclimate.

What then is Agroforestry?

Agroforestry is an integrated land –use management system. With Agroforestry farmers deliberately cultivate or plant trees or shrubs on the same piece of land as crops and /or livestock. Farmers may retain woody perennials left over from forest or woodland as part of their farm system.

Is there a need for Agroforestry?

Yes there is the need for Agroforestry because of the following reasons:

- ❖ Increase in population is a serious threat to the continued use of traditional shifting cultivation practices because food and energy produce are not enough for people.
- ❖ Agroforestry improve farm production as well as combating environmental degradation. They are usually suited for small-scale farmers in the tropics.
- ❖ Limited land available for cultivation for food crops.

How do we then determine Agroforestry as a land use system?

Agroforestry has the following features:

- ➢ It involves two or more plant species, with at least one woody perennials
- ➢ It always has two or more products
- ➢ It has a cycle of more than one year
- ➢ It has biological and /or economic interactions between the woody species and the other species
- ➢ It is always more complex ecologically and economically than monoculture.

Classification of Agroforestry systems

Classification is done according to whether trees, crops or livestock are present

1. Agrosilvocultural systems – includes crops and woody perennials. Examples are **improved fallow, Home garden, Taungya, Shelterbelt, Alley cropping.**
2. Silvopastoral systems – include pasture and animals and woody perennials. Examples are **fodder tree banks, intensive feed gardens, integrated production of animals and wood products.**
3. Agrisilvopastoral systems- include crops, pastures and animals and woody perennials. Examples – **compound farming** (tree-livestock-crop mixtures around homestead)
4. Fruit trees+ apiculture (bee-keeping)
5. Agro-silvi-fishery (fruit trees/shrubs on bunds of fish ponds)

Arrangements

Agroforestry components may be arranged in **space** or **time**

Space: we can have single strata or multistrata

Examples: single strata – **windbreak** with only one species, **live fence**

Multistrata- home gardens, multipurpose wood lots with two or more species

Time: In time, components may occur **simultaneously** or in **sequence.**
Simultaneous: the different components are present on the plot at the same time
Example: trees in association with perennial crops (such as in cocoa farms)
Sequential: the different components follow each other. Examples are improved fallow.

MODULE 2

What are the different types of agroforestry technologies?

1. **Woodlots**: contains mainly woody perennials. It could be managed over time in association with crops and animals.
   Benefits
   - ❖ Service as a principal source of fuelwood
   - ❖ Keep the soil surface covered, conserve water.
   - ❖ Provides fodder for ruminants
   - ❖ Provides poles for building, telephones

   Site selection: one has to consider the climatic conditions and the characteristics of the species. However the objectives of the farmer must be the number one factor to consider.
   Suitable species: species selected should be fast –growing, able to coppice easily, should be nutritious and palatable to animals, should be able to fix nitrogen and it should be a good fuelwood. *Senna siamea* (cassia), Neem, *Acacia auriculiformis*.
   Establishment: purely woodlot the ideal spacing should be 1m x 1m for early canopy closure. For intercropping with crops within the first year 3m x 3m is ideal before canopy closes.
2. **Rotational harvest:** the plot of land could be divided to four and harvesting can be done within four-year intervals.

3. **Improved fallows**: leguminous trees that grow fast and yield high biomass as the fallow species in rotation with annual crops rather than allowing the natural vegetation to return. Here the fertility would be enhanced more quickly.
   Suitable species: Sesbania spp.
   Benefits
   - ❖ Recovering of the land fertility
   - ❖ Intermediate poles and fuel wood
4. **Windbreaks:** Are strips of trees or shrubs planted to protect specific areas like fields, homes from blowing winds?
   Reasons for planting:
   - ❖ To reduce wind erosion
   - ❖ To improve the microclimate for crop production
   - ❖ To provide shelter for people and livestock
   - ❖ Serve as fences and boundary markers

   Indication of good species for windbreak
   - ❖ Should be wind –resistant
   - ❖ Must have a deep and well –spread root system
   - ❖

   Suitable species: Cassia, Teak, Melina, Coconuts, and Neem

5. Other suitable Agroforestry technologies that farmers could comfortably adopt are:
   - **Boundary planting,**
   - **Live fencing,**
   - **Alley cropping (labour intensive)**
   - **Tree and shrubs around houses and public places**
   - **Trees on roads and footpaths**
   - **Trees on waterways and flood plains trees dispersed on croplands**
   - **Taungya**
   - **Buffer agroforestry**

As illustrated neatly in the handout provided to participants.

What are some of the Indigenous agroforestry systems of Ghana?

Participants should be able say some of the old or indigenous agroforestry systems being practice within the district and else where.

Some of the indigenous Agroforestry systems are:

- Shifting cultivation or bush fallow
- Cocoa / food crops/ forest complex (agrosilvicutural system)
- Crops /trees/poultry system

Module 3

Good features to look on species for intercropping

Agroforestry often involves intercropping of trees and shrubs with other crops. The trees and shrubs generally benefit the soil and crops around them, but to various degrees. Thus trees must be chosen with care if other crops are to be grown around them. Good tree species for intercropping should not compete with the other crops for light, water and nutrients, and have no harmful (allelopathic) effects on other crops. Good species for intercropping must be:

- Deep –rooted
- Shallow –rooted
- Nitrogen –fixing
- Shade –tolerant
- Have no allolepathic effect
- Grow rapidly and re-sprout easily
- Have open crown and sparse foliage
- Fit the seasonal cycle of the intercrops

As illustrated neatly in the handout provided to participants.

What are multipurpose trees and shrubs?

Unlike to many annual crops, multipurpose trees and shrubs are perennials species that provide more than one major product or service to farmers.

* Let participants mention some of the major products or service that farmers get from MPTs.

Why multipurpose trees and shrubs

These species have three main benefits in the farm system: they provide ***services***, ***products*** and ***amenities***.

What are some of the uses or purposes?

Let participants mentions some of the names and uses of MPTs in their locality.

(a) SERVICES

- Decrease external inputs into the farm

Soil fertility – nitrogen fixation, nutrient cycling – *Acacia albida, Albizia zygia, Glricidia sepium*
Soil conservation- contour hedgerows strips – *Gmelina aborea (melina), Mangifera indica (Mango)*
Shelter – shelterbelts, windbreaks – Nkudua
Existing forest – reduce pressure, preserve
Fences – live fences, live stakes-Esa kokoo and fufuo,
Shade – lower temperature and evapo-transpiration- Madras thorn, Rauwolfia vomitoria (kakapenpen)

(b) PRODUCTS

- Increase outputs from the farm
Food – fruits, nuts, spices- madras thorn, guava, mango,
Fodder – leaves, fruits and seeds – guava, kakapenpen, mahogany
Green manure – from leaf clippings- guava, *Glricidia sepium, leucaena*
Timber – construction, furniture, poles, pulp, tools handles
Fuel wood – charcoal, firewood – Emire, ofram, melina
Medicines – bark, fruit, roots, leaves, flowers eg. *Terminalia superba* (ofram-Bark) –rheumatism, *Funtumia elastica* (funtum- bark, root)- piles, control frequent stool in children
Industry – gums, resins, dyes, oils- *Psidium guajava* (guava), cassia
Farm income – increase diversity

(c) AMENITIES

- Fences
- Recreation
- Environmental beauty

Module 4

Concept of extension and extension packages

Extension could be defined as "A two- way transfer of information and knowledge primarily between extension agents, farmers and other land users." The basic functions are

- To inform
- To convince
- To link people

This training workshop on forestry and Agroforestry extension is aimed at transferring of knowledge to village extension workers to be trained to enable them pass the knowledge to their people on regular basis.

Extension dissemination packages and their effectiveness

Mention the various packages to participants and let them say, which one(s) is effective and let them select packages that would be suitable in their locality.

- Traditional government extensionist impacting new technologies to farmers
- Radio broadcasting/ audiovisual
- TV presentations
- Demonstration plots
- Farmer- to- farmer approach

Who should be targeted?

Is it an individual, households, homogenous groups in communities (women groups, farmers group etc), or the entire community at large?
Ask participants of the best target group to start with.

Case study 1: Farmers do experiment
(Akuapem North District of the Eastern Region of Ghana- GRRM)

Improvement of soil fertility with the use of multipurpose tree leaves and hence crop performance

To determine whether leaves from multipurpose trees really improve soil fertility and hence crop performance one of the participating farmers in the GRRM project divided his vegetable plot into two halves. In one half, he planted seedlings that he had raised by incorporating tree leaves into the soil right from the nursery stage. He continued to apple tree leaves to this half of the plot, both as mulch and as a fertilizer. In the other half, he planted multipurpose trees and vegetables, bur without any extra leaf application.
He observed that crops treated with multipurpose tree leaves grew better, gave higher yields, withstood the dry season better and were less susceptible to termite attack. Based on this experience, he convinced other farmers to adopt the same approach.

Case study 2: The Chivi Food Security Project- southeastern Zimbabwe
This project was successful because of participatory extension approaches. Over 70% of the Zimbabwe's 12 million people live in the rural areas. The majorities are smallholder farmers whose primary source of livelihood is agriculture. More than two –thirds of these live in semi-arid regions with less than 600mm of rainfall a year, frequent drought and poor soil fertility. Land is generally divided into arable land used by an individual farmer and grazing land, which is communally used. Local institutions are weak and poorly organized to take control and manage the common resources. The choice for technologies for smaller farmers to enhance their productivity is limited, so food production is low and household food insecurity is rife.

Despite many tremendous government investments in human and financial resources for agricultural research and extension, the smallholder agricultural sector has not generally benefited. This ineffectiveness may be due to the top-down extension approaches where technologies are often developed by researchers and passed on to extension workers who in turn pass them to the smallholder farmers without having an adequate understanding of the farmers' priority needs ands socio-economic situation.

In 1991 the Chivi Food Security project was conceived to demonstrate how principles of participatory approaches could be applied to agricultural extension. In 1995, a participatory study of the project was conducted. It showed that the number of farmers participating in the project activities had increased by over 200% from the original 320. Farmers ranked in the poorer wealth groups comprised about 60% of all project participants, with 34% of these occupying leadership positions (compared with only 21% before the project). The number of women holding leadership positions had increased from almost zero to around 35%.

The project also linked communities to a wide range of support institutions: training, research and extension institutions as well as innovative farmers. Farmers were able to identify a range of technologies, which they wanted to work with.

Case study 3: Will be the PTFDWIC project own success story

Conclusion

Local and international experiences suggest that small- scale farmers need simple technologies based primarily on their own local resources. They need to be involved from the on set of the programme to help select the proper methods suitable in their locality. Careful planning and providing the right incentives could enable trained farmers disseminate information on Agroforestry technologies to their fellow farmers.

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COLLABORATIVE NATURAL RESOURCE CONFLICT MANAGEMENT

Agroforestry and forestry Extension Training Workshop
for Fringe Communities around Worobong Forest Reserve
25-28thMay 2004

Valerie Fumey Nassah
Collaborative Forest Management Unit
RMSC - FC

1. Introduction

Resources derived from forest, land and other natural assets and related services are crucial to the livelihoods of poor households. Local communities depend on these resources for economic, social, cultural and environmental benefits whilst development of these resources has been almost negative the population of the country has continuously increased.

According to Fisher et al 2000, all human beings have human rights which are a set of basic or core rights without which people cannot gain access to or enjoy other rights. These are:

- The right not only to life but also to livelihood
- The right to protection from violence
- The right to safe water, food and shelter
- The right to health and education
- The right for both women and men to have a say in their future

Due to these rights, different interests and needs of individuals within communities access to resources is often pervaded by conflicts. Conflicts are increasing in number and intensity at all levels as the demand for resources intensifies with population pressure and its related issues. Effective prevention and management of resource conflicts requires new skills, tools and networks, which requires the involvement of all stakeholders

This paper highlights what causes conflicts, how to analyze conflicts and stakeholders and how to mediate conflicts to ensure equitable share of benefits and responsibilities for all stakeholders.

2. What is a conflict?

The word conflict means different things to different people it could refer to

- A debate or contest
- Disagreement argument dispute or quarrel
- Struggle battle confrontation
- State of unrest, instability, turmoil or chaos

Conflict can also be an opportunity to consider the diversity of opinions and ideas that come when people hold different perspectives.

'....the way forward is often at the point of friction'

Conflict has been defined as;
Conflict is a relationship among two or more opposing parties whether marked by violence or not, based on actual or perceived differences in needs, interests and goals.

Conflicts are a normal part of human interaction and can be managed productively

3. Understanding conflicts

In the management of forest and wildlife resources conflicts may be found:

- Within and among communities
- Between communities and governments (FC)
- And with other community based groups, NGOs, commercial interests and other external players 1
- Between husband and wife
- Between parents and children, women, youth and men
- Among community groups
- Between organizations and community groups
- Between different political parties
- Between different ethnic groups
- Between countries etc

Conflicts arise because people perceive issues differently based on their cultural roots and values, influence of upbringing and experiences they have gone through at different stages of their life.

Conflicts arise over disagreements of tenure, access, control, distribution of land and natural resources. Conflict is therefore a pervasive aspect of natural resources management. Conflicts emerge significantly in form and intensity and people working in this field should deal with it but it is difficult to deal with.

In the management of conflicts one needs to be aware of the following:

- Conflict is rarely just one event or one dispute between two or more parties
- The origins of a conflict are often complex and multiple and are embedded in local cultural systems but connected to the wider political economy
- A conflict is often a sequence of cause and effect events that involve people, resources and decisions

Conflict can have constructive and positive outcomes depending on the way people handle it. It can be a catalytic force for social change and it alerts us to

- Inequality
- Potential loss or unacceptable impacts
- Potential obstacles to progress etc

Conflict can be a creative constructive force in the community if we develop the skills to analyze and use it in a peaceful and participatory way.

Stages of conflict

There are three stages of conflict. These are the latent – emerging – manifest stages

At the **latent** stage there is a potential threat and it is hidden

During the **Emerging** stage tensions may build up, members of a group might withdraw /boycott programmes of the group

At the **manifest** stage parties involved in the conflict might resort to violence or mob action etc

Conflict and stakeholder analysis

Conflict analysis is a learning process to help stakeholders understand a conflict better and decide whether and how best to act. In analyzing conflicts one needs to look at the causes, context and people involved

Activities undertaken should include:

- Exploring history and origins of conflict
- Identifying stakeholders
- Determine relative power and interest relationship, and motivations of stakeholders
- Probing issues related to cultural diversity gender and policy
- Using the questions what and why outcome of an analysis would be range of issues clarified impact of conflict identified
- Causes of conflict identified and prioritized
- Interest, needs, and views determined
- Information needed
- Build rapport etc

IDENTIFYING & ANALYSING STAKEHOLDERS

*Stakeholders are those affected by the outcome of conflict or can influence the outcome.

*As conflict becomes more defined through analysis, the range of stakeholders in the conflict becomes increasingly apparent.

*Stakeholder analysis seeks to determine:

⇒ Who the stakeholders are?
⇒ To what extent each group of stakeholders is affected by the conflict?
⇒ Who is most affected, and should therefore be directly involved in managing the conflict?

Prioritizing Stakeholders

- A major objective for analyzing stakeholders is to determine which groups need to be involved directly in actions to manage the conflict.
- **Primary stakeholders:** Those most affected and have the greatest dependency on the resource, or on solution of the conflict. Those with power to influence outcome of Collaborative conflict management may be considered as Primary Stakeholders

- **Secondary stakeholders:** Those indirectly or less dependent on the resource or affected by the outcome of the conflict.

Secondary Stakeholders may play key role in managing conflict through:

- **Information gathering and analysis:**
Provide technical support, accessing or advising on information

- **Advocacy:** Work alongside weaker part to ensure transparent and equitable process.

- **Intermediaries:** May act as facilitator or mediators between other conflicting groups.

- **Monitoring and enforcement:** Can help seek enforcement of agreements if breached.

Defining Stakeholder Interests

- For opposing stakeholders to switch from rivalry to collaborative mode, they need to understand:

a. How they interrelate or are interdependent
b. That they have more to gain from collaboration than from competing
- To help this shift in thinking there is need to determine the true interests and underlying motives of the different stakeholders and working to satisfy those interests.

- In practice, stakeholders need to distinguish between their positions, interest and needs, as well as consider the likely interests and needs of other groups.

  ⇒ The relative power and influence of different groups on the issues;
  ⇒ Stakeholders' interests and expectations;
  ⇒ The possible different stakeholders' response to conflict;
  ⇒ Relations among stakeholder groups;
  ⇒ Likely difficulties that stakeholders will have in working together;
  ⇒ The potential contributions of each group towards managing the conflict
  ⇒ To what extent individuals' and groups' interests overlap with those of other individuals and groups.

- **Position**: What people say they want in a conflict? A specific outcome or action perceived as meeting immediate needs. E.g. Local community members must stay out of the national park

- **Interest**: Refer to what people really need or fear and what motivates them. I.e. the underlying motives of the position, which include needs, fears, concerns, social and cultural beliefs & value those parties, hope to advance. E.g. we are concerned about the impact of community activities on biodiversity on the park.

- Interests are the silent movers behind the positions

- An onion and its layers to describe the relationship of position, interests and needs:

  -The outer layer may be thought of as the public positions of the various opposing groups (what they say and do).

  -The second layer is their interest – What they want to achieve from a particular situation

  -At the core are needs or the most underlying motivations that must be satisfied. (See diagram).
- Positions are likely to be concrete and explicit, whereas interests are frequently unexpressed and intangible.

- It is often difficult to distinguish between positions and interests. A simple guide is to examine each position that is put forward and ask "Why" not?" or what reasons does one group have for not meeting the demands or interests of the other group.

Moving from ***Positions*** to ***Interests***

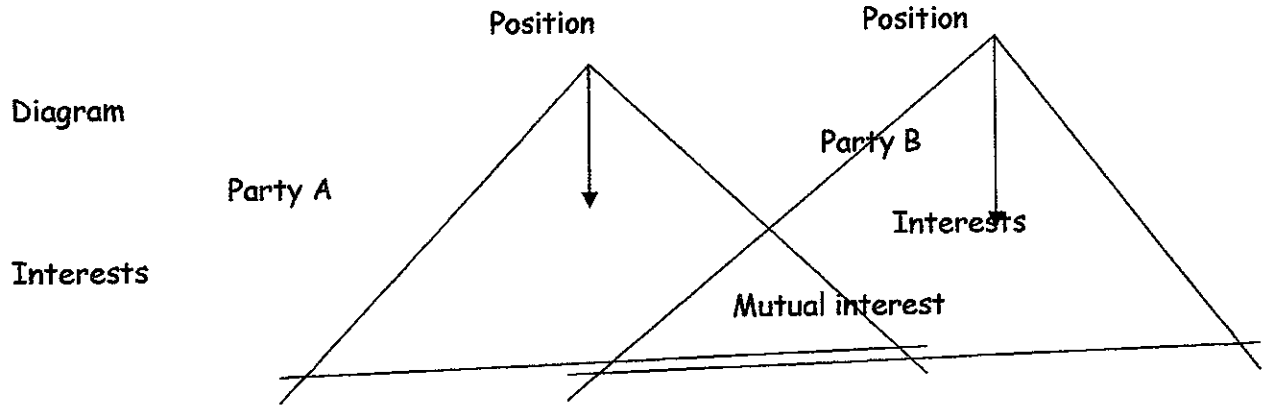
- Collaborative Conflict Management requires shifting the focus of conflicting groups from their positions to their interests.

- This is because positions are not only narrow and lack flexibility but demand results in a short term thereby reducing creativity in find possible solutions to the conflict.

- On the other hand interests cover a broad range of underlying motivations, some of which are likely to be shared among the conflicting groups. Besides, understanding

the interests behind certain positions can lead to identification of alternative options or solutions to the conflict. Interests also suggest long term approaches to meeting needs.

- Interest-based negotiations seek to find interests held in common from which all can derive shared benefit.



Keys to Conflict Management

- ❖ Entry point
- ❖ Preliminary analysis of conflicts and identification of stakeholders
- ❖ Broader engagement of stakeholders
- ❖ Stakeholder analysis of conflict
- ❖ Assessment of conflict management options
- ❖ Agreement on strategy
- ❖ Negotiation of agreements implementation of agreement
- ❖ Evaluation learning and conflict anticipation

Mediation is:

> "The process by which the participants together with the assistance of a neutral person or persons, systematically isolate disputed issues in order to develop options, consider alternatives and reach a consensual agreement that will accommodate their needs."

Mediation does not result in winners and losers but in workable solutions. By opening up the channels of communication, relationships can be preserved and a greater variety of solution considered.

During mediation an independent third party chosen by the disputing parties facilitates the negotiation by the parties of their own solution to the dispute. A mediator who is respected and trusted by all parties and, if necessary, has expertise in the area of the dispute can be of great benefit in helping the parties reach a solution satisfactory to all of them.

Mediation is a voluntary ad confidential process. It will not be binding on any party unless and until agreement is reached. Mediation is conducted without prejudice to any legal rights, which the parties may have. If mediation is unsuccessful, other means of dispute resolution may be used or continued.

For the mediation itself a neutral venue including a main room large enough to accommodate all participants and separate rooms for each group will need to be arranged. Once the participants have been introduced, the mediator will open the mediation by making a short statement explaining the mediation process, its essential features and objectives and the mediator's role in the process.

After the opening, the mediator will ask each party in turn to explain what it is that has brought them to mediation. From the parties' statements, the mediator will identify the issues, which are in dispute and the common ground between the parties. Then, after checking with the parties, the mediator usually will write those issues and the common ground on a whiteboard and will set an agenda for the discussion of those issues.

During the mediation, the mediator will meet with each of the parties separately. The aim of the private sessions is to enable the mediator to explore any underlying issues and to ensure that the parties are content with the process. It is during the private session that proposed settlement options are often fully explored and tested. The mediator will not, unless specifically authorized to do so, disclose anything said in a private session to the other parties.

Why Use Mediation?

Some of the main benefits of mediation are that it:

- Puts control of the resolution of the dispute into the hands of those best equipped to find the most appropriate solution in view of the parties' individual needs and interests;
- Helps get negotiations started without the fear of showing weakness;
- Provide an opportunity for parties to have their say, to tell others exactly how they see the problem in a confidential, non-threatening atmosphere without prejudice to any rights;
- Helps disputing parties understand how the others see and feel about the problem;
- Enables business relationships to be maintained and even enhanced by encouraging cooperative problem solving;
- Enables identification and exploration of all issues, including those which may not be revealed in arbitration or litigation because of the application of the rules of evidence;

- Helps disputing parties to regain the perspective that can so easily be lost in arbitration and litigation;
- Provides the opportunity for an unlimited range of creative complete and final solutions unlike the limited remedies which can be awarded by an arbitrator or a Judge;
- Can provide procedural and psychological as well as substantive satisfaction;
- Is confidential thereby avoiding adverse publicity or media attention and the need for any confidential or commercially sensitive information or trade secrets to be publicly disclosed;
- Is confidential thereby avoiding adverse publicity or media attention and the need for any confidential or commercially sensitive information or trade secrets to be publicly disclosed;
- Is usually significantly cheaper and quicker than arbitration or litigation and can be arranged to suit the convenience of the parties;
- Focuses on the future rather than on the rights and wrongs of the past.

Group Work

Divide trainees into four groups

Identify all stakeholders involved in the implementation of the project in the Worobong forest reserve

On a flip chart indicate the most powerful stakeholder with the biggest circle and the least powerful with the smallest circle. The size of the circle for the other stakeholders should be determined by the power in relation to the effects of the conflict and who can help to resolve the conflict

Identify relationships between these stakeholders. Indicate with different lines whether it is

- Working partnership
- Cordial
- Broken
- Positive

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FORESTRY CONCEPT AND EXTENSION PACKAGES

Agroforestry and forestry Extension Training Workshop
for Fringe Communities around Worobong Forest Reserve
25-28thMay 2004
ISAAC ADONTENG (District Manager –Begoro)

INTRODUCTION

About 82,000km^2 of Ghana's land area is in the natural high forest zone. Ghana forest is endowed with diverse life forms (plants and animals). The forest is undoubtedly an important natural heritage for all mankind providing both goods and services for the benefits of all.

All societies are dependent on the forest and trees and have responsibilities for biodiversity, climate regulation. Clean air, soil and water conservation, food security, wood and non-wood products, energy services, medicines and cultural values.

Reorganizing the importance of the forest and its resources call for its proper management to ensure that these benefits will continue for future generation. It is worth noting that like all other renewable natural resources in the country, the resources can decline or be affected by deforestation. This decline can affect both the quality and quantity of the forest resources. Ghana' forest has suffered a sharp decline which can be traced from 1983 when bush fires razed through a large tract of our reserves, coupled with illegal chainsaw operations, the export boom of the 80's, slash and burn agriculture, shifting cultivations and illegal timber operations among others.

Plantations have been found out as the surest way to arrest the decline and re supply the forest resources as well as reduce the demands on the remaining natural forests. Plantation can be defined a forest stand or crop raised artificially either by planting or sowing. Plantation establishment started extensively in Ghana in the early 70s under the taungya system to augment timber production. Under this system farmers were allowed to grow crops in the planted areas in the exchange for the protecting the saplings and weeding the plot. In few years, when the new trees are so large that food crops can no longer be grown in the shade they cast, the farmer abandons the land. It is interesting noting that plantations can be established in areas that have been badly degraded or where the soil fertility has been lost through over cultivation. Similarly, plantations can be established on salt –affected areas using salt –tolerant species.

Varied reasons can be given for plantation establishment, which include fuel wood production, shelter creation and protection. When plantations are combined with natural forest they can provide a suitable home for wildlife

What to plant?

Deciding on the choice of species depend on three (3) basic questions

1. The purpose for the plantation
2. Species potentially available
3. What will grow on the site available

Other **factors** to consider in species selection include:

i. Site-climate, soil, topography
ii. Species resistance to pests, adaptability, easy establishment, productivity and early returns
iii. Cultural treatments- weeding etc
iv. End –use of the species- e.g. if fuel wood, the following should be of preference: high heating value, specific gravity, and moisture content, ease of harvesting. If poles, then the straightness of the pole, strength and natural durability should be considered.

Nursery Establishment

A tree nursery produces seedlings and planting materials for reforestation and tree planting programmes. A tree nursery can be defined as an area where young plants can grow with special care and protection. The purpose of nursery therefore is, to raised seedlings:

i. Of required species
ii. To the right size and sturdiness at the beginning of the planting season and
iii. In sufficient numbers, for the intended planting programme

Important Factors to consider in Nursery Management

Nursery activities are key to plantation establishment. Factors to be considered include:

i. Site quality (soil fertility, soil texture and soil Ph)
ii. Availability of water supply all year round
iii. Terrain features (preferably area with gentle slope)
iv. Accessibility band proximity to planting sites

Nursery layout

1. Shape - the nursery as much as possible be square in shape to minimize boundary lines, which have to be fenced and to avoid unnecessary transport
2. Size – this should take into account the number of seedlings required, type of planting materials, paths, fences etc.

Seedling production methods

There are two methods of nursing tree seedlings

1. Bare rooted seedlings – seedlings are lifted and planted with roots bare of soil
2. Container seedlings – individual containers are taken to the planting sites and the seedlings planted with the ball of soil.

Growing seedlings in containers requires eight operations namely:

1. **Obtain potting soil-** either forest topsoil or appropriate nursing medium such as a mixture of black soil and saw dust n
2. **Prepare suitable mixture-**
3. **Fill pots** - when filling; the lower third of the containers should be compacted rather firmly to make sure the soil does not fall out again easily.
4. **Place pots in beds**-polypots are filled by a scoop or by hand and packed as poly beds
5. **Sowing:** to quick starts germination various pre-sowing treatment can be used. For sowing in poly pots, place a number of seeds into each pot depending on the germination rate. For sowing in seedbeds, the seed is best put in rills running across the bed. In both case, the seeds should be placed at the right depth.
6. **Pricking out, sorting and transplanting;** pricking out refers to the transfer of young seedlings from germination beds to poly pots or transplant beds. Pricking out should be done when 2-4 tree leaves have developed. This activity should be done early in the morning or late in the afternoon.
7. **Care and tending:** this comprises the following activities – watering, shading, prevention of pest and diseases root (and if possible shoot) pruning.
8. **Preparation for planting out:** before the seedlings can be delivered for planting in the field, some steps are still required which include, hardening –off, packing and transportation.

When should field planting be done?

Field planting should be done at the beginning of the major planting season between May and July. Planting time affects survival and growth rate of tree seedlings. Seedlings transported to planting sites should be kept under shade and kept moist by watering in the morning and /or late in the afternoon.

Proper planting is necessary for establishing a successful plantation. The following precautions should be taken.

1. The planting hole should be deep and wide enough to allow the soil surrounding the root to fit into the hole without injury to the roots.
2. The polybag should be removed before the seedlings together with the surrounding soil is put into the whole
3. If the planting hole is too shallow, roots may be put out of shape into L- roots or J-roots.
4. If the whole is too deep for the size of the seedlings, loose top should be poured in before the seedlings is put into the whole to avoid creating big air space around the roots
5. Seedlings should be planted as deep as they were in polypots
6. Green branches or leaves around seedlings should not be buried, as this will encourage termite attack.
7. When properly planted, the seedlings should stand straight

Maintenance of the trees once planted should be of concern to attain the objectives for which the trees were grown. Some silvicultural treatments include weed control, pruning, pollarding, coppicing and thinning.

Green firebreak establishment

A green fire belt is a passive band of evergreen vegetation that is capable of stopping fire from spreading into protected area. The aim of a green firebreak is to cover an area with complete canopy to prevent the growth of grass weeds and other vegetation that would otherwise occupy the site.

Selection of species is based on their degree of tolerance to fire, resilience ability –ability to re-sprout following fire injury, fast growth rate, evergreen foliage, wide crown canopy and low leaf litter production. Suitable species include both exotics and indigenous species. These exotic include: *Cassia siamea* (Cassia), *Azadirachta indica* (Neem). Among the indigenous species are: *Alstonia boonei* (Nyamedua), *Blighia sapida* (Akye), *Funtumia elastica* (Fruntum), *Khaya Senegalensis* (Mahogany).

Establishment: Clearing must be done thoroughly while leaving all existing trees and poles standing. Recommended width of firebreaks are a minimum of 15m and a maximum of 40m.

Pegging and planting: good planting stock is used to ensure good survival rate. Planting distance should be 4m x 4m. If food crops should be planted in between; it should be within a radius of 1m to any tree seedling. Planting should be done when the soil is moist.

Tending and beating up: Green firebreaks should be weeded two to three times every year. All dead seedlings should be replaced as weeding progresses. Only one seedling per planting hole.

PART THREE: FIELD VISITS AND ESTABLISHMENT OF DEMONSTRATION PLOTS.

Agriculture Field Visit and Establishment of Improved Plantation Demonstration Plot

The Agriculture extension group after the classroom lectures visited an agriculture demonstration site to observe and learn on a well established crops farm which has been adopted through the methods taught in class. They were later on taken to a nearby village where an improved pen was built to house the livestock. The animals looked well to confirm what has been taught in class. The next day was used to devote to lining and pegging, treatment of plantain suckers using the hot water treatment for planting. The idea of treating the plantain suckers was to remove diseases and increase the yield of plantain. After the above activities done, a mini demonstration plot with improved plantain variety was established at Besebuom, the venue of the workshop and also one of the participating communities. Participants were encouraged to collaborate effectively with the extension officer in charge of the area and the District staff to enable them increases their farm produce with improved technologies skills.

Visit to Agroforestry Woodlot Establishment at Bonsusu and the Establishment of Demonstration Plot.

A one-day field visit was made to a two-acre woodlot plantation established by a farmer and his wife by the Forestry and Agroforestry group. The tree species used for the woodlot plantation was *Gliricidia sepium,* 'mother of cocoa'. The wife of the farmer briefed the participating members on the practices and methods adopted to have a good output. She stressed that before the use of Gliricidia *sepium* species, the soil of their two acres of land was poor and needed a lot of fertilizer however with the establishment of the tree species for about 3 years, the land has improved drastically and production has gone up. She informed the visiting group that on the same piece of land in addition to the tree species crops such as cocoa, plantain, maize, wisa and nutmeg are grown. She stressed that instead of getting stakes for the wisa and nutmeg, the stems of the Gliricidia could serve that purpose. Dr. Adu –Anin, the team leader also briefed members on the importance of Gliricidia and other Agroforestry nitrogenous trees which are equally good as Gliricidia because of their multipurpose nature. The visiting team asked a lot of questions which were directed either to the host farmer or to Dr. Adu –Anin. The team was so impressed by responses that almost all of them wanted a stem of Gliricidia to be grown in their communities when they learnt that the tree could be vegetative propagated. After the visit to the Gliricidia woodlot plantation, the agroforestry and forestry group were again taken to a six year Cedrella and Teak plantations along the same route. The following day was used to establish a demonstration plot on some of the Agroforestry technologies such as alley cropping, woodlot, contour farming, and taungya and among others in Beseboum. The practical demonstration was led by Mr. Yaw Owusu (GRRM-Yensi)

PART FOUR: GROUP WORK

Phasing Out – Way forward

The PTFDWIC project was started in the year 2000 however actual implementation took place in the year 2001. Since its formation to the present, the project had involved eight (8) communities who have been able to cultivate about 700ha of degraded forest land with both exotic and indigenous timber species in addition to their food crops. All too soon the project would come to end under the PTFDWIC management however in order to sustain the project without any external funding there is the need to come out with a mechanism for continuity of the project.

The trainees were then led to critically analyze the activities they have been doing under the current management structure of the project (PTFDWIC) and what they will do with the new management (FSD) when there is phasing out of the funded project. The trainees wrote down all activities they do with or without payment from the project. This was compared with what FSD would be providing them when the external funding cease. The phasing out exercise was done in order to ascertain whether without any external support the communities would be committed to work hard as they are doing now. Box 1 indicates the benefit under the PTFDWIC that the trainees ascertained they are enjoying and what the Forest Services Division would like to provide under the new management.

Box 1: Incentives from both PTFDWIC project and FSD

Benefits from the projects

- Free land for cultivation
- Provision of free seeds
- Buying of seedlings from project members*
- Planting of the tree seedlings *
- Weeding around the trees
- Beating up*
- Tendering *
- Provision of Wellington boots, cutlasses
- Provision of nursery equipment such as shovel, watering can etc
- Tractor

Proposed Benefits from FSD

- Provision of free land for cultivation
- Buying seedlings from communities / provision of seedlings to communities **
- Planting of tree seedlings **
- Beating up**

* These are activities project members are paid for services provided.

** These are activities that FSD has promised to pay the communities for the services to be provided.

From the activities listed in Box 1 by the trainees and FSD it was realized that the communities would still enjoy the most important thing that is access to free land under the FSD management. The only thing that might not be provided to them frequently is incentives such as Wellington boots, cutlasses, and nursery equipment among others. However the facilitator encouraged the communities to accept the opportunity to be provided by FSD in order to get free land for food crop production when the external funding ceases. They could use the money from the sales of

the food crop produce to buy the necessary farm implements needed. The Assistant District manager also admonished the trainees that the provision of the land comes with a clause 'provided the communities would be ready to plant and tend the trees'' since the Forestry Commission (FC) is making the necessary provision to provide them with a percentage of the harvestable trees when matured. At the end of the phasing - out exercise the participants were happy and promised to work effectively under the new management.

Development of Extension Action plan for 2004

The trainees were asked to come out with an action plan that would ensure that they also pass on the knowledge they have gained to other project members and community members who did not get the opportunity to attend the workshop. The trainees then developed a six- month action plan to aid them in their extension activities. The action plan developed by the trainees is shown below in Table 2.

Table 2: PTFDWIC EXTENSION ACTION PLAN -2004 (JUNE –NOVEMBER)

Activity	Responsible team	Resource person	June	July	Aug	Sept	Oct	Nov	Variable Indicator
Organize Community meeting to inform them of issues that took place at the workshop	All the five focus groups -Health -Agroforestry -Forestry -Cooperative -Agriculture		x						Meeting report
Agriculture activities Establish Agriculture demonstration plot (the rationale is to teach the other project members and the community members use of improved farming techniques and crop varieties such as the hot water treatment of plantain to remove diseases and increase yield)	Agriculture focus group	May need assistance from MOFA extension officer		x					Established plantation demonstration plot.
Agroforestry and forestry activities - To establish different demonstration plots of the different Agroforestry technologies - Provide education on the benefits and potential of AF - Educate farmers on fire prevention and control	Agroforestry /forestry focus group	FSD staff and Mr. Yaw Owusu (GRRM-Yensi)		x	x x	x x	 x	 x	❖ Established agroforestry demonstration plot

Health activities -to Educate community members on issues such as nutrition, malaria prevention and control and antenatal and postnatal care.	Health focus group	Liaise with the District health authorities (DHMT) to provide backstopping activities. (Mr. Simon Eshun)			x	x	x	x	Less incidence of health problems
Formation of cooperative -Educate community members on the need to form cooperative credit union -support the formation of cooperative body	Cooperative focus group	The district cooperative officer (Mr. Asare Bediako			x	x	x	x	Cooperative body formed
Monitoring of the various extension activities		The project manageress and the project implementing team	x	x	x	x	x	x	Monitoring Report
Evaluation of activities		A consulting team					x	x	Evaluation Report

Presentation of Agroforestry technologies kit tools

Madam Rejoice Ahiable, the PTFDWIC project manageress, presented to all the eight community representatives with a comprehensive handout on Agroforestry technologies kit tools.

Evaluation

Participants were very happy with the training received, meals served, and how the organizers treated them with kindness and respect however they want the venue to change the next time a similar workshop is to be organized. They were grateful to the sponsors of the workshop and extended their gratitude to them.

PART FIVE: QUESTIONS AND ANSWERS, SUGGESTIONS AND COMMENTS

A lot of questions and corresponding responses, discussions and suggestions were made during the four days training workshop. Key among them has been outlined under their respective topics.

COOPERATIVE FORMATION

Q. How can one be credit worthy?

A. Mr. Bediako responded there is the need to repay loans to attract more loans when necessary.

AGRICULTURE

Q. How much interval should you leave between plantain suckers when planting?

A. It is deal to leave 3 meters by 21/2 meters between suckers and half hectare can contain 150 plantain suckers.

Q. Do you have specific dates to plant the improved seedlings?

A. You have to prepare your land on time so that when the rains begin you start planting your crops.

AGROFORESTRY AND FORESTRY

Q.Can one plant *Leucaena leucocephala in* degraded areas?

A. Yes, one can do that since leucaena is a fast growing and at the same time nitrogen fixing tree species it would let the soil regain its fertility sooner than leaving it to fallow naturally. This is an example of improved fallow system we have discussed earlier.

Q. If you have 5 hectares of degraded land how do you make it regain its fertility?

A. Replant it year after year with nitrogen fixing tree species such as *Leucaena leucocephala, Acacia albida, Gliricidia sepium, Milletia thonningii* among others and do not feel disappointed because you will surely see better results.

Q. Why is the distance left between fire belt and plantation different?

A. It is ideal to have different measurement for specific purposes. With respect to green fire belt the purpose is for faster closure of the canopy whiles with the plantation you need to consider straight boles if one wants the trees for timber or poles.

Q. Is it possible to interplant food crops in green belts to reduce the cost of maintaining them by the Forest Services Division?

A. The group could send petition to the forest District Office for consideration and possible implementation.

Q. How can one prune?

A. They were shown pictorially by demonstrating how a tree can be pruned to prevent destruction.

Q. How does one prune a curved tree?

A. It has to be properly cut at some point to allow it coppice early.

Q. How do you prune when the tree is too tall?

A One can use ladder to get to the top and then cut it.

Q. Does every tree coppice?
A. No, it is not all trees that can coppice and for effective coppicing cut 3 meters from the ground.
Q. When is thinning done?
A. This depends on your objectives/purposes i.e. is it for poles or timber? If it is for poles you could harvest earlier than timber, which takes a longer time to mature.

Q. How many years interval can you do thinning?
A. It depends on the situation at the time if it is for timber or poles.

Q. Is it the responsibility of FC to do thinning?
A. Yes it is the responsibility of the Forest Services Division to do thinning however since you have now been taught it is hoped that you could assist them during thinning.

Q. Do we have a share in the project we have embarked upon?
A. Yes, they were assured that the agreement was still valid only it has not passed through parliament yet but whatever it is they will surely receive their due if not their beneficiaries will eventually enjoy their due.

Suggestion: Lack of commitment on some farmer's part so it will not be fair to share proceeds equitably among us. To avoid a situation where a lazy member will unduly benefit from the package it will be good to practice the taungya system community by community.

Contribution: The participants were made to understand that tendering of trees is not that simple and one could loose everything when you least expect so the group leader should be firm in dealing with lazy members. They could also employ the best option for the good of the group. They were urged to work closely with the District Forest Services to know what changes have occurred for their own benefit.

PART SIX: SOME SCENCES CAPTURED DURING THE PRESENTATIONS, FIELD VISITS AND AT THE DEMONSTRATION EXERCISES.

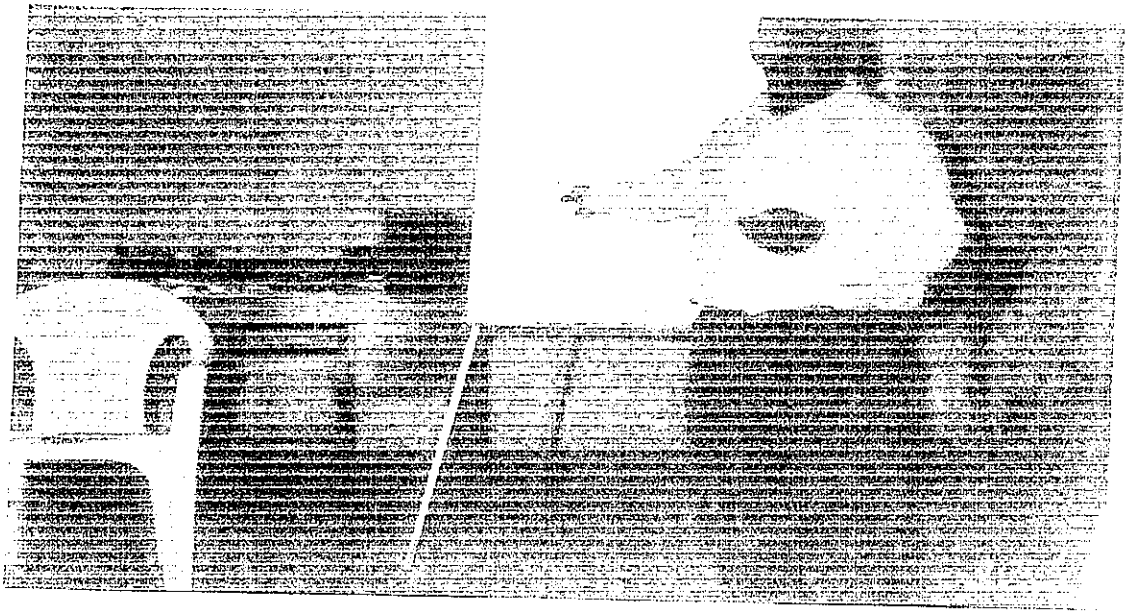

Plate 1: A Resource Person lecturing participants on Agroforestry technologies

Plate 2: The Principal consultant in a *Gliricidia sepium* woodlot with the Agroforestry and forestry extension groups at Bonsusu.

Plate 3: The District MOFA officer demonstrating to participants how to prepare an improved plantain before cultivation.

Plate 4: Participants enjoying field demonstration with the Resource Person

Plate 5: The Agriculture extension group posing in their mini demonstration plot on improved plantain production.

Plate 6: Participants in a three-year *Gliricidia sepium* mixed with food crops and cash crops such as Nutmeg and Black pepper

APPENDICES

Appendix i
SAMPLED FORMAT
TERMS OF REFERENCE FOR RESOURRCE PERSONS / DWM SACRETARIAT/ MEMBERS

Terms of Reference for Resource Person

IRNR Team
C/o UPO BOX 728
Kumasi

.....
.....
.....

Dear Sir/Madam,

Subject: Agroforestry and forestry extension training for fringe Communities around Worobong forest reserve.

The above training workshop is scheduled from 25th to 28th May 2004. The aim among others is to identifying ways to increase and sustain production levels in the areas of tree and food crops, livestock, poultry etc.
The training is targeted at eight rural communities (Peseator, Ahomanmanso, Akoradarko etc) engage in forest rehabilitation project in the Worobong south forest reserve under the ITTO/DWM project near Begoro. In view of the education level of the target groups, the Team would like the resource person/group to do the presentation such that it will be better appreciated by the recipients to boost their understanding.

The resource person is required to present a paper centered on the following issues:

1. .....
2. .....
3. .....

NB. Presentation with pictorial /animation illustrations and practical demonstration are highly recommended and also a brief write up of your presentation will be needed.

Thank you.

Yours faithfully
Dr. Charles Adu-Anin (Team Leader)

Invitation Letter ITTO/DWM Project Members

IRNR Team
C/o UPO BOX 728
Kumasi

The Chairperson

ITTO/DWM project

.....

Dear Sir/Madam,

Subject: Agroforestry and forestry extension training for fringe Communities around Worobong forest reserve.

With respect to the recently conducted survey, to ascertain the needs of the project communities in the area of agroforestry and forestry extension training. The above training workshop is scheduled from **25th to 28th May 2004**. The aim among others is to identifying ways to increase and sustain production levels in the areas of tree and food crops, livestock, and poultry among others.

In view of the above training the Team would like you to meet with your members for them to elect ten (10) people to attend the workshop. The venue for the training workshop would be confirmed later.

Thank you.

Yours faithfully

Dr. Charles Adu-Anin (Team Leader)

NB. Attached is the programme for the extension training workshop

Invitation Letter ITTO/DWM Project Manager

IRNR Team
C/o UPO BOX 728
Kumasi

The Project Manageress

ITTO/DWM project

.....

Dear Sir/Madam,

Subject: Agroforestry and forestry extension training for fringe communities around Worobong forest reserve.

In view of the recently conducted survey done to ascertain the needs of communities in respect to Agroforestry and forestry extension training. The above training workshop is scheduled from **25th to 28th May 2004**. The aim among others is to identifying ways to increase and sustain production levels in the areas of tree and food crops, livestock, and poultry among others and how best communities could disseminate information through extension techniques.

In view of the above training the Team would appreciate your presence during the training workshop. Attached to the invitation letter are the major survey findings on the extension and livelihood needs of the communities and also is the programme for the workshop. The training workshop would take place within the communities however the actual venue has not been confirmed yet.

Thank you.

Yours faithfully

Dr. Charles Adu-Anin (Team Leader)

NB. Attached is the programme for the extension training workshop

Appendix ii
List of participants and programme of workshop

List of members of the various extension groups

Agriculture group	**Forestry group**
Noah Kofi Emmanuel Amanor Ebenezer Lawer Kweku Lapido Dade Matse Tetteh Matri Okatii	Edward Narinson E.G.Nartey Jacob Teye C, Narh Prosper Kwame Bismark James Tetteh H.T.Konor
Agroforestry	**Health**
Abraham K.Tetteh Mac Coffie Teye –Sika Enoch Mensah Atter Tettey George Nartey Joseph Teye Kwablah	John T.Kwame E.G. Nartey Basunu Joseph Odue Lawer Joseph Kwesi Paulina Konor
Cooperative &mobilization	
Abraham Asare Thomas Bartsa Joseph Odorkor Alhasssan Onande Tetteh Laye	

NO.	NAMES OF PARTICIPANTS	ORGANISATION / COMMUNITY
1	David K. Narteh	Akoradarko
2	George Kudjo	Akoradarko
3	Angmor Kweku	Akoradarko
4	James Tetteh	Akoradarko
5	Patrick Komesour	Akoradarko
6	Tetteh Joseph	Akoradarko
7	H. T. Konor	Ahomahomasu
8	Sarah M.Konor	Ahomahomasu
9	Nene Teyemarmor Emmanuel	Ahomahomasu
10	George Mentey	Ahomahomasu
11	C. K. Narh	Ahomahomasu
12	Veronica Tetteh	Ahomahomasu
13	Benjamin Kwam	Ahomahomasu
14	Lamptey kweku	Ahomahomasu
15	Batsa mary	Ahomahomasu
16	Tetteh Koy	Ahomahomasu
17	John T.Kwame	Peseator

18	Edward Narhson	Peseator
19	Norh kofi	Peseator
20	Sarah aku narteh	Peseator
21	Abraham K. Tetteh	Peseator
22	Pernor Tetteh Kwame	Peseator
23	Doku Samuel	Peseator
24	Teye Kwabla	Peseator
25	Doku Koryo	Peseator
26	Kortey Adjodede	Peseator
27	Odue Joseph Tawiah	Peseator
28	E.G.Nartey	Peseator
29	Augustina Nomo	Peseator
30	Teye Emmmanuel	Peseator
31	Robert T.Kwesi	Amokrom
32	Joseph T. Kwabla	Amokrom
33	Ocloo	MOFA –district director
34	Wayo	MOFA
35	Alex Asare	CRM- Manager
36	Valeire Nassah	CRM- Asst manager
37	Mercy O.Ansah	CRM- Asst manager
38	Georgina adusei	Social worker
39	Yaw Owusu	Field Director –GRRM
40	Emmanuella Agyapong	RMSC
41	Ceci Boahenema	DWM-Project member
42	Rejoice Ahiable	Project manageress-DWM
43	Charles Adu –Aning	Project Consultant
44	Mercy derkyi	Agroforester –project assistant
45	Asare Bediako	District manager –cooperative
46	Simon Eshun	Health officer
47	Asenso Serebour	FSD- Asst. Manager
48	Taakie David	Amokrom
49	Kpabitey Teye	Amokrom
50	Kwao Jobua	Amokrom
51	Batsa Abraham	Amokrom
52	Tettey John	Amokrom
53	Osei Patrick	Amokrom
54	Adiko Tetteh	Amokrom
55	Angmortey William	Amokrom
56	Okai T. Emali	krukrutu
57	Joseph Kwesi	krukrutu
58	Atiga Gruse	krukrutu
59	Kwesi	krukrutu
60	Abla Comfort	krukrutu
61	Joseph Angmor	krukrutu
62	Kweku Ncmo	krukrutu
63	Tetteh Kwame	krukrutu

64	Kwame Bismark	krukrutu
65	Narh Maku	krukrutu
66	Christian N. Prosper	Kronkroso
67	Alhassan Onade	Kronkroso
68	Odue Lawer	Kronkroso
69	Kweku Lapido	Kronkroso
70	Enock Mensah	Kronkroso
71	Kweku Aziave	Kronkroso
72	Kumadjoro Teye	Kronkroso
73	Mary Asarebea	Kronkroso
74	Komotey Mante	Kronkroso
75	Tekpetey Arkor	Kronkroso
76	Jacob T.Narteh	Bisiboum
77	Grace Teye	Bisiboum
78	Dantey Isaac	Bisiboum
79	Korkor Dauteytsu	Bisiboum
80	Teyesika Tetteh	Bisiboum
81	Abla Tekpertey	Bisiboum
82	Namo Kwame	Bisiboum
83	Narh Lawer	Bisiboum
84	Cecilia Tetteh	Bisiboum
85	Dede Lawer	Bisiboum

PROGRAMME – PTFDWIC

Agroforestry and forestry extension training for fringe communities around Worobong forest reserve. (25TH-28TH MAY, 2004)

DAY ONE	DAY TWO
80 participants	**Selected members for forestry and agroforestry only**
Tuesday 25th May 2004	Wednesday, 26th May, 2004
8.30 am – Registration of participants 9.00am – 9.30 Opening of workshop Prayer Self introduction 10am –10.45 am Health extension- DHMT Begoro 10.45-11 am snack 11.00-11.45am Leadership skills – Mercy O.Ansah 11.45-12.30 Conflict management – Valerie F.Nassah 12.30-1.15am Cooperative formation – Cooperative society-Mr. A.Bediako 1.15-2.00 pm Interpersonal relationship – Madam Yaa Pokua 2.00- 2.45- General discussions on presentations and criteria for selecting trainees for Agriculture, forestry and agroforestry extension 3.00pm closing	8.30 am – Registration of participants 9.00am – 9.30 Opening of workshop Prayer Self introduction 10.30am- 12.30 - Forest Management and extension packages –Mr. Adonteng (FSD) (agroforestry –forestry group) 1pm-2.30 pm Agroforestry concept and extension packages (theory)– M.Derkyi 2.30- 2.45 -General discussions on presentations 3.00pm closing

DAY THREE	DAY FOUR
Selected members for Agriculture group only	**Forestry –agroforestry group & Agriculture**
Thursday, 27th May 2004	Friday, 28th May, 2004
Agriculture group 8.30 am – Registration of participants 9.00am – 9.30 Opening of workshop Prayer Self introduction 10am –11 am Agriculture extension – MOFA (agriculture group) 11am snack 11.00-11.45am Farmers extensionist to Agriculture demonstration sites **Forestry –agroforestry group (departure 8.30am)** **Study tour** to Bonsusu	8.30 am – Registration of participants 9.00am – 9.30 Opening of workshop Prayer 10-10.45 Recap on issues from the study tour 10.45- 11.45 Establishment of Agroforestry /agriculture demonstration plots by farmers group Snack 12.30- 1.30 – Group work to develop Agroforestry and forestry extension manual 1.30-2.00 Presentation of group work 2.30pm Closing