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**FORESTRY EXTENSION SERVICES IN GHANA
AND HOW THEY ARE CURRENTLY
ORGANISED IN GHANA**

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List of Contents

List of Contents	-	01
1.0 Introduction	-	02
2.0 State of Ghana's Forest Resources	-	03
3.0 Review and Assessment of Forest Extension	-	03
3.1 Definitions of Extension	-	03
3.2 Definition of Extension Approach	-	04
3.3 Types of Extension	-	05
3.4 Forestry Extension in Ghana	-	05
3.5 Training and Visit (T&T)	-	06
3.6 Participatory Approaches	-	07
3.7 Mass Media Approach	-	08
4.0 Justification of the Need for an Extension Service in Ghana	-	11
5.0 Structure of the Proposed Forestry Extension Service	-	11
5.1 An Executive Committee	-	11
5.2 A Technical Committee	-	11
5.3 Field Staff	-	12
6.0 The Way Forward	-	13
6.1 The Face of a New Forestry Extension Service	-	13
6.2 Guiding Principles	-	13
6.3 Key Component of the Approach	-	14
6.3.1 Use of Radio	-	15
6.3.2 Ensuring Stakeholder Participation	-	15
6.3.3 Broadening the Technical Mandate of Extension	-	15
6.3.4 Involving both Public and Private Institutions	-	15
6.3.5 FBO Development	-	15
6.3.6 Joint Planning and Monitoring	-	16
6.3.7 Human Resource Development	-	16
7.0 Source of Funding for Forestry Extension	-	16
8.0 Conclusion	-	18
9.0 Appendix	-	21
9.1 List of Radio Stations	-	21
9.2 List of Television Station	-	27
9.3 List of Newspapers	-	27
10.0 References	-	28

1.0 Introduction

All over the world, forests are an inevitably part every man life. Forests provide us with shelter, from the cradle on which we rest when we are born to our final bed on which we lie before we are buried (coffin). Forests play an important role in economic growth, food security, livelihoods, rural development and in climate amelioration to sustain our lives. Growth in the forestry sector stimulates higher rates of growth in our economy through forward linkage activities such as processing and transportation, and backward linkage activities such as provision of services of the sector, with further growth spurred as a result of spending incomes earned from all these productive activities.

In recent years, attentions have been diverted from traditional natural forests to market oriented plantation forests. This is largely due to the dwindling of natural forests as a result of over exploitation of forest resources , increase demand for timber and other Non - Timber Forest Products as populations are inextricably growing, introduction of new technologies, market expansion and government forestry policies.

Improvement in forestry production, productivity and sustainability will depend on foresters and local communities' willingness to accept and access new technology. Extension and advisory services play an important role in addressing this challenge. Extension services play a pivotal role in ensuring that the clientele have access to improved and proven technologies and that their concerns and needs are properly addressed by relevant service providers. Extension contributes to improving the welfare of farmers and other people living in rural areas as extension advisory services and programs forges to strengthen the farmer's capacity to innovate by providing access to knowledge and information. However, the role of extension today goes beyond technology transfer to facilitation; beyond training to learning, and includes assisting farmer groups to form, dealing with marketing issues, addressing public interest issues in rural areas such as resource conservation, health, monitoring of food security and agricultural production, food safety, nutrition, family education, and youth development and partnering with a broad range of service providers and other agencies (USAID, 2002).

However, despite the numerous role of extension services in the above, it is only expedient logistics and an enabling working environment is provided for extension services to function. Moreover, in Ghana, there's no distinction between forestry extension services and agricultural extension services. This paper therefore seek to assess the current issue on the ground in the forestry sector and prescribe solutions that will effect changes in the positive direction should they be implemented.

2.0 State of Ghana's Forest Resources

According to the U.N. FAO, 21.7% or about 4,940,000 ha of Ghana is forested. Of this 8.0% (395,000) is classified as primary forest, the most bio diverse and carbon-dense form of forest. Ghana had 260,000 ha of planted forest.

Changes in Forest Cover: Between 1990 and 2010, Ghana lost an average of 125,400 ha or 1.68% per year. In total, between 1990 and 2010, Ghana lost 33.7% of its forest cover, or around 2,508,000 ha.

Ghana's forests contain 381 million metric tons of carbon in living forest biomass. Biodiversity and Protected Areas: Ghana has some 1185 known species of amphibians, birds, mammals and reptiles according to figures from the World Conservation Monitoring Centre. Of these, 0.8% are endemic, meaning they exist in no other country, and 3.0% are threatened. Ghana is home to at least 3725 species of vascular plants, of which 1.2% are endemic. 4.6% of Ghana is protected under IUCN categories I-V.

3.0 Review of Forestry Extension

3.1 Definitions of Extension

Extension can be defined as the entire set of organizations that support and facilitate people engaged in forest production to solve problems and to obtain information, skills, and technologies to improve their livelihoods and well-being. Extension has been recently defined as systems that facilitate the access of farmers, their organizations and other market actors to knowledge, information and technologies; facilitate their interaction with partners in research, education, agribusiness, and other relevant institutions; and assist them to develop their own

technical, organizational and management skills and practices (Christoplos, 2010). However, donors (World Bank) agree that services must be provided in a fundamentally different way than in the past, emphasizing on a framework for agricultural service provision that might be effective under current circumstances in developing countries. This framework puts forestry extension into a much broader context of a demand-led service market. Hence the term “advisory services” is used instead of “extension”, to include the many non-traditional tasks, such as market information, micro-finance, health issues, farmers’ self-organization and the like (en-ext.)

3.2 Definition of Extension Approach

Forestry Extension Services in Ghana dates back to the nineteenth century with the aims of protecting forest reserves, increase productivity and production of Non-Timber Forest Products. For research to be effective there must be an efficient mechanism whereby its findings can be used by the end users (fringe communities, farmers). The process of making research findings available is the function of extension. Accordingly, research produces innovations which are passed on to extension which in turn passes them to fringe communities and farmers. (Mettrick, 1993). Developing a medium to exchange information is vital because it is necessary to integrate information from researchers, farmers and extension agents to be able to develop technologies that work. .According to (extension approaches), confusion arises when talking about different approaches to extension as different authors use different words in explaining the concept (approaches/systems/models). Rivera (1984) used “system”, Worth (2002) calls it “approach” Duvel (2004) refers to it as a “model”.

Extension approach refers to the doctrine for an organization, which informs, stimulates and guides such aspects of the organization as its structure, mission, vision, leadership, its programs, strategies, its resources and linkages. An extension approach influences the choice of the target audience, the resource requirements and the allocation, their methodologies employed, and the results and impacts of the extension efforts.

The meaning of an approach also differs. Leeuwis (2004), referred to an extension approach as the basic planning philosophy that is being adopted by an agricultural extension organization.

This helps extensionists to understand the fundamentals, concepts and functional methods of extension adopted to fulfill its aims, especially in the planning phase.

Hagmann and Shultz (2000), explained an approach as a way in which different guiding principles are applied in a specific situation to fulfill different purposes and/or target specific development beneficiaries, whereas Bolinger, et al (1994), see an approach as consisting of a series of procedures for planning, organizing and managing the extension institution as well as or implementing practical extension work by staff with technical and methodical qualification and using the necessary and appropriately adapted means.

3.3 Types of Extension

Several approaches have been tested, and adopted by countries in Africa to improve the technology dissemination process are identified.

There are common characteristics which all extension approaches share:

- ✓ All function through non-formal education
- ✓ All have content related to agriculture
- ✓ All use communication techniques and aids
- ✓ All seek to improve the capabilities of rural people.

3.4 Forestry Extension in Ghana

In Ghana approaches of forestry extension range from the top-down commodity-based approaches of the pre- and post-independence to more participatory approaches. Specifically, the approaches that are still being used include the World Bank's Training and Visit (T&V), commodity, and participatory approaches and most recently farmer field schools (FFSs) in addition to innovative ICT based approaches which provides advice to foresters on-line and other approaches such as the promotion of mobile phones and community radio stations.

However, it must be noted that these approaches are borrowed from agricultural extension as there have been no direct forestry service extension that considers the subject in the country. The current approaches used are discussed below:

3.5 Training and Visit (T&V)

T&V is one of the earlier approaches that focused on transfer of technology using a top-down, one-size-fits-all approach. This approach was introduced after the department of agricultural extension services (DAES) had been organized under the unified extension systems (UES) concept. It was first adopted by the then Upper regions followed by the Volta region. Existing extension organizations were merged into a single national system. This approach was designed on the assumption that farmers lack technical knowledge for increasing productivity, hence the solution was therefore to provide them with modern technical knowledge. The approach is based on a set of managerial and organizational principles that are of broad applicability and which, when applied together, constitute an extremely powerful managerial tool (Yudelman, 1984).

This approach differs from the general extension by its emphasis on frequent in-service training for staff, regular visit to farmer's plantation, promotion of extension/research linkage and improved extension management (Benor et al., 1984). In the process of service delivery, subject matter specialists (SMS) gave training to frontline extension agents on new but relatively simple technical issues, the extension agents then proceed to train farmers and/or farmer groups on the new technologies. The extension agents' transfer concentrated standardized extension messages concerning a selected crop or livestock, input supplies, or credit line, produced research institutions to the farmers. T&V was implemented in developing countries willing to use T&V nation-wide. The hierarchical line of command of the T&V extension system was seemingly fitting the political culture of many countries. This approach uses extension methods including group discussions, seminars and in-service training courses for extension staff and farmers, on-farm demonstrations and farmer field days (en-ext). Specific tools were: contact to a determined number of farmers' groups, handouts and technical fact sheets. T&V had been designed as a cost-efficient extension system. The delivery of messages was considered economic, as large numbers of farmers could be reached fortnightly.

In regions where this approach was used to establish plantations through the "Modified Taungya System", it was realized that a greater degree of success was achieved.

However, due to the relatively high financial outlay required, the T&V approach could not be sustained at the end world bank funding. The approach came under attack in the 1980s due to the cost of (Rivera, 2001) extension services. It was also criticized due to the passive role allocated

to farmers, as well as the failure to factor in the diversity of the socio-economic and institutional environments facing farmers and ultimately in generating behavior change (Chambers and Ghildyal, 1984; Birner et al., 2006).

3.6 Participatory Approaches

The passive role of farmers in the T&V approach necessitated the promotion of participatory approaches where the need for empowerment of the farmer will be paramount. In this approach the role of the extension agent is to facilitate an in-depth situation analysis by the farmers themselves at the onset of their working relation. Once farmers have become aware of the causes of their problems and have identified the most pressing ones, the extension agent provides technical knowledge and technologies, which may be useful to address the problems identified.

For this approach to work well, extension agents need not only agricultural expertise, but also good analytical, pedagogical, and facilitating skills (en-ext). What makes this approach participatory is that farmers are the principal decision-makers in defining goals, planning, implementing, and evaluating development activities. This helps in strengthening farmers' problem-solving abilities from the start. In relation to community development, the existence of a local government and a decentralized administration is a precondition. If the local government is not dominated by elites, then the accountability, effectiveness, and efficiency of local services can be substantially improved. Reality still looks different, but too much political pressure from donors could mean that solutions are imposed, running the risk of being rejected, and subsequently degenerating into a mechanistic application of the instruments.

Moreover, participatory approaches depend strongly on a conducive political and administrative environment. Moreover, for finding appropriate technological answers to farmer questions, researchers must take into account local constraints, risks, and cultural preferences. Therefore, it is best to involve farmers at all stages of the research process, from the definition of research issues, through the planning phase, implementation, and evaluation of research results.

3.7 Mass Media Approach

This involve the use of all mass media (radio, newspapers, television, and internet). This is a very powerful media which is used in the country. In the Brong-Ahafo Region for instance, forestry service personnel use various radio station to disseminate information on the “Vision 2020 Forestry Project”. Phone - in segments are allowed to enable the listening audience ask question and contribute their quota to the development of the project. Even though this medium allows a large audience to access the same information at the same time irrespective of their destinations, there is no assurance of implementing the right schemes suggested during such fora. This is because the is lack of supervision and distortion of information may also arise as one may not have been informed on preceding segments but may have access to succeeding one. (Appendix I II and III indicate some of the major Radio Station, Television Station and Newspapers published in the country)

Table 1, presents a summary of the approaches above, their strengths weaknesses and how they can be improved.

Table 1. Extension approaches in Ghana and their strengths, weaknesses and prospects.

TYPE	HOW IT IS USED (CHARACTERISTICS)	WHO USES IT	LOCATION	STRENGTHS	WEAKNESS	INSTITUTIONAL ARRANGEMENT	HOW TO IMPROVE
T & V (Training and Visit)	It requires a large number of staff Regular staff training Interaction between foresters – research-extension must exist It relied on transfer of technologies Emphasis on single line command Activities are time bound Fixed visiting schedules Use of farmer groups	MOFA under various projects (URAD EP, NAEP), Wildlife Service Division under CREMA approach to forest and wildlife conservation	Western , Eastern, Some parts of Volta, Ashanti and Brong-Ahafo Regions	Capacity building of staff and farmers Adequate logistics for extension delivery Increased extension coverage Adequate monitoring and supervision Field demonstrations widely spread	Rigid in terms of framework High cost of dependent Highly dependent on research knowledge	Single line of command Monthly training Fortnightly staff meeting Bi-monthly technical review meeting Subject matter specialist	T&V should be modified for adoption (provision of adequate transport , fuel and other logistics to enhance supervision) RELC should be strengthened SMS centers should be revived Improve staff strength Redesign demonstration for use
Particip	Emphasise on	NGOs	Benefici	Client	It is time	Linking up	Adequat

atory Approaches (PRA, PTD & E, PID, FTD, PLA & SLA)	client ownership Client centered Knowledge base is indigenous It's usually a bottom up approach It requires very good moderation or facilitation Use of farmer groups Relies on TOT for facilitation Aspects of FSR&E incorporated	Projects (SPFS) e.g. Brong-Ahafo water and land management	ary project district	empowerment Enhances sustainability Enhances adoption of technologies More judicious use of resources Improve farmer to farmer technology transfer It enhances communication among members	consumi ng It can conflict with client's time for other activities	with local leadership for mobilization of clients Stakeholder for a or networking	e sensitiza tion There should be well laid down monitoring and reporting systems
Mass Media Approach	It is usually an Up – Bottom approach Fixed times for programs	NGOs, MOFA, Forestry Commission	Country wide	A large group of people are reached simultaneously It saves cost as the only cost incurred is on airtime	Distortio n of relevant information may occur Lack of supervision	Single line command	There should be provision to enable facilitators have time for clients

4.0 Justification of the Need for an Extension Service in Ghana

Forestry extension service development is relevant as with the development of a new forestry extension, roles will be well defined and appropriate policies formulated to delineate who does what. It will also create an avenue where fringe communities, foresters, hunters and other stakeholders will discern the importance of the forest and as such collaborate to develop strategies that will help in sustainable management and utilization of Ghana's forest resource which is in accordance with the Vision of the Ministry of Lands and Natural Resources. Furthermore, the creation of a new Forestry Extension Service will result in the creation of jobs that would help reduce the employment rates in the country.

5.0 Structure of the Proposed Forestry Extension Service

The Forestry Extension Service will be a section under the Forest Services Division. Its Vision will be: **To Ensure the Effective Dissemination of Relevant Information to Concerned Stakeholders to Enhance the Sustainable Management and Utilization of Ghana's Forest Resources.** In establishing the framework, all stakeholders will be considered to facilitate the acceptance of policies that will be formulated. Below is a suggestion of how the set-up will be:

5.1 An Executive Committee

This committee will be the head of the extension service. It shall in consultation with other stakeholders formulate policies that will direct the course of the extension service. It shall also organize, command, coordinate, and control the activities of all the other committees.

It shall consist of a Chairman or President (Elected or Appointed) by the Ministry of Lands and Natural Resources. It shall also consist of positions like the Secretary, Financial secretary, Public Relations Officer, Judiciary Committee Chairman.

5.2 A Technical Committee

This shall be made up of experts from the various sectors in the Forestry Commission. They shall assess conditions existing on the ground and prescribe lasting and easily applicable solution. It shall also consist of positions specified above in the Executive Committee.

5.3 Field Staff

Research is meaningless unless it is able to solve the problem it was intended to eradicate. Yet, researchers cannot always by themselves reach the large population of the country. This shall be people who are well vest in extension and as such shall act as a link between researchers, and the above mentioned Committees to relay vital information to foresters, farmers, fringe communities and other stakeholders.

The table below shows the various offices in the committees and the fields where they should be appointed or elected to ensure equity.

Table 2. Constituents of the various Committee under the proposed set-up

	EXECUTIVE COMMITTEE	SECTOR	QTY
1	Chairman/President	Ministry of Land and Natural Resources	1
2	Vice Chairman/President	Forestry Commission	1
3	General Secretary	Forest Service Division	1
4	Financial Secretary	Wildlife Division	1
5	Public Relations Officer	Non – Governmental Organization	1
6	Judiciary Committee Chairman	Ghana Institute of Foresters	1
7	Organizer	Timber Industries Dev't Division	1
	TECHNICAL COMMITTEE		
1	President	Forest Research Institute of Ghana	1
2	Secretary	Faculty of Renewable Natural Resources (Kumasi)	1
3	Treasurer	University of Energy and Natural Resources (Sunyani)	1
4	Member	Forest Research Institute of Ghana	2
5	Member	Faculty of Renewable Natural Resources (Kumasi)	1
6	Member	University of Energy and Natural	1

		Resources (Sunyani)	
7	Member	Tree Growers Association	1
8	Member	Ghana Institute of Foresters	1
9	Member	Timber Industries Development Division	1
10	Member	Agricultural Extension Services	1
11	Member	Ghana Timber Millers Association	1
12	Member	Furniture and Woodworkers Association of Ghana	1

6.0 The Way Forward

6.1 The Face of the New Forestry Extension Service

The call is for the extension system to be established and some restructurings made in the existing off-the-record ones to become more pluralistic in nature to enable it to become more cost effective. The new extension system should include the application of information technology in extension processes, improving communication process placing emphasis on the participation of farmers, empowerment of rural women, training of extension personnel, involving research institutes in extension activities as well as involving foresters and extension workers in adaptive research. Extension today, must be pluralistic and inclusive (involve various players using knowledge, skills and various tools) to able to react to the needs of forestry sector.

6.2 Guiding principles

In order to develop the integrated pluralistic system, the following needs to be done.

- I. The concept and process of the integrated approach should be developed and disseminated to help change mind sets
- II. Proper information and data base of service providers as well as farmers and FBOs should be developed
- III. To improve the efficiency of extension services, continuous training of extension agents and evaluation of the impact of training should receive a high priority

- IV. Community based organizations and Self Help Groups (SHCs) should be popularized to help empower farmers and to encourage farmer-farmer extension
- V. Institutional pluralism and linkages in extension should be encouraged to use synergy among institutions as a way of dealing with the limitations of individual organizations.
- VI. More emphasis should be played on participatory approaches to agriculture extension and development
- VII. Human Resource Development Management Directorate(HRDM) should be given due importance to different sections of extension system
- VIII. Due importance should be given to the specialized and privatized extension system
- IX. Decentralize the planning process in agricultural extension and prepare independent/flexible plans of action for the local level. This includes the preparation of realistic short and long term human capital development plan anticipating both pre-and in-service education and training needs, opportunities and facilities in agriculture research, agriculture extension and agriculture education areas
- X. Adopt extension methods that can provide accurate and fast information to a large number of farmers even in the face of dwindling financial resources (network, radio, television, cyber or e-extension)
- XI. Establish stakeholder platforms at various level to facilitate interaction and learning among stakeholders (services providers forum, research and extension linkage arrangements).

6.3 Key Component of the Approach

E or Cyber Extension: Information and communication technology applications for effective forestry extension services-Challenges, Opportunities, Issues and Strategies.

Access to information and improved communication is a crucial requirement for sustainable agricultural development. Modern communication technologies when applied to conditions in rural areas can help improve communications, increase participation and disseminate information and sharing of knowledge and skills. The challenge is not only to improve the accessibility communication technology to the rural population but also to improve its relevance to local development.

6.3.1 Use of Radio

Radio is an influential communication tool. It has potential for extension in terms of reach and relevance local broadcasting can achieve especially if done in a participative way. It however, require that the policy is expounded with a focus on the use of FM stations. Currently, most of the district extension plans has no budgetary allocation for development and broadcasting of forestry messages.

6.3.2 Ensuring Stakeholder Participation

The extension system must be able to help people think about their own problems and find appropriate solutions. The role of the extension worker in this context becomes that of a facilitator for exchange of ideas and information among stakeholders. The participatory extension can be seen as a flow of information from farmer to farmer achieved through exchange visits, training workshops), farmer- extension-interactions (adaptive trial, participatory evaluation of research results) farmer-market-farmer interactions (collective supply of inputs, collective marketing of outputs, market information)

6.3.3 Broadening the Technical Mandate of Extension

Extension Methods should be broadened to include coverage of topics such as marketing, inputs synchronization and environment. Encouraging bottom –up grassroots extension program planning at the village level and to establish a demand- driven, gender sensitive and holistic, and extension system.

6.3.4 Involving both Public and Private Institutions.

We need to include other stakeholder in the planning and delivery of extension services with government performing the functions of national policy guidance, coordination among various actors, quality control, resource mobilization, manpower development, monitoring, research, evaluation, impact assessment and documentation.

6.3.5 FBO Development

Promotion of village-level and community-based organizations of farmers and special interest and vulnerable groups such as women, youth, rural poor, tribal and nomadic people though

formation of village-level and community-based extension planning and implementation communities.

6.3.6 Joint Planning and Monitoring

Establishment of inter- agency/inter-disciplinary coordination, collaboration and linkage mechanisms for promoting joint planning and programming by the AKIS (Agricultural Knowledge and Information System) actors such as extension, research, education and rural indigenous center through measure like formation of public and private stakeholders'' extension communities ensuring participation of small farmers at all operations levels.

Establish national Association of Extension provides to service as a think tank to ensure development and application of bottom-up policies and plans, need-based skill oriented curricula and operational strategies attractive service conditions for extension personnel and financing of extension.

6.3.7 Human Resource Development

Development of an extension human resource management plan aimed at reforming pre-service education and in-service training through improvement in curricula and teaching-training methodologies, development of teaching, learning materials, so as to bring extension education in line with worldwide extension reforms, and inclusion of career development path covering salaries, promotion and training opportunities for extension professionals at par with specialists in other agricultural disciplines like research and education. Development of databases including those involving the application or electronic information technologies in support of extension work (cyber extension).

7.0 Source of Funding for Forestry Extension

Encouragement of financing of extension services not only by the public sector but also by the private sector. NGOs and producer's associations through public private partnerships, separation of the functions of services delivery from the financing and ensuring satisfactory resource mobilization, allocation, disbursement and utilization.

The public sector has been accused of being inefficiency in extension services delivery especially with regards to the Television and the Farmer Field Scheme funding. Extension to valuable

commodities such as cocoa, cotton, oil palm and rubber can be paid for through the marketing arrangement but privatization of extension to resource poor farmers to plant food crops may not be practical. This implies, that companies and agencies that market-oriented commodities can deliver and pay for extension service while the public sector focus on extension on food crops. However, some public-private partnership in extension can be explored.

- I. Public sector pays and private sector delivery advisory services. In this case, the Ministry can sign a contract with an NGO or private company to deliver extension on specific commodity or to undertake general extension. This was tried under the Ministry's AgSSIP (Extension Development Fund Program) in the agricultural sector some time ago. These companies, unlike the government extension staff who do other menial of activities, focused on extension delivery although the cost of service delivery was higher than the financial commitment on the MOFA extension staff. The question also arises if the government will be committed to paying for contracts on extension delivery, even in the face of diminishing government research.
- II. Establish service providers' forum. Government provides funds to improve the capacity of private services provider to supplement government efforts at services delivery. The focus here is to surrender some of the extension functions to the private sector (especially at the market extension in which the private sector be driven by profit modules.
- III. Extra efforts can be made to generate at least 1% of all stumpage fee as well as 2% of all other revenue generated within the Forestry Commission to help boost funds that will be used to run the new forestry extension.

8.0 Conclusion

In general, though, problems in extension approaches are due to a combination of a lack of relevant technology, failure by research and extension to understand and involve clientele in problem definition and solving, lack of incentives for extension agents, and weak linkages among extension, research, and farmers.

Moreover, extension and research approaches must be tailored for solving the problems of a unique target group effectively. An approach may become the best one if rural producers use and apply the provided knowledge, technology and services and if the standard of living subsequently improves. Forestry extension approaches being used by extension staffs of the various providers are the T&V, participatory and the mass media based. Different programs have diverse goals and thus differing strengths and weaknesses. For instance, T&V, although financially unsustainable, proved effective in training agents and improving the management of the overall system. Farmer field school models have proven very effective at strengthening farmers' capacity and empowering rural people. However, looking at the characteristics, weaknesses and strengths of each approach, it is clear that the T&V could be modified and adopted for extension delivery in Ghana. Several extension methods are used by extension staff but those that attract attention and stimulate desire for further information and subsequent adoption such as farmers' field days, agricultural shows, folk media, video, cinema or film shows and brochures/leaflets distribution were not commonly used by extension staffs in their operational area. The T&V approach was also found to be more effective in terms of the indicators used.

Issues that arose from the study are inadequate funds for extension services, lack of transport facilities, inadequate supervision, large number of farmers to contact (high farmer extension ratio), absence of working office and stationeries. Others with respect to extension delivery in Ghana were coordinating the system, assuring quality, and building capacity of service providers (training).

From the experiences of historical approaches to improving agricultural extension delivery, a number of lessons can be drawn to further advise the present extension approach

Based on the strengths, weaknesses and institutional arrangements of the approaches being used in Ghana, the following policy recommendations are made.

1. T&V should be modified for adoption (provision of adequate transport, fuel and other logistics to enhance supervision)
2. Encourage farmers to set the research agenda.
3. Adopt methods to reach a larger clientele due to limited resource (mobile phones, internet, FM station, FBOs) See Appendix 1 for List of FM stations in Forested Regions of Ghana and beyond.
4. Provides some basic tools (GPS, measuring tapes, weather forecasting, laptops, and internet connectivity) for AEAs and supervisors
5. Encourage public private partnership in extension delivery
6. Extension will need a greater focus on facilitation and access to markets through farmer group formation and ICTs, special skills that go beyond the basic technical skills. Agents will need skills in group dynamics, marketing, and ICTs. More than ever, he or she will need to be a skilled technician who also is a broker of sorts, being able to connect farmers in their areas to markets and other institutions that are demanded by farmers.
7. Funding of agricultural extension services can come through decentralization, involvement of farmers' associations and NGOs, contracting-out of extension services, public private partnerships, privatization, and embedding advisory services in other types of contracts.
8. Should the governments be interested in promoting contract plantation farming related to certain agricultural products of high value (e.g. mango, coffee, and organic products), there must be must proper laws to ensure that: Small and medium farmers gain access to a profitable market, Small and medium farmers receive agricultural inputs, credits and extension advice by agricultural companies; Large plantation production for multinational companies can be substituted by contracting out the production to small resource poor but hardworking farmers.

An all-encompassing recommendation is to establish an Integrated Extension System that embraces pluralism of practitioners (public, private companies and civil society, FBOs) focusing on commodities and issues of importance to the agricultural industry. Capacity building of

service provider, and use of multiplicity of methods to share information, learn and educate all stakeholders along the value chain. The methods to be used include:

Use of farmer Based Organization as contact points for extension delivery. This will allow for the spread of value chain concept and farmer to farmer extension. FBOs can be supported to lead and undertake their own demonstrations. The extension workers become facilitators. This is similar to Farmer Field School.

Establishment of interactive radio programs. Radio can be a powerful tool for extension because of its wide coverage and contextual relevance. The main thrust of this approach is the use of information and Communication Technology (ICT)-extension or use of cyber extension. This can foster access to information and improve communication.

By the above, it is my hope that Tropenbos Ghana will use your influence and office to help in the realization of a Forestry Extension service that will come to address all the current shortcomings of the existing approach and also help create jobs that will offer the avenue to improve the living standards of stakeholders concerned and bring into realization the vision of the ministry of lands and natural resources which is to ensure the sustainable management and utilization of Ghana's lands, forests, wildlife and mineral resources for socio-economic growth and development.

Long Live Forestry Extension Services

Long Live Tropenbos

Long Live Ghana.

APPENDIX

List of Radio Stations in Ghana

According to the National Media Commission, there are 247 radio stations in the country which are Licensed. Below are some selected ones from the various regions of the country:

Ashanti Region

No	Name	Frequency (MHZ)	Location	Telephone
1	Fox FM	97.9	Prempeh Assembly Hall, Kumasi	
2	Hello FM	101.5	Kumasi Central Market	
3	Ash FM		Pankrono, Kumasi	
4	New Mercury FM	91.5	Bantama, Kumasi	
5	Angel FM	96.1	Abrepo Junc. Kumasi	
6	Nhyira FM	104.5	Kumasi	
7	Focus FM	94.3	KNUST, Kumasi	
8	Nkosoo Radio	96.5	Kumasi	
9	Zuria	88.7	Kumasi	
10	Boss Fm	93.7	Adum, Kumasi	
11	Garden City Radio	92.1	Cadbury Hall, Kumasi	
12	Lov FM	99.5	Kumasi	
13	Light FM	94.9	Stadium Kumasi	
14	Otec FM	102.9	Kumasi	
15	Kess Radio		Kumasi	
16	Kapital Radio	97.1	Kumasi	
17	New Mighty	91.1	Mampong	
18	Virgin FM		Konongo	
19	Kings FM		Konongo	
20	Shaft FM		Obuasi	
21	K FM	103.7	Central Market, Kumasi	

22	Kessben FM	93.3	Kumasi	
23	Spirit FM	88.3	Asokwa, Kumasi	
24	Link FM	90.5	Kumasi, Polytechnic	
25	Anigye FM	102.5	Adum, Kumasi	

Brong – Ahafo Region

No	Name	Frequency (MHZ)	Location	Telephone
1	Radio BAR	93.5	Sunyani	0352027422
2	Sky	96.7	Sunyani	0352027413
3	Space FM	87.7	Sunyani	0352028333
4	Ark FM	107.1	Sunyani	0275979174
5	Royals FM	104.7	Wenchi	0208489473
6	Shalom	100.3	Berekum	0245273126
7	Chris	88.9	Berekum	
8	Adepa FM	107.3	Techiman	0207424034
9	Classic FM	91.9	Techiman	0244820905
10	Dinpa FM	91.3	Sunyani	
11	Jerryson	99.9	Nkoranza	0242209073
12	Achiaa FM		Nkronza	
13	Omega	102.5	Drobo	0245462008
14	Yankee	95.5	Sampa	0246152033
15	Adars	107.5	Kintampo	0243277270
16	Success	90.9	Goaso	0242226684
17	Power	90.7	Duayaw Nkwanta	
18	Asta FM	103.7	Techiman	
19	Gift	105.5	Dormaa-Ahenkro	
20	Agoro	93.1	Berekum	
21	Nananom	92.5	Goaso	

Central Region

No	Name	Frequency (MHZ)	Location	Telephone
1	Radio Central		Cape Coast	
2	Nkwan FM		Assin Fosu	
3	Arise FM		Twifo Kraso	
4	Katinka Fm		Agona Swedru	
5	Radio Peace		Winneba	
6	Yes FM		Cape Coast	
7	Solar FM		Dunkwa- on- Offin	
8	Spark FM		Dunkwa- on- Offin	
9	Ahomka FM		Elmina	

Eastern Region

No	Name	Frequency (MHZ)	Location	Telephone
1	BiYac	94.1	Oda	
2	Life FM	98.7	Nkawkaw	
3	Hi FM	93.3	Abetifi	
4	Eastern FM	106.7	Koforidua	
5	Sun Rise	105.1	Koforidua	
6	Rap FM	107.7	Donkorkrom	
7	Fawe FM	105.9	Nsawam	
8	Asuogyaman FM	100.7	Atimpoku	
9	Ripe FM	90.1	Somanya	

Greater Accra

No	Name	Frequency (MHZ)	Location	Telephone
1	Joy FM		Kokomlemle	
2	Hitz FM		Asylum Down	
3	Happy FM		Asylum Down	
4	Unique FM		Kanda	
5	Choice FM		Roman Ridge	
6	Great FM		Achimota	
7	Y FM		Shiashi	
8	Ada Radio		Big Ada	
9	Obonu FM		Tema	
10	Adom FM		Tema	
11	Radio Gold		Latebiokoshie	
12	Peace FM		Tesano	
13	Channel R		Dzowulu	
14	Sunny FM		Asylum Down	
15	Atlantic Radio		Asylum Down	
16	Top Radio		Kokomlele	
17	Oman FM		Madina	
18	Sena Radio		Ashiaman	
19	Radio Universe		Legon	
20	Asempa FM		Nima Junction	
21	OK FM		Tesano	
22	Vibe		Asylum Down	

Northern Region

No	Name	Frequency (MHZ)	Location	Telephone
1	Radio Savannah		Tamale	
2	Filla FM		Tamale	
3	North Star FM		Tamale	
4	Radio Justice		Tamale	
5	Diamond Fm		Tamale	
6	Bishara Radio		Tamale	
7	Simli Radio		Tolon	
8	Susion Radio		Yendi	

Upper East Region

No	Name	Frequency (MHZ)	Location	Telephone
1	Style FM	99.3	Bolgatanga	
2	'A' One Radio	101.1	Bolgatanga	
3	UNA Radio	89.7	Bolgatanga	
4	Builsa Country Radio	106.5	Sandema	
5	Ward FM	88.3	Zuarungu	
6	Mabina		Navrongo	

Upper West Region

No	Name	Frequency (MHZ)	Location	Telephone
1	Radio Progress	98.1	Wa	
2	Radio Upper West	90.1	Wa	
3	Radford FM			
4	Radio Free		Nandom	
5	Han Fm			

Western Region

No	Name	Frequency (MHZ)	Location	Telephone
1	Ankobra FM	101.9	Axim	
2	Best FM	90.5	Bogoso	
3	Liberty FM	92.7	Asawinso	
4	Rainbow FM	101.1	Juaboso	
5	Vision FM		Debiso	
6	Adehye FM		Bibiani	
7	Tricky FM		Aowin Suaman	
8	Twin City FM		Sekondi	
9	Velvet V		Amenfi West	
10	Dynamite FM		Tarkwa	

Volta Region

No	Name	Frequency (MHZ)	Location	Telephone
1	Volta Star Radio	91.5	Ho	
2	Comboni FM	89.70	Sogakofe	
3	Dayi FM	89.7	Anfoega	
4	GBC Radio	92.1	Kete-Krachi	
5	Tongu FM	92.10	Sogakofe	
6	Lorlorny FM	93.3	Hohoe	
7	Victory FM	96.1	Aflao	
8	Volta Premier FM	98.1	Ho	
9	Jubilee FM	106.9	Keta	
10	Radio Amlima	107.30	Hohoe	
11	Light FM	96.5	Keta	
12	Volta Star Radio	98.1	Akatsi	

APPENDIX II

Television Stations in Ghana

TV STATION	LOCATION
Ghana Television	
Metro TV	
TV 3	Kanda
TV Africa	
Viasat One	
Net II TV	Madina
MultiTV	

APPENDIX III

Newspapers in Ghana

- ✓ Daily Graphic
- ✓ Daily Guide
- ✓ Mirror
- ✓ The Ghanaian Chronicle
- ✓ Ghanaian Times
- ✓ Ghana Palaver
- ✓ The Independent
- ✓ Junior Graphic
- ✓ Heritage
- ✓ The Ghanaian Observer
- ✓ People and Places
- ✓ The Searchlight
- ✓ The Finder Newspaper

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