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CHRISTIAN RELIEF AND DEVELOPMENT ASSOCIATION

TRAINING PROGRAMME ON AGRICULTURAL EXTENSION

CCRDA

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1. Development Issues In Small Holder Agricultural Development Of Ethiopia

Agriculture is the mainstay of the Ethiopian economy. It is the largest contributor to the GDP (about 50) , employs 88% of the labor force, and generates 90% of the foreign exchange earnings. Agriculture provides raw materials for more than 70% of the country's industries that are largely engaged in processing of agricultural raw materials.

Individual peasant farming is by for the most dominant sub - sector, accounting for over 97% of the agricultural output. The average farm size is very small, less than 1.0 ha on the average, and about 80% of the production is destined for home consumption and seed.

Crop production is essentially rain - fed, with only about 100,000 ha of land being irrigated. The rainfall pattern over much of the highland areas is bimodal, with the main rain ('Meher' season) occurring from June through September, and the short rains ('belg' seasons) occurring from February to May. About 80% of the 6 to 7 million hectares of the cultivated land is planted during the main season.

Basically two agricultural system exist in Ethiopia mixed crop production and pastoral livestock production. In the mixed crop system, livestock production is viewed both as a major means of investment and as a source of draft power (oxen) . It is typically found above 1500 meters above the sea level , i.e. in the mid and upper altitude zone. Pastoral livestock dominates the semi - arid and arid lowlands, usually below 1500 meters above sea level.

Ethiopia is endowed with a great wealth of natural resources. Out of the total estimated 1.12 million hectares of the total land area, some 66% is potentially suitable for agricultural production. The existing combination of geology, topography, climate, vegetation and soil has created a highly diverse agro - ecological conditions. Because of the climatic diversity cropping systems are complex with farmers growing a wide range of crops in different agro - ecological zones. Cereals account for nearly 85% of the total cultivated land and 69% of the calories consumed. Teff, barley, sorghum, maize and wheat are the five most important cereals.

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Despite the enormous potential, the performance of Ethiopia's agriculture has been disappointing. With a little over 1 ton per hectare, cereal yields are reportedly one of the lowest in the world. In the case of teff, the most important cereal crop, in terms of hectarage, yield levels are less than 0.8 ton per hectare. The poor performance of agricultural output has contributed immendely to poverty and food insecurity. Some 60% of the population is reported to live below poverty line[1] about 13 million people living in the rural areas are classified as chronic poor.

Food insecurity has become chronic in many parts of the country. There is a growing reliance on international donors for a major portion of the food consumption needs. Food aid requirements are estimated to vary from 500,000 mt. in a good production year to 2.8 million mt. in a bad year (USAID, 1995).

Major Issues In The Development of Small Holder Agriculture

A number of factors have constrained the development of agriculture in Ethiopia. The low level of technology, inadequate infrastructures, of the effects of unfavorable institutional and policy framework of the previous government, environmental degradation environmental constraints, traditional attitude, inadequate human resource development, and sub - economic holdings are among the major impediments.

I. Low Level of Technology

Land and labor productivity are low in Ethiopia because of the low level of technology utilization. In the cereal growing areas, land preparation is carried out with the help of a locally constructed traditional plow ('maresha') drawn by a pair of oxen. The plow does not turn the soil but merely scratches the surface. The land is plowed several times before planting. Hand cultivation is the dominant practice in the perennial growing areas (southern, eastern and western parts of the country). The whole process of land preparation takes a lot of time, up to six months, is exhaustive for the farmer and ineffective against weeds.

Harvesting is done entirely manually and is done by sickle. A farmer cultivating two hectares of cereals on his own may require more than one and half months to complete the harvesting operation. Threshing is carried out by driving cattle over the straw. The chaff is separated from the grain by winnowing the mixture by hand in the wind. The daily output of such technique is low and involves a significant loss of output

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The use of chemical and biological technology is very limited in Ethiopia. Modern chemical fertilizers is used by approximately 20 to 30 percent of the estimated six million farm households. Aggregate fertilizer use does not exceed 10 kg of nutrients per hectare, one of the lowest in Africa. Application rates are significantly below the recommended levels of 150 to 200 kg per hectare and in many cases fall to 40 to 50 kg per hectare on those farms that use fertilizers (USAID, 1995).

Although the benefit of improved seeds, is known to many farmers, little has been done to ensure access to the wide variety of seeds they require. The National Agricultural Research System (NARS) and the seed multiplication and distribution services have been unable to serve the peasant because of misguided policies of the previous government (focus on state farms and producers' cooperatives) and inadequate funding. Small farmers are totally on their own seed, saved from previous harvest. Pre- and post - harvest loss of output is estimated at 15 - 20% , significantly higher than the African average of 12% . The supply of herbicides and insecticides is poorly organized (UNDP, 1994).

In case where technologies were designed for the small-holders, these were often not adopted because of poor research and extension linkages, inadequate extension logistic support, low farmers' participation in the verification, lack of a wariness and limited access to these technologies. Inadequate institutional capacities for multiplication and transfer of proven technologies at a wider scale, have also contributed to the low technology adoption (UNDP, 1994).

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1 According to the world bank (1992) a person consuming less than 2,100 Kilocalories/day is said to fall below the poverty line

II. Inadequate Infrastructure

Ethiopia has dissected terrain which makes it difficult for the development of transportation infrastructure. The high cost of road construction and maintenance have left the country with road density among the lowest in Africa. The density is estimated to be 21 km. of road per 1000 sq. km or 0.43 km per 1000 population (ERA, 1996). More over, only 11% of the paved road (about 3,478 km) and 19% of the gravel road (about 20,334 km) are in good conditions. It is estimated that approximately 75% of farms are more than 5 km from the nearest all - weather road. Transportation in the rural areas is dependent on pack animals and human load. Although animals and humans can move far heavier loads by the whell than by back - carrying, the use of carts is very much limited. The building of feeder roads for wheel transport has never been part of the rural tradition.

III. Unfavorable Institutional and Policy Frame Work

The former military government adopted a socialist policy which envisaged the transformation of the peasant sector through large - scale state and collective farms. Much of the public investment and services in agriculture was directed towards state farms and producers' cooperatives. Between 1981/82 and 1984/85, for instance, over 20% of the budget expenditure in agriculture was spent on state farms, while their contribution to the total agricultural output stood at only 4%. About 84% of the loan disbursed for agriculture was also spent on state farms.

The government's grain marketing and pricing policies also put a heavy burden on the peasant sector. Farmers were required to sell a certain quantity of grain (quote allocated by the local authorities) at fixed prices (often less than half of the market price) to the state - owned agricultural marketing corporation (AMC).

Tenure insecurity undermined farmers incentive to invest on the land . The 1975 land reform proclamation declared all land state property and made the transfer of land by scale, lease, mortgage or similar means illegal. The proclamation allowed everyone above the age of 18 years to be allocate land for cultivation, thus leading to a frequent redistribution of land.

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Peasant associations (PAs) were created with the power among others, to redistribute and administer land. Service cooperative (SCs) were also established to deliver inputs, sell merchandise, market farm outputs, provide credit, etc. However , these institutions were rather used to enforce unpopular policies, including villagization, collectivization and quote deliveries, instead of protecting farmers' interest.

There are no financial institutions that specifically serve the small holder sector. Both the Commercial Bank of Ethiopia (CBE) and the Development Bank of Ethiopia (DBE) (The former Agricultural and Industrial Development Bank) served the urban areas and / or the commercial sector in the rural areas. With loan operations heavily collateralized and requiring large minimum loans, loan operations continue to neglect the small farmers.

IV. Environmental Degradation and Weather Constraints

The major constraints with respect to the environment are those related to soil degradation and inadequate and unreliable rainfall. The Ethiopian highlands suffer from massive land degradation due to erosion. It is estimated that 1,900 million tons of top soil is annually eroded from the highlands, sharply reducing soil fertility and yield. About 76% of the highland area is said to be seriously eroded and 4% has outstripped its capacity to be of value for production. The problem of land degradation is closely linked to high population pressure and the absence of adequate soil conservation practice in the traditional farming system and lack of clearly defined land property rights. Deforestation and cultivation of fragile lands and steep slopes have caused severe erosion in densely populated areas.

Erratic weather condition has made agricultural production unpredictable. Recurrent drought has resulted in famine vulnerability and /or food insecurity. In particular farmers in Tigray, Wello and Hararghe have been frequently by drought and devastating famine. The total number of people of affected by drought annually could range from a minimum of 2.5 million in a good year to more than 13 million in a bad year.

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V. Traditional Attitude

Peasant farmers are generally viewed as resistant to change, conservative and risk - averse . In Ethiopia the dissemination of new technologies takes a long time because of non-traditional methods are viewed with suspicion. The followers of Orthodox Christian Church refrain from any type of productive activity during holidays. A typical Christian peasant may choose to starve to death rather than work on the farm on a certain saint day, and there are several holidays in any given month. The development of handicraft activities in Ethiopia is constrained by some negative attitudes and cultural taboos. Although the general public especially the rural population, is dependent on blacksmiths, potters and weavers for a range of goods including plough - shares, blades of axes, sickles, pottery items and clothes, artisnal production generally receives low social status. Similarly, the productive employment of rural women is adversely affected by lack of a decision - making voice both at the household and community level. The patriarchal attitude of the society has meant cultural and social subordination for women.

VI. Inadequate Human Resource Development

Investment in human capital has remained very low even by the standard of many African countries. Access to primary health care and basic education failed to improve under the former government as budgetary and foreign exchange allocations were diverted to meet other priorities like the war effort. Inadequate institutional capacities to collect analyze and interpret data for policy and program formulation, monitoring and evaluation has also resulted in inappropriate and ineffective strategies for improving agricultural development.

VII. Sub - Economic Holdings

Over 65% of the holdings in Ethiopia are below one hectare in six and are cultivated only once a year during the main rainy season. Small and fragmented farm sizes, coupled with the low level of technology, soil degradation, poor infrastructure and lack of an enabling policy environment, have reduced the capacity of small farmers to undertake long - term investment on the farm. New entrants into the labor force are also facing serious difficulties in acquiring land for cultivation, hence the number of landless people is growing from year to year.

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The opportunities for opening up large new areas are mostly confined to the sparsely populated areas of the western and southern parts of the country. But migration and resettlement schemes in these areas have proved to be too costly (as seen under the military government) and may not be feasible under the present political arrangement.

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2. Agricultural Development Policies of the EPRDF Government

The Transitional Government of Ethiopia (TGE) issued a new economic policy, emphasizing the need to revitalize the economy and create conducive environment for the private sector in November 1991. The policy recognized the need to limit the role of the Government to selected economic services (infrastructure, education, research and development, etc.) and promote private investment in the economy.

The new economic policy was further elaborated in September 1992 in a Policy Frame Paper, (PFP) , prepared jointly with the IMF and World Bank. The PFP was concerned with the correction of price distortions, lifting restrictions on the private sector, instituting markets for factors of production, reducing fiscal and trade imbalances and trade liberalization. The exchange rate has been devalued and allowed further to adjust on a market determined basis. The retail trade of foreign exchange in a bi - weekly auction market was introduced in May 1992.

In the area of fiscal policy, the aim is to ensure a balanced state budget. It is designed to meet basic needs for public services and infrastructure, while eliminating inflationary domestic financing and avoiding protracted reliance on external assistance. Emphasis is placed on reforming the tax structure so as to increase revenue and improve efficiency and equity. The stabilization program targeted broad money to grow by less than 20%. Credit to the government sector was also sharply reduced.

In order to improve the mobilization and allocation of financial resources, the TGE revised the banking laws and regulations. The National Bank of Ethiopia has been empowered to set varying interest rates from time to time depending on the economic situation of the country. Deposit interest rates have been raised (from 6 to 10 - 11%) and lending rates have also been adjusted upwards. (up to 14 - 15%) since the financial sector reform in 1992.

The principal objectives of the agricultural policy of the EPRDF - led government is to ensure adequate food security through increased agricultural production and employment.

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Peasants are ensured usufructuary right over their holdings. They have been granted the right to lease land and pass it on to their kin. Resettlement and villagization programs of the former Government have been discontinued and producers' cooperatives have been allowed to dissolve. Food grain markets have been liberalized. The role of the state in grain marketing has been reduced to a regulatory role to prevent the harmful effects of price fluctuation on producers and consumers alike by buying and selling grains in the open market. The AMC has been reorganized as the Ethiopian Grain Trade Enterprise (EGTE) to undertake the regulatory activities.

The government has pledged to maximize economic growth through a broad based agriculture - led industrialization (ADLI) strategy. The strategy concentrates on three priority areas:

- Accelerate growth through focusing on the supply of fertilizers, improved seeds and other inputs,
- Expansion of small - scale industries to interact with agriculture; and
- Expansion exports to pay for capital goods import

A new extension program, designed along the lines of SG 2000 , has recently been introduced to enhance the diffusion of new technologies. Measures have been taken to streamline the agricultural research activities.

The National Agricultural Research Council (NARC) has been organized with the mandate of , among others, formulating research policies and coordinating research works between the federal and state research activities.

Consistent with the new economic policy, a new marketing system for fertilizer was designed with the main objective of liberalizing the fertilizer market and creating a multi - channel distribution. The liberalization permitted the private sector to engage in the importation and distribution of fertilizer hence ending the monopoly power of the state - owned Agricultural Inputs Supply Corporation (AISCO) .

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The TGE revised the 1988 Rural Credit Policy which made input loans a close preserve of DBE, with the CBE coming only as an exception. Since 1994, the CBE has become the dominant financial institutions in providing input loans to farmers. The parliament adopted a bill to establish micro - financing institutions catering to credit services of the peasant farmers and others engaged in small - scale production and service activities.

A new proclamation on agricultural cooperative societies was issued on February 1, 1994 , permitting the reorganization and registration of the existing service cooperative societies and registration of new ones based mainly on the principles of voluntary membership, one member one vote, non - interference by the Government , sharing of dividends and minimum membership of ten individuals within a given area.

As concerted efforts are required to eliminate the root causes of famine and disaster, a National Disaster Prevention and Management Policy (NDPMP) have been designed. The main objective of NDPMP is to ensure that relief assistance is provided the affected population in such a way that effort contribute towards disaster prevention and sustainable growth and development. The major objective of NFNS (issued in May 1994) is to ensure access to sufficient food to all Ethiopians at all times for an active and healthy life.

The land policy of the Government has been broadly defined by the constitution and program of the Ethiopian peoples' Revolutionary Democratic Front (EPRDF) (issued in 1995). It has been stated that the ownership of both rural and urban land and the natural resources will remain in the hands of the Government and the people. Land will not be subject to transfer by sale or usufruct and will continue to be the property of national and nationalities of Ethiopia. Land will be distributed to farmers equally and freely. Farmers have the right to use the land freely, to lease it for a definite period of time, and transfer it to heirs.

The constitution (adopted in December 1994) provides for the establishment of a democratic federal structure known as the Federal Democratic Republic of Ethiopia. The nine member states of the Federation are Tigray , Afar, Amhara, Oromia, Somalia , Benshangul-Gumuz, Southern Nations, Nationalities and Peoples , Gambela Peoples and Harari People.

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Pursuant to its pledge to share political prerogatives and decentralize the political system, the Government reorganized organs of state, redefined their duties and created regional governments. The regional councils have the power to issue directives and strategies, while the president of the region and the executive committee (elected by the Council) is responsible for the day to day activities of the regional council.

Regions are divided into zones, zones into woredas and woredas into kebeles. According to proclamation No. 7/ 1992, directly elected worerda councils are empowered to prepare, determine and implement plans concerning social services and economic development, as well as to implement laws, policies and directives.

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4. UNDP, Program Support Document for the National Agricultural Development Program, Addis Ababa, Oct. 1994.

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Summary

3. PATTERN OF EXTENSION DEVELOPMENT

1920-40S	-	DECREES. INSTRUCTIONS. SANCTIONS
1950-60S	-	EDUCATE. ENCOURAGE DEVELOPMENT
1960-70S	-	FIELD EXTENSION STAFF DEVELOPMENT
1970S	-	T&V (STAFFED, FUNDED)
1970S-1990S		ADVISORY, PARTICIPATORY,
		FARMER CONTROLLED
		COMMERCIALLY BASE

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The function of agricultural extension is to enhance learning among those who till the soil and tend the livestock of the world - learning of those things they need to know in order to feed themselves and others.

It is often the non-formal agricultural education interface between rural people and government agricultural organizations.

Sometimes the main function is to communicate agricultural research findings and recommendations to farm people. Sometimes it functions to bring farm people into contact with sources of practical and useful information through organized group action. Agricultural extension is commonly identified with activity whereby agricultural extension workers interact with and teach farmers improved farming practices, new techniques, and more productive or more efficient technologies or packages of technologies. Large numbers of these agricultural extension workers are organized into an agricultural extension system which provides them with a constant supply of useful extension messages, technical and administrative supervision, and logistical support.

Each agricultural extension organization is a reflection of a particular purpose in its own setting. There are many different types of agricultural extension systems.

For purposes of this discussion agricultural extension is broadly defined to include any non-formal education system whose clientele are rural people, and whose content is primarily agricultural (including crop and livestock production and marketing, as well as fisheries, forestry, and rural development).

As A.H. Maunder defined it in the FAO reference manual, "Agricultural Extension" (1973), it is "a service or system which assists farm people, through educational procedures, in improving farming methods and techniques, increasing production efficiency and income, bettering their levels of living, and lifting the social and educational standards of rural life".

Rural people live in family groups, and the work of agriculture tends to be shared among men, women, and children. Therefore, the word "farmer" is used in this document to refer to women farmers, to young farmers, and men farmers.

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The approaches are the different styles of action, and are described, compared, and discussed in detail in this document. Although each approach may be used by various extension systems for their own purposes, some approaches have been demonstrated by experience to be more appropriate to meet particular needs.

Some systems or agricultural extension are centrally directed and controlled; other agricultural extension systems are locally directed and controlled. Some employ a basic strategy of technology delivery, while others have a rural development strategy. but all agricultural extension systems follow certain kinds of approaches in their extension work.

The approaches are the different styles of action, and are described, compared, and discussed in detail in this document.

But whether these systems are centralized or decentralized, whether their strategy is technology transfer of enhancement of rural life, there are several approaches which have been used. Over the years, practice has demonstrated that certain approaches are more effective than others under particular circumstances.

3.1 ALTERNATIVE EXTENSION APPROACHES

The different approaches to extension are found in many types of organizations, using a variety of strategies and a large array of methods and techniques.

Each approach can be characterized by the following seven dimensions:

1. The dominant identified problems to which the approach is to be applied as a strategic solution, referred to here as the basic assumptions made by those who establish it;
2. The purposes it is designed to achieve;
3. The way in which the control of programme planning is carried on, and the relation of those who control programme planning to those who are the main target audience for the programme;
4. The nature of the field personnel including such aspects as their density in relation to clientele (ration of field staff to clientele), levels of training, reward system, origin, gender, and transfers;
5. The resource required, and various cost factors;

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6. The typical implementation techniques used; and

7. How it measures its success.

Each approach is demonstrated through the ways in which an extension system uses these methods, the types of objectives or targets it sets, and the means by which it seeks to implement larger national strategies. It can also be seen in the ways in which it selects, trains, and rewards the staff, the number of staff required, and the types of relationships between the staff and the farm people.

Since all are merely different approaches to the same agricultural extension phenomenon, there are commonalties among all. For example:

- all employ non-formal education procedures.
- all have content related to agriculture.
- all seek to improve the standard of living of rural people.

MAJOR APPROACHES

Many extension approaches may be observed around the world. Some of these have limited practical utility, while others are being adopted in several countries. Effort has been made by FAO to identify the major extension approaches for the benefit of agricultural development decision makers. As part of this opening chapter, they are briefly introduced as follows:

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I. The General Agricultural Extension Approach

The basic assumption with this approach is that technology and information are available which are not being used by farmers, and if knowledge of these could be communicated to farmers, farm practices would be improved. The purpose is to help farmers increase their production. Programme planning is controlled by Government and changes in priority, from time to time, are usually made on a national basis, with some freedom for local adaptation. Field personnel tend to be large in number and high in cost, with density varying from country to country. Resources required are also high, with central governments bearing most costs.

Implementation is through a large field staff assigned according to governmental structure throughout the country, managed by the centre, who constitute the field arm of their ministry. Success is measured in terms of rate of adoption of important recommendations and increases in national production.

II. The Commodity Specialized Approach

The assumption here is that the way to increase productivity and production of a particular commodity is to group all functions relating to it under one administration, including extension along with research, input supply, output marketing, and often prices. Extension programme planning is controlled by a commodity organization, and implementation is through field staff of that organization.

Resources tend to be provided by the commodity organization, for which agricultural extension is considered a sound investment. While it may use many of the same methods and techniques as the approach mentioned above, the measure of success is usually the total production of the particular crop.

III. The Training and Visit Approach

The basic assumptions of this approach are that, under the Ministry of Agriculture extension services, the extension workers are poorly trained, lacking supervision and logistic support, and they do not visit and have contact with farmers. Further, it is assumed that subject matter specialists are poorly trained and not providing a link with research and training functions. The purpose is to induce farmers to increase production of specified crops. Programme planning is centrally controlled, and reflects interaction between research and extension personnel. Field personnel tend to be large in number, relatively densely deployed with strict discipline of daily and fortnightly activities. With funds from international sources, total staff size is increased greatly. Success is measured in terms of production increases of the particular crops covered by the programme.

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IV. The Agricultural Extension Participatory Approach

Here the assumption is that farming people have much wisdom regarding production of food from their land, but their levels of living could be improved by learning more of what is known outside.

It further assumes that effective extension cannot be achieved without the active participation of the farmers themselves, as well as of research and related services; that there is a reinforcing effect in group learning and group action, and that extension efficiency is gained by focusing on important points based on expressed needs of farmers and by reaching more small farmers through their groups/organizations instead of through individualized approaches. The purpose is to increase production and consumption and enhance the quality of life of rural people. Programme planning is controlled locally, often by such groups as farmers' associations. Where farmers' associations do not exist, the extension staff assist to form them. Priorities vary greatly from place to place and from time to time within a country. Field personnel tend to be local, lower cost, and in densities and with training and background appropriate to local needs. Resources required tend to be less than with other approaches, and a high proportion may be provided locally. Implementation is through group mentions, demonstrations, individual and group travel, and local sharing of appropriate technologies. Success is measured through the numbers of farmers actively participating and benefiting, as well as continuity of local extension orgranizations.

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V. The Project Approach

This approach assumes that a rapid agricultural and rural development is necessary and that the large government bureaucracy in the regular Ministry of Agriculture Extension Service is not likely to have a significant impact upon either agricultural production or rural people within an appropriate time frame, and that better results can be achieved by taking a project approach in a particular location, during a specified time period, with large infusions of outside resources. The purpose is often to demonstrate what can be done in a few years. Central government controls programme planning, often with considerable input from an international development agency.

Implementation typically includes project allowances for field staff, better transportation, facilities, equipment and housing rather than regular government programmes and foreign advisors for local staff. Short run change is the measure of success.

VI. The Farming Systems Development Approach

The assumption with this approach is that technology which fits the needs of farmers, particularly small farmers, is not available, and needs to be generated locally. The purpose is to provide extension personnel (and through the farm people), with research results tailored to meet the needs and interests of local farming system conditions. Programme plans evolve slowly during the process, and may be different for each agro-climatic farm eco-system type since they include a holistic approach to the plants, the animals, and the people in a particular location. Field personnel tend to be highly specialized, relatively expensive, and from outside the area being served. Implementation is through a partnership of research and extension personnel with each other and with local farmers, taking a "systems approach" to the farm, and sometimes involving several different scientific disciplines, carrying out analyses and field trails in framers' fields and homes. The measure of success is the extent to which farm people adopt the technologies developed by the programme, and continue to use them over time.

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VII. The Cost Sharing Approach

The assumption here is that the programme is more likely to fit local situations, and personnel are more likely to serve local people's interests if part of the cost of agricultural extension is paid locally. It also assumes that farm people are too poor to pay the whole cost, so central and regional governments typically provide most of it. Helping farm people learn those things they need to know for self-improvement and increased productivity is the purpose. Control of programme planning is shared by the various levels paying the costs, but must be responsive to local interests in order to maintain "cooperative" financial arrangements. Field personnel tend to be recruited locally, cost less, and remain in one location for long periods of time. Because of the nature of this approach, resources required from central governments tend to be less. Success is measured by farm people's willingness and ability to provide some share of the cost individually or through their local government units.

VIII. The Educational Institution Approach

In this approach, the assumption is that faculties or colleges of agriculture have technical knowledge which is relevant and useful to farm people. The purpose is to help those people learn about scientific agriculture.

Programme planning tends to be controlled by those who determine the curriculum to the education institution. Implementation is through non-formal instruction in groups, with individuals, and with other methods and techniques, sometimes conducted by a college or university with agricultural extension personnel of another agency as the main audience.

While considerable resources are required, since they are shared between the classroom programmes of the educational institution and agricultural extension, the approach can be highly cost effective. Success is measured by attendance school's agricultural extension activities.

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Table 1: Comparison by field Personnel

Approach	Field personnel charachteristic											
	Origin		Salary source		Training		Transfer		Appointment		Staff base	
	Outside	Within	Central	Local	High	Lower	Frequent	Notoften	Tenured	Temporary		Broad Narrow
General Agricultural Extension Approach	xxx		xxx			xxx	xxx		xxx			xxx
Commodity Specialized Approach	xxx		xxx		xxx			xxx	xxx			xxx
Training and Visit Approach	xxx		xxx			xxx	xxx		xxx			xxx
Agricultural Extension Participatory Approach	xx	xxx	xx	xx	xx	xx		xxx	xx	xx	xxx	
Project Approach	xxx		xxx		xxx		xxx		xx	xx	xxx	
Farming System Development Approach	xxx		xxx		xxx		xxx		xx	xx	xxx	
Cost sharing Approach		xxx	xx	xx		xxx		xxx	xx	xx	xxx	
Education Institution Approach	xxx		xxx		xxx		xxx		xxx		xxx	

xx = Applicable

xxx = Strongly Applicable

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Approaches	Financial aspects									
	Source of funds		Cost/ Clintele		Staff source		Transport		Information	
	Central Government	Other	High	Low	Urban	Rural	High	Low	High	Low
General Agriculture Extension Approach	xxx				xxx			xxx		xxx
commodity Specialized Approach	xxx		xxx		xxx		xxx		xxx	
Training and Visit Approach	xxx		xxx		xxx		xxx		xxx	
Agricultural Extension Participatory Approach	xx	xx		xxx		xxx		xxx		xxx
Project Approach	xxx		xxx		xxx		xxx		xxx	
Farming systems Development Approach	xxx		xxx		xxx		xxx			xxx
Cost Sharing Approach	xx	xx		xxx		xxx		xxx		xxx
Education Institution Approach	xx	xx			xxx		xxx		xxx	

xx = Applicable
xxx = Strongly Applicable

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Table 3. Comparison by Organizational Structure

Approach	Organizational Structure							
	Control		Specialist			Media Support	Participation	
	Centralized	Decentralized	Emphasized	Less emphasized		Prominent	Not Preminent	Little High Level
General Agricultural Extension Approach	xxx		xxx	xxx	xxx		xxx	
Commodity Specialized	xxx		xxx			xxx	xxx	xxx
Training and Visit Approach	xxx		xxx			xxx	xxx	
Agricultural Extension Participatory Approach		xxx	xx	xx	xx	xx		xxx
Cost sharing Approach		xxx				xxx		xxx
Education Institution Approach	xxx		xxx	xx	xx	xx	xx	xx

xx = Applicable
xxx = Strongly Applicable

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Table 4. comparison leadership type

Approaches	Type of leadership							
	Origin		Numbers		Representation		Origin	
	Central	Local	Small	Large	Narrow	Broad	Professional	Clientele
General Agricultural	xxx		xxx		xxx		xxx	
Extension Approach								
Commodity								
Specialized Approach	xxx		xxx		xxx		xxx	
Training and Visit Approach	xxx		xxx		xxx		xxx	
Agricultural Extension Participatory Approach		xxx		xxx		xxx		xxx
Project Approach	xxx		xxx		xx	xx	xx	xx
Farming systems Development Approach	xxx			xxx		xxx	xx	xx
Cost Sharing Approach		xxx		xxx		xxx		xxx
Education Institution Approach	xx	xx	xx	xx		xxx	xx	xx

Table 5. Comparision by Linkages

Approaches	Nature of Linkages					
	Other Organizations		Input adjustment		Market adjustment	
	Dependent	Independent	Likely	Not Likely	Quickly	Slowly
General Agricultural Extension Approach	xxx			xxx		xxx
Commodity Specialized		xxx	xxx		xxx	
Approach						
Training and Visit Approach	xxx			xxx		xxx
Agricultural Extension Participatory Approach		xxx	xxx		xxx	
Project Approach	xxx		xxx		xxx	
Farming Systems Development Approach		xxx	xxx		xxx	
Cost sharing Approach		xxx	xxx		xxx	
Education Institution Approach		xxx	xxx		xxx	xxx

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xx = Applicable
xxx = Strongly Applicable

Table 6. The complete matrix

Approaches		General Agriculture Extension Approach	Commodity Specialized Approach	Training & Visit Approach	Agriculture Extension Participatory Approach	Project Approach	Farming Systems Development Approach	Cost Sharing Approach	Education Institution Approach
Linkages	Market Adjustment Slowly	x		x					
	Market Adjustment Quickly								
	Input Adjustment Likely	x	x						
	Independentof others		x		x		x	x	x
	Dependent on others	x		x		x			
Leadership	Clienteleorigin				x			x	
	Professionalorigin	x	x	x					
	Broad representation				x		x	x	x
	Narrow representation	x	x	x					
	Largenumber				x		x	x	
	Small number	x	x	x		x			
	Local orgin					x		x	
	Central origin	x	x	x		x	x		

CGRDA

Table 6 (Cont...)

Approaches		General Agriculture Extension Approach	Commodity Specialized Approach	Training & Visit Approach	Agriculture Extension Participatory Approach	Project Approach	Farming Systems Development Approach	Cost Sharing Approach	Education Institution Approach
Field Personnel	Narrow base	x	x	x		x			
	Broad staff base				x		x	x	x
	Temporary					x			
	Tenured	x	x	x					x
	Less transfer		x		x	x		x	
	frequent trinsfer	x		x		x	x		x
	Lower training	x		x				x	
	High training		x			x	x		x
	Local salary								
	Central salary	x	x	x		x	x		x
	Within origin				x			x	
	Outside origin	x	x	x		x	x		x
	Spread status						x		
	Limited status	x	x	x					
	Men, Women, Youth				x		x	x	x
	Men	x	x	x					
	Fixed focus						x	x	x
	Narrow focus	x	x	x					
	Area target		x			x	x		x
	National target								

CORDA

[Continued]

Approaches		General Agriculture Extension Approach	Commodity Specialized Approach	Training & Visit Approach	Agriculture Extension Pariticipatory Approach	Project Approach	Farming Systems Development Approach	Cost Sharing Approach	Education Institution Approach
organization	High participation				x		x	x	
	Little participation	x	x	x					
	Media less Prominent		x	x		x	x	x	
	Media prominent	x							
	Specialists not Emphasized							x	
	Specialists Emphasized	x	x	x			x		
	Decentralized				x			x	
	Centralized	x	x	x		x	x		x
Finance	Low information	x	x		x		x	x	
	High information		x	x		x	x		x
	Low transport								
	High transport								
	Rural source				x			x	
	Urban source	x	x	x		x	x		x
	Low cost/client		x		x			x	
	High/cost client			x		x	x		
	Other funds								
	Central funds	x	x	x		x	x		

ADRD

[Continued]

Approaches		General Agriculture Extension Approach	Commodity Specialized Approach	Traninig & Visit Apprach	Agriculture Extension Participatory Approach	Project Approach	Farming Systems Development Approach	Cost Sharing Approach	Education Institution Approach
Organization	High participation				x		x	x	
	Little participation	x	x	x					
	Media less prominent		x	x			x	x	
	Media prominent	x							
	Specialists not emphasized							x	
	Specialists emphasized	x	x	x			x		
	Decentralized				x			x	
	Centralized	x	x	x		x	x		x
Finance	Low information	x	x		x		x	x	
	High information			x		x			x
	Low transport	x			x			x	
	High transport		x	x		x	x		x
	Rural source				x			x	
	Urban source	x	x	x		x	x		x
	Low cost/client		x		x			x	
	High cost/client			x		x	x		
	Other funds								
	Central funds	x	x	x		x	x		

CCRDA

Approaches		General Agriculture Extension Approach	Commodity Specialized Approach	Traning & Visit Approach	Agriculture Extension Participatory Approach	Project Approach	Farming Systems Developmen Apporoach	Cost Sharing Approach	Education Institution Approach
Organization	Life quality focus				x			x	
	Farming focus	x	x	x			x		
	Not responsive	x	x	x					
	Responsive to feed-back				x		x	x	
	Flexible message				x		x	x	
	Standardized message	x	x	x					
	Consumption goals	x		x				x	
	High training		x			x	x		x
	Local salary								
	Central salary	x	x	x		x	x		x
	Within origin				x			x	
	Outside origin	x	x	x		x	x		x
Finance	Spread status						x		
	Limited status	x	x	x					
	Men, Women, Youth				x		x	x	x
	Men	x	x	x					
	Fixed focus						x	x	x
	Narrow focus	x	x	x					
	Area target		x			x	x		x
	National target								

CIRAD

[Continued]

Approaches		General Agriculture Extension Approach	Commodity Specialized Approach	Training & Visit Approach	Agriculture Extension Participatory Approach	Project Approach	Farming System Development Approach	Cost Sharing Approach	Education Institution Approach
Programme	Life quality focus				x			x	
	Farming focus	x	x	x			x		
	Not responsive	x	x	x					
	Responsive to feed back				x		x	x	
	Flexible message				x		x	x	
	standardized message	x	x	x					
	Consumption goals	x		x				x	
	Production goals	x	x	x			x		
	Outside information	x	x	x					
	Inside information				x		x		
	Area scop		x			x	x		
	National scope	x							

CCRDA

3.3. Organization of Agricultural Extension
Early Development and Current mode of Organization

The Extension service in Ethiopia is said to have its beginning between 1930-31, when the College of Agriculture at HagreHiwot, then Ambo, was established by the Government.

Even though its beginning is relatively earlier, its geographic coverage and strength before the 1980's was very limited. Different policies and strategies followed in the late 1950s in the agricultural sector gave rise to different forms of institutionalization of extension services. Currently the national mandate for agricultural extension is that of the MoA. In addition to MoA, NGOs are involved in small scale extension activities. In the following paragraphs the profile of agricultural extension typologies are briefly treated.

During the first Five Year Plan (1958-62), the programme of community development (CD) was initiated as a strategy for stimulating popular endeavours to identify and tackle problems of a given community through self-help projects. The programme of CD was concerned with almost all areas of development, using the extension concepts as the communication strategy. Its particular emphasis was in agriculture, rural artisanal development and in social infrastructure and welfare activities. This programme continued until the third Fife Year Plan (1968-73).

The other programme where extension has been exercised was the package programme that emerged during the Third Five Year Plan. The typologies of package approaches implemented in Ethiopia since 1960's were formulated as a project.

The first, Comprehensive Package Project was that of Chilalo Agricultural Development Unit (CADU) which was established in 1967, with Swedish Government and multilateral (World Bank) assistance. This project operated in the Chilalo province until the end of its second phase, in 1975. Thereafter, it was upgraded to cover the whole Arsi Administrative Region.

The second Comprehensive Package Project was initiated in the Wollamo province in 1970 under the Wollamo Agricultural Development Unit (WADU). The first phase of this project extended until 1974.

CRDA

These projects were directed to the promotion of socio-economic development of the project area and the components of the package that are linked to each other include; agronomic and livestock research, agricultural extension and input distribution such as fertilizer, improved seeds and improved farm implements, plus credit provisions for the purposes of purchasing essential inputs (Schulz, 1976).

The research in this project is mainly adaptive research. During the early days of CADU's project, adaptive research based on wheat material obtained from the experimentation station at Debre-Zeit and agricultural research programmes in Kenya and Mexico yielded promising results (Cohen, 1987;).

There were also other Comprehensive Package Projects initiated in other administrative regions. These were:- Humera Agricultural Development Project (HADP), along the Sudanese border around the Semi-Urban centre of Setit Humera; Ada District Development Unit (ADDU) in the Debrezeit region East of Addis Ababa; Tach Adiabo and Hedelti Agricultural Development Unit (THHDU) in the Northwest of Tigray Administrative region and Southern Region Agricultural Development Project (SORADEP) in the vicinity of the town of Awassa-Rift Valley Lake Region, south of Shashemene.

The extension method employed by CADU was the "model farmer" approach until 1975. Farmers who lived in an area of 800 hectares were assembled and asked to nominate five candidates from among whom CADU selected one to serve as the model farmer for the area. Demonstrations and field days have been conducted on the model farmers' land. But the model farmer's approach to extension was criticized both from outside and within CADU itself. Empirical studies concluded that the approach was only partly successful and that it was not the most efficient way of disseminating knowledge.

The second of the Comprehensive package projects, WADU, avoided the "model farmers" approach and instead demonstrated technologies on peasants' farms that were relatively more resource poor. The first line agents were locally recruited 9-12th grade finishers, who had an agricultural background, spoke the local language and understood the local social values. Technology transfer under WADU's approach have been found to be more effective than that of CADU.

CCRDA

As early as the 1970's it was apparent that it would not be feasible to implement the comprehensive package projects through the whole country. Hence, the Minimum Package Programme (MPP) was initiated in Ethiopia with a claim to address the problems of the lower income bracket farmers and also with greater reliance on peoples' participation.

The MPPs were designed to cover large areas so that as many farmers as possible could be reached for extension, input supply, credit provision and marketing services. Thus, the Extension Project Implementation Department (EPID) was created in 1971 to provide peasant farmers production and to carry out the minimum package programme started in 1970.

The basic unit of development was the MPP areas which contained about 10,000 farm families and extended 5 km on either side of a 75 km stretch of an all-weather road. MPP-I adopted CADU's grain technology and also applied its extension methodology(Schulz, 1976).

The programme relied on the impact of fertilizer since this was considered the one innovation that could have a notably large impact on yield. Although the minimum package concept worked well in the limited areas of its operation under MPP-I (1971-74), certain shortcomings became apparent as the programme was extended to more farmers. (Nicolla, 1985).

At the termination of MPP I in 1974, there was a plan to undertake an expansion of MPP II for the period of 1975-80. However, this did not materialize as the Ministry of Agriculture had to give priority to the implementation of the land reform of 1975 and organization of peasant associations and service cooperatives. This is the effort towards fitting the project within the context of the new socio-economic situation created in the country after the revolution. Then the proposal of MPP II was redrafted for the period 1978-82 in light of the new development. But the proposal was approved only in 1980, and MPP II was underway starting 1980/81. This project operated in 440 districts out of the 580 districts of the country. The components of the project were an agricultural extension package, a cooperative marketion package and supporting services.

Farmers' associations and cooperatives are the focal points of implementation, i.e. peasant associations, service and producers cooperatives. This project was terminated in December 1985.

CGRDA

In its place, Peasant Agricultural Development Project (PADEP) was initiated to promote agricultural development in the dominant small-holder sector.

The PADEP operates in the potential areas of the country. The non potential areas continue to run at the pace of the extension service as it was under MPP II.

The main features of PADEP were:-

1) The extension approach used in this strategy is a 'modified' Training and Visit system (T&V). The Extension service would base itself at service cooperative level which encompasses both Peasant Association and Producers' Cooperatives. In the PADEP area, one development agent shall offer service to 1300 households, unlike those in non PADEP areas, where the ratio is 1:2500. Intensification and expansion of the extension service is the overriding objective. The emphasis was said to be given to the provision of biological, chemical and mechanical technologies in order to increase farmers' capacity and productivity.

2) Improved research and extension linkage for smooth transfer of technology,

3) Use of radio broadcasts in the national language and local languages as the case is possible,

4) Decentralized management system,

5) Strong seasonal credit and farm input supply and distribution system.

The implementation of PADEP was designed to take place under 8 projects encompassing the potential areas of the country. These projects are prepared with the prospect of financial and technical support from bilateral and multilateral donors. At the time of data collection for this study (September to October, 1989), there were only two projects that were close to starting. These are PADEP 1, financed by World bank and PADEP 5 financed by IFAD. After termination of MPP II, the extension activities of the country are run on the Government budget.

CCRDA

As it has been outlined in the above discussion, Ethiopia has been experiencing several approaches over the past 50 years. Some of these approaches, particularly those prior to MPP II were aimed at bringing economic growth, did not paid enough attention how to involve the rural mass for their development. Comprehensive package project and MPP I were mainly focused on capital intensive programmes, which did not practically encompasses the rural poors, as a result tenants were evicted by the land lords which ultimately lead to a kind of social upheavals.

The extension strategy adopted during MPP II, and PADEP project was mainly devoted to organize and mobilize people, however, as the idea itself was perceived and prescribed outside the people the outcome was totally failure. In other words, it was not the people who had been determining the need , for the organization, the nature and type of organization. In addition to these, they had no rights in choosing what to produce, where to sale, the price etc.

To date, new concepts and approaches are emerging both in the developed and the developing world.

"The increasing recognition of the inadequacies of total dependence upon a professionally dominant style of intervention has caused the search for alternative styles. This has led to the emergence of a number of new perspectives; bottom-up, putting people 1st and putting the last 1st" (Oakley 1991) with regard to the new perspectives, various terminologies are used but with similar connotation and concepts. Concepts and terminologies relating to development and the practice of extension are outlined below against their previous understandings.

CCRDA

Development Previous understand	recent understanding
•Modernizing	- Human resource - development, (HRD) - Putting people first - People centred development - Putting the last 1st
•Transfer of Technology (TOT)	- Empowerment - Liberation - Conscientization - Participation - Mobilizaiton - Self reliance
•Top down	- Bottom up

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The practice of extension:

Previous understanding		Recent understanding
. innovation	-	Method
. Persuansion	-	communication
. Progressive farmer	-	organized/group of people
. Diffusion	-	Mobilization
. Adoption	-	Action/adaptation

Example:

- Comparision of a technology transfer model and one of the recent approach to extension - farmer - first model (FF).

No.	Indicator	Extension model	
		TOT - model	EF - model
1	Mange objective	1) TOT	1) Empower farmer
2	Analysis of needs and priorities by	2) Outsiders	1) Farmers assisted by outsiders
3	Content the menu	3) Messages . Packages	3) Methods Choices
4	Outcomes	4) Adoption	adaptablity
5	Mode of extending idea	5) Agent to farmer	5) Farmer to farmer . agent to farmer
6	Roles of agent	6) Teacher/Trainer	6) Facilitator

Adoption from Oakley 1991 P 30.

The concept of the new approaches is widely accepted and positive attitudes have been developed towards it by innumerable interventionists. However, not many examples have been published and its methodologies are yet to be proven.

CCRDA

The current strategy for extension intervention

Drawing on lessons of past experience, the government of Ethiopia has formulated an "Agricultural Development - Led Industrialization (ADLI)" strategy, taking agriculture as the development base and, within this frame, focusing on raising the productivity of the small scale farmers as the key actors and partners at the grassroot. Formulated within ADLI is the new system of agricultural extension, termed "Participatory Demonstration and Training Extension System (PADETES)". As the name implies the system is based on demonstrating and training of farmers on proven technologies in a participatory manner. The system which had been developed after a critical evaluation of past extension approaches has also given enough room to accommodate present changes in extension philosophy i.e. involving the utilizer sub system (research, education as part of the knowledge system.)

In contrast to the past extension systems where the focus were limited either to technology transfer or human resource development, PADETES gives equal emphasis to human resource development (organization mobilisation, empowerment) along with its effort in promoting appropriate technologies.

According to the new strategy, extension is entirely a regional affair. Although, the national extension office is left with coordination of inter regional activities, policy advices, and technical back-stop, the regions are given full autonomy in the management to their day-to-day operations. The planning, execution, monitoring and evaluation of extension programmes had been decentralised.

The intervention strategy in this system involves a package approach geared towards three different agro-ecologies, namely:- reliable moisture, moisture stress, and nomadic pastoralist areas. Distinction can also be made between areas being exposed for the first time to extension, where extension messages should be simple focusing on improved husbandry or improving cultural practices, (crops livestock). Other areas where there is already minimal extension, improved cultural practices combined with use of purchased inputs can be allocated, and finally areas which are already involved in large scale production, where moderate or high input technology may be appropriate. Supporting services and means of communication may also vary accordingly. However, all extension intervention should be sustainable, taking into account the need to conserve and rehabilitate the natural resource base. Soil is the number one resource for agriculture.

CCRDA

Agricultural research is geared to small holder agriculture on agro-ecological basis in different parts of the country. Package formulation intends to provide the small holders with appropriate technology pertinent to different eco-systems.

The generation of technology by research is not a sufficient condition of ensuring its adoption. A system of technology transfer between research and extension that makes access possible to farmers with the inputs and information will enhance the adoption by the small scale farmers.

Participatory Demonstration and Training Extension System (PADETES)

The system which had been developed after critical assessment of past extension systems including the recent effort by the Sasakawa Global 2000 project has become operational since 1995.

The assessment carried out enabled identifying the merit and demerit of each approach and as a result, the new extension system is benefiting from the strong extension management principle of the T & V system, and merge it with the most pragmatic technology diffusion of experience of the SG 2000 project approach. Hence, PADETES is mainly the hybrid of the two.

The training and visit extension system is well known for its unified extension system, fixed DA to farmer ratio, scheduled visit to farmers plots, continuous training of staff, and strong research and extension linkage. Nevertheless, the system is also highly criticised for its top down approach, poor use of group and mass communication method and small size adoption plot.

CCRDA

I. Main features of the PADETE

Objective - the following are known to be the main objectives of the system

- improve the standard of living of the society through improving productivity
- Empower farmers to actively participate in the development process
- increase the level of food self sufficiency
- increase the supply of industrial and export crops
- ensure the rehabilitation and conservation of the natural resource base of agriculture.

Client :-

The content ranges from simple technology transfer (improved technologies, cultural practices---) to human resource development, that is organization mobilization and training of the society.

While the second is common to all eco-systems the technology transfer is strategically planned to suit the three dominate farming systems.

Namely :-

- Moisture reliable
- Moisture unreliable (drought prone)
- Nomadic pastoralists

The difference in the content of the extension package to each system also varied the manpower requirement and extension communication methods employed in each situation.

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II. Communication methods/means

The system advocates for the use of all types of extension communication methods, namely, individual, group, and mass methods depending on the type of message, and social structure.

Thus, most commonly used communication means/methods include :-

- Farm visit, printed media - individual methods
- Demonstration, contact group, field days - group methods
- Radio, newspaper TV - mass method

III. Audio-visual Aids

The use of audio-visual aids is also highly encouraged in this system. Material production units are to be established at different levels. Presently this unit is effectively operational at the Ministry level. It produces and disseminates printed, and Audio-visual aids including magazines, posters, pamphlets, videotapes, photographs, mobile films, slide films and others.

As working language may differ from region to region the future intention will be to produce only prototypes at central level and reions will adopt to their languages and mass produce it.

Although, more than one media are applied in a given situation, the system has given more emphasis to the following methods.

IV. Demonstration

Demonstration is found to be effective in upgrading the knowledge and skill of the farming community. Unlike the past extension methods, demonstration in this system is designed to ensure farmer participation.

The farmers are involved at all stage of the demonstration from planning to evaluation. Such approach is not only important to convince farmers on the new technology but also creates credibility to extension service. Demonstrations can be conducted in all fields of agriculture including crop, livestock, soil conservation, farm implements etc., both on private or communal basis. Hence, the sites of demonstration could be owned by individual or community.

Thus, the new extension system intentionally built on the positive experiences of the past, has also given enough room to accommodate the new philosophy in extension such as the knowledge system in development process.

V. Radio Forums

The role of radio for education is immense. Creation of awareness, communication with large audience in a relatively short time, reinforcing messages are some of the areas where radio could serve best. However, the use of radio for extension purpose is not significant in our case. Thus, two strategies are suggested for the better use:-

CCRDA

- explore the existing radio station by allocating enough time to communicate messages
- establish, radio station for exclusive use of the extension service; for the purpose of complementing the weak side of radio (one way message) it is suggested to create radio listener group at village level.

VI. Rural Youth Club

One way of reaching the rural society will be through youth clubs. Youth clubs which can be established in rural schools or other social incentives can serve as contact point to mobilise the youth group. Practice oriented agricultural education programme can be implemented in schools compounds under the close supervision of school teachers, and development agents.

Apart from the direct benefit to the students, such approach can create favorable atmosphere to development agents as they can easily convince their parents.

VII. Agricultural Fairs

Agricultural fairs conducted at various levels can also play considerable role in the promotion process. Success stories in agricultural development, agricultural inputs and improved practices can be presented.

- Multipurpose training (FTCS)
  In addition to the day to day scheduled on farm training, center based training is also encouraged. Volunteer farmers who would be interested in certain agricultural disciplines can be trained for 3-4 weeks in FTCS. Such centers are usually equipped with boarding facilities, and teaching materials.

- Rural institutes
  Rural institution such as farmers associations and traditional social organization are used as important channel of communication.
- Volunteers
  Retired professionals and other volunteer are also encouraged to contribute as a change agent in the promotion process.

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VIII. Organization Set-up

The previous organizational set-up of the ministry of agriculture was on a "Commodity approach" basis. That is to say the livestock development department, Agricultural development department(crop), Cooperative department, etc. which, an its own imparted significant weaknesses to the effort of agricultural development. Departments were more self centred than goal or objective centered. The one and the same farmer was "all" departments, and so was the DA, from the point of view of departments. The fact is the DA and the farmer could benefit more from the integrated approach of the departments with appropriate, felt need based technologies and advises.

On the other hand the new organization of the MoA is Extension and Regulatory, which is "function based" as contrary to "Commodity based." First and foremost, there will be a very close link with research technical department and extension. Next, the technical departments will verify whatever results they obtain from research or their own trials and then hand-over to extension proven technologies. Last, not least, extension arranges, re-arranges and organize the technologies or ideas so that different disciplines are compatible, palatable and pragmatic. Now, the relevant grassroot staff, the DA and the farmer are given training to implement them.

CCRDA

3.4. The current National Extension Intervention Programme (NEIP)

As part of implementing the extension strategy, the government has launched NEIP since 1994/95. The programme is mainly geared towards assisting small scale farmers to improve their productivity through disseminating research generated information and technologies on major food crops including teff, maize, wheat, sorghum as well as potato and forage crops, such as cow pea and vetch.

The programme which was only limited to 7 regions and 35,000 farmers in the initial year is expanded to 10 regions and 350,000 farmers in 1995/1996 production season. The assumption, that 10 other farmers could learn from each demonstration plot through trickle down effect, will make the total number of beneficiary farmers to be 3.5 to 4 million. In addition to expanding the number of farmers involved, the programme has also formulated a separate package tailored to moisture stress areas since 1995/1996.

Although substantial back-stop in the areas of package formulation, input delivery and training of staff is being made by the Federal Ministry of Agriculture; the entire management of the NEIP is executed by the regional governments.

The major elements of this approach are :-

- realistic size demonstration plots (1/4-1/2 ha),
- physical availability of production inputs where test farmers are provided with financial support for inputs on credit
- practical field training of one-two days
- creation of a strong pragmatic research extension linkage both in package formulation and stage
- empowerment of extension front line staff both technically and administratively by providing training and logistics support.

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YIELD ACHIEVEMENT BY FARMERS 1994/95

Table 2

Region	Traditinal average q/ha					EMTP average q/ha				Total
	Maize	Wheat	Teff	Sorghum	Potato	Maize	Wheat	Teff	Sorghum	
Tigrai	10	7	4	9	-	30	20	10	25	-
Amhara	15	7	6	14	55	50	35	15	30	186
Oromia	16	11	6	11	-	45	34	13.5	31	-
South	16	12	6	-	-	41	27	13	-	-
Harari	12	-	-	8.5	-	25	-	-	20	-
Reg. 12	12	-	-	-	-	30	-	-	-	-

Evaluation report of 1994/95 NEIP Training Plots (Dimonstration)

EMTP - Stands for Extention Management

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The outcome of 1994/95 (Table 2) has demonstrated the existence of effectiv technol packages that could relieve the country from its chronic food shortage given policy mak researchers, extension agents and farmers the opportunity to work hand in hand.

In this contest, the demonstration activities in crop production are utilized as an entry p for employing a step - wise approach to development, i,e., ability to improve producti in food crops can initiate the improvement in other areas, such as post harvest technolog animal feed, fattening and poultry programme etc, step by step . Thus, appropri packages are formulated by package formulation departments of the Ministry of Agricul and includes livestock production, and soil conservation practices among others.

3.5 Input And Output Marketing Problems of Small Farmers Associated with Extension Activities.

Agricultural marketing is concerned with the physical transfer or movement of farm outputs (farm inputs) from the farm - gate (suppliers) to the consumers (farmers). At the same time, it transmits price signals to producers, consumers and suppliers to facilitate decisions in supply and consumption.

The output marketing system transforms the commodity in time, space and form. That is, the consumer buys the commodity (i) at a time different from the time of harvest or sale by the farmer, (ii) at a place different from its point of sale by the farmer, and (iii) in a form different from that at the time of its sale by the farmer.

Little is known about stimulating type of market organizations which will benefit the small farmers; little, too, is understood about the effect of poor market system performance on the development process. The main objective here is to identify what can be done to stimulate agricultural development of small farmers by improving the input and output marketing.

The Marketing System and Small Farm Agriculture.

"Production" of a food commodity is not really complete until that food reaches the consumer's hands in the form, place, and time he needs it. Inefficient or inappropriate marketing adds to cost and inconvenience for the consumer. It also reduces the incentive for the farmer-producer. Marketing policies, therefore, have to be carefully planned.

The small farm is conceived as a firm that produces agricultural products which, if there is a surplus after supplying its own needs, are exchanged for other goods, services, and/or money-which may be saved or invested. In order for exchange to take place the farmer must first have access to the market. In the simplest context his market may be neighbor. In a more complex society, it may be anything from the local town marketplace to the international market. To give the farmer access to these markets, numerous institutional arrangements exist; these include legal and social proscriptions as well as different kinds of private and public organizations. Besides defining the terms of market access to the farmer as a producer, those same and / or additional institutional arrangements influence the conditions under which the farmer is served by capital markets, consumer goods markets and production input markets.

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Government policy exerts a dynamic effect on this system. Through its actions the government causes a change in the institutional structure of the system, producing a new pattern of interaction and altering performance.

It is also important to recognize that the structure and behavior of farms is a determining factor in the structure, behavior and performance of the marketing system. An agricultural region composed of small, diversified farms must be served by a special kind of marketing system.

I. Marketing Organizations

Marketing organizations are those entities which, by performing various services and functions, determine the conditions of access to the market. Among their activities are: (1) transporting, (2) storing, (3) financing, (4) grading, (5) providing information ,(6) risk taking, (7) buying , and (8) selling. If, for example, a farmer is unable to find someone to transport his product to the market place, and cannot do it himself, he has no access to that market. Likewise, if prices are low at harvest time due to inadequate storage, his income is reduced because his access to post harvest market is limited. Marketing organizations may take many forms. They may be, for example: (1) governmental, (2) private, (3) mixed ownership, or (4) cooperative. Nor is it unusual to find in the same market system a combination of all four. In all societies where marketing occurs there will be some organizational structure to perform some of these functions. These organizations need not be formal, nor legally chartered, rather they may be a set of arrangements defined regionally through tradition or custom. A single trucker buyer produce on a dirt road in a remote village would also be considered as a marketing organization. The totality of these organizations make up the market-distribution subsystem, and the extent to which they are capable of providing the above mentioned functions will provide valuable information regarding the performance of the market system.

The market distribution subsystem should not be considered as homogenous on the national, or, possibly, on the regional level. It can be distinguished in small farmers. So separate and distinct are the two that it has been concluded that the large farmer distribution subsystem did not evolve from the small farmer distribution subsystem.

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Case study: The main agricultural problems of sidama zone

Agriculture is the dominant sector in Sidama zone and the major source of income in the rural areas. The main problems of agricultural development in the zone (Wolday et. al, 1996) are summarized as follows:

a) Technological Constraint.

i) Crop production and productivity is low.

- There is limited use of modern input, such as fertilizers, improved seeds, pesticides, improved tools and implements, agricultural equipment and machineries, etc.
- Crop disease
- High storage loss

ii) The method of livestock production is backward and the level of productivity very low.

- The productivity of indigenous breeds is low
- Widespread incidence of animal diseases and parasites
- High price of medicine for animals
- Inadequate feed and grazing land

b) Resources and environmental constraint.

- Soil degradation
- Land fragmentation is very serious in sidama zone (peasants hold less than 1 ha of land)
- Deforestation
- Distractive erosion by wind and water

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- Inadequate and unreliable rainfall
- No established tradition in irrigation
- Over-grazing creating soil erosion

c) Infrastructure constraint

- Lack of adequate road network
- Lack of road transport (trucks)
- Inadequate postal and telecommunication services.

d) Institutional constraint.

- Absence of established marketing institutions for efficient and timely distribution of input
- No access to rural credit
- Complete neglect of small farmers from the major financial institutions
- Inadequate adoptive research
- Duplication of some of the activities resulting waste of resources
- Extension services provide by the development agent are inadequate.

e) Socio economic constrain

- Customs and tradition, farmers stick to the old way of doing things.
- Lack of clear property right rules and laws on the use of common pool resources.
- Limited market information system.

f) Human resource constraint

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- Shortage of technical personnel at zone and woreda level.
- Absence of continuous skill up-grading training.
- Absence of long and short-term training.

According to the field survey (Wolday et. al., 1996), the main activity of the Development Agents (DA) is to introduce the new extension system which included distributing fertilizer and improved seeds (the package) to selected farmers in the kebeles. DAs provided regular follow-up to only to those farmers and plots who applied the inputs strictly on their advise. The other important activity of the DAs in the coffee producing woredas is the distribution of coffee seedling to farmers and provide regular advise to farmers. Tree seedling are also distributed by the DAs. The main problems of the existing extension system in the zone are as follows:

- Extension agents are having a large development agent to client ratio (2092 households per DA)
- The DAs are mainly concentrating on distributing and managing the fertilizer and improved seed and managing the farms of selected farmers. They are hardly involving in other extension activities in the rural area.
- Farmer's participation solving the agricultural problems of the kebele is not encouraged by the DAs.
- No careful evaluation of extension services.
- Lack of training to bring staff up to date.
- Issues affecting women in agriculture is not supported with a concrete program.
- There is a serious problem of transport which include the road and the carrying unit.
- Inadequate investment and recurrent cost funding, resulting in inadequate facilities.

Recognizing these constraints, the government, or donors should intervene in improving the efficiency of the extension services.

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- The extension system in the zone should not only concentrate on distributing fertilizer and improved seed to selected farmers. The Development Agent should deliver diversified extension service to the farmers. Extension service should try to make the best use of the technologies available.

- The DA's in the zone should increase in quality and quantity.

- Maintain farmer's active participation at all stages of extension.

- Regular follow-up and evaluation of all extension activities in order to assess extension input and rate of adoption.

- Provide regular training for all involved in extension to meet challenges of an ever changing environment.

- Ensure regular contract between researchers, development agent and farmers mainly at the field level.

- Gender must be included in all phases.

- Government and NGO's should provide adequate fund to support extension activities.

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With the break through in agricultural technology, especially the seed fertilizer revolution, Ethiopia may immediately find itself in difficulty. Some regions may begin producing unprecedented market surplus.

In this new situation the marketing organization found itself unable to work efficiently. A price mechanism tied to high support levels did not response to changes in supply. Transport and storage facilities were poorly organized and in the wrong places to handle internal flows.

Governments also found themselves heading for very large financial, organizational, and operational responsibility. Private trade, made cautious by earlier public policies, was not ready to swing into business. Market organization thus found itself trapped between historic shortages and emerging surpluses.

A sound marketing system in Ethiopia must be prepared to cope with either surplus or scarcity. Ethiopia is having very little storage or holding capacity and is are extremely sensitive to small changes in supply. Modest deficits in farm production get reflected in real fear of famine; small increases create conditions of large surpluses and some times gluts.

Faced with inadequate performance from the marketing structure, Ethiopia must rethink its approach to create a market flexible enough to handle changing supply and demand for a variety of farm commodities. Policies and actions need to be based on empirical evidence rather than on administrative hunches. The planned research will give needed facts on :

(i) What the existing market structure can and cannot be expected to do to handle present and possible future surpluses of different products from different regions.

(ii) Number, location, size, and design of existing market places and how well they serve the changing needs of producers and other users.

(iii) Transport systems from producer through the difference marketing channels to the consumer, and capacity ton provide new kinds and amounts of transport when needed.

(iv) Storage patterns and facilities (total capacity and it location in relation to farming areas, shipping points, and consuming centers).

(v) What public agencies have done and should be doing to organize, regulate, or physically handle the marketing of farm products.

(vi) Above all, the effect of present and probable future government actions on prices, and especially how the role of government can be adjusted quickly when there is a change from food shortages to food surpluses.

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Table 1: Problems and possible solutions of agricultural marketing

Problems	Possible Solutions
Pricing Efficiency	Extension, supervision of scales, standardization of weights
Lack of proper weighing	Standardization of quality definition.
Lack of quality identification	Market information, analysis and forecasts.
Lack of price information Excessive price fluctuations	Market information, analysis and forecasts. Market information, market forecasts to facilitate adjustment of production and supplies to market requirements, making government price stablization schemes effective at assembly level, facilitate credit for marketing, in particular storage.
Operational Efficiency Lack of marketing infrastructure Lack of feeder roads Lack of communication Lack of market facilities	Promotion of feeder road development. Promotion of improvement in communication means, e.g., Postal and telephone services. Promotion of improvement in market facilities, e.g., Postal and telephone services. Promotion of improvement in market facilities, e.g., market buildings. Promotion of improvement in market management.
Operational efficiency at marketing enterprise level	Advisory and training services to improve management Practices, facilitate marketing, credit, provide incentives, Promote vertical coordination of marketing operations.
Inefficient handling, inclining grading, storage transport, management, including financing resulting in excessive marketing costs.	
Innovative Efficiency	Train marketeers in basic agronomic knowledge of agricultural inputs, e.g., fertilizers, insecticides, irrigation pumps to enable traders to provide basic advice on input application, encourage and support technically trader to advise farmers accurately on adjustment of agricultural production to present and future market requirements.
Lack of promotional/extension services by the trade to facilitate introduction of innovations in agricultural production of target farmers, i.e., better techniques for forms of organization.	
Insufficient short-term credit to farmers through marketing systems	Provide short-term credit line to traders, reduce credit risks and promote accurate and timely information on existing alterative credit conditions to farmers

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II. HOUSEHOLD FOOD SECURITY IN ETHIOPIA

Food security is not a single sectoral issue, but rather an important development objective and organizing principle for specific development activities. The common definition of food security - " access by all people at al times to the food needed for a healthy life" - indicates that attaining food security involves far more than just increasing agricultural production, although the latter usually is a component of most food security strategies. Food security is closely relate with concerns over poverty and hunger, and a comprehensive food security strategy can be seen as a major component of the fight to reduce poverty.

Food security can also be viewed at different spatial levels, sub-national (regional) and household. At the global level, the issue is whether global output can expand sufficiently to meet increasing global food demand, especially in developing countries. Sustained increases in global food grains output of at least 2 percent per year appear to be needed. At the national level, many developing countries have pursued policies of achieving national self-sufficiency instable foods in order to ensure national food security. But even where countries have reached self- sufficiency, this has often been at a high resource cost and in some countries such as Zambia has contributed to macroeconomic and ecological imbalances. At the sub-national or regional level, it is clear that even where national self-sufficiency exists, this does not mean that all regional within a country are food-secure. Finally, increasing attention has been focussed on the household level, since, again, whether national self-sufficiency has been achieved or not, severe nutritional inadequacy can exist at household level. There is also a concern with intra-household food insecurity: poor food distribution within a household can result in some members - usually women and children being food insecure even when other members - usually men - have adequate intake. At the households level, to, a distinction can be drawn between transitory food insecurity and chronic food insecurity. The former results from episodic events such as drought, or civil disturbance; the latter is long-term and is more closely linked to poverty.

The link between food security/insecurity and agricultural varies between countries. In general, in Africa countries, the majority of rural people still have access to land and produce a high proportion of their own food. Food production not only meets household needs but is also an important source of income. In this context, increasing agricultural production should have a direct impact on food security. In Asian countries such as India and Bangladesh,

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however, a large proportion of the food insecure are the rural landless. In this case, increasing agricultural production only indirectly improves food security, and more direct measures are needed, such as labour intensive works and the development of non-farm income generation activities. Although there is a perception that it is African countries which suffer most from problems of food insecurity because of the series of recent humanitarian crises if many African countries, in numerical terms the worst incidence of chronic food insecurity as indicated by nutritional data- is in fact in Asian countries, particularly Bangladesh, India, and to some extent Nepal. Nonetheless the problem of chronic food insecurity is increasing in African counties, as food production has generally failed to keep pace with population growth.

An examination of food security problems in a number of countries indicates a wide variety of issues and responses. Ethiopia has a " structural" food deficit, in the sense that domestic production cannot meet domestic demand, and the country remains heavily dependent on food aid to bridge the gap. Within the country, there are major regional networks and a limited private trade sector constrain the extent to which surpluses are moved to deficit areas. Nonetheless, the Ethiopian Government has developed a range of policies to address food security problems: these include increased agricultural production, enhancement of an Early Warning System, rehabilitation of the Emergency Food Security Reserve, expansion of labour- intensive Employment Generation Schemes, and targeted relief to the vulnerable. The Ethiopian policies provide a model for possible actions to address food security problems. A different example in Zambia, a country which is self-sufficient in " normal " years, but which has increasingly suffered droughts in recent years and has had to import maize and in some cases rely on food aid. Zambia is a good example of a country which attained national self-sufficiency (in maize) , but at the costs of high and unsustainable levels of subsidies, and in a way which distorted production patterns. Chronic household food insecurity is prevalent in many areas of Zambia despite national self - sufficiency. Zambia also illustrates the problem of urban food insecurity, a problem magnified in Zambia because of the high level of urbanization, and made worse in recent years by sharply rising food prices an rising formal sector unemployment following from economic reforms.

This section continues the approach of using case studies to identify key food security issues and problems, this time at household/community level. While it has become common place to discuss household food security as a distinct category, this does not mean that all the solutions must be considerable and

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should be incorporated into the design of areas based programs and projects which are aimed at alleviating food security problems. On the other hand, sometimes it is necessary to go further than the household and look at intra-household food security is a careful analysis, and good understanding of some times complex processes operating at local level, for example in local food markets , in the local labour market, or within households. Some examples of these more detailed analyses are given in the following sections.

Table 2: Classification of food insecure groups in Ethiopia.

	Rural	Urban	'Others'
Chronic	Resource poor households - land scare - ox-less - female-headed households - elderly - poor non-agricultural HHs - newly established settlers	Low-income households employed in the informal sector Groups outside the labour market: - elderly - disabled - some female-headed households	Refugees Displaced people Ex-Soldiers
Transitory	Less resources-poor households vulnerable to shocks, especially but not only drought - farmers and others in drought-prone areas - other vulnerable to economic shocks, eg. in low potential areas	Urban poor vulnerable to economic shocks, especially food price rises	Groups affected by temporary civil unrest

Note: 'Others' column shows groups temporarily residing in both areas.
Source: Debebe and Maxwell, 1992.

The estimate sum of rural resource poor and rural pastoralist to be in the order of 19 million,[21] ie... about 50 percent of the total rural population. These are the largest category of the food insecure, but the urban poor and urban vulnerable have almost certainly increased in numbers with the introduction of economic reforms. The rural resource poor category is discussed in more detail here.

A large proportion of the rural resource poor live in the Northern Highlands (for example Tigray, northern Gondar and Wollo), and other highland areas in Hararghe, Arsi and Bale. Characteristics of these areas include severe and

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worsening soil degradation, high variability of rainfall, and dependence on the ox plough for land preparation. However, 30 percent of households are estimated to have no oxen, meaning that they must cultivate manually of with rented-in oxen. About 80 percent of households are on farms of less than 2 ha. in size. The poorest households of all are often those handed by women, who suffer from lack of access to education and credit, uncertainty over land titles, poor health, and lack of participation in community decision-making. Children in such households are vulnerable to disease and death (World Bank 1992).

The World Band report also quotes the results of some "rapid food security assessments" which, for example, found in an area of Sidamo province that during the disastrous drought of 1984/85, the poor lost on average 88% of their livestock compared to 23% for wealthy households, in this wary, not alone have inequalities been increasing, but also the asset depletion of poor households has created a condition of chronic food insecurity rather than transitory food insecurity. Loss of livestock contributes to lack of drought oxen, making land cultivation more burdensome and costly.

It is worth briefly enlarging on the question of livestock. It was noted earlier that Ethiopia is said to have the biggest livestock numbers in Africa. In parts of Ethiopia which are in deficit in terms of crop production, livestock can be expected to play a critical role, not just in terms of draught power, but also as a major source of income. But many households do not own any livestock, and this contributes to their poverty. A "helicopter" survey [22] carried out in late 1992 by the NGO Save the Children in the north-east high lands of Ethiopia collected data on livestock ownership among other issues. The sample data showed that on average there is about one oxen-pair per three households, one head of cattle per household, and two small livestock (sheep/goats) per household. But looking at the distribution of livestock ownership, the survey found 23 % of male-headed and 62% of female-headed households owned no oxen. The "richer" 20% of household on average owned about 2 oxen per household, 5 head of cattle, and 10 sheep/goats. The "poorer " 80% of households on average owned 0.35 oxen per household, 0.53 head of cattle, and 0.19 sheep/goats. This unequal distribution of livestock ownership appears to have been worsened due to the effects of drought, in 1984/85 and subsequently, but it is also tied up with unequal land ownership and the effects of livestock diseases.

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Table Sequential Coping Mechanisms.

Sequential Use of Strategies	Examples of Strategies	Characteristics of Strategies
STAGE 1 Insurance Mechanisms	- Changes in cropping and planting practices- sale of small-stock - reduction of current consumption levels - collection of wild foods - use of inter-household transfers and loans - increased petty commodity production - migration in search of employment - sale of possessions (e.g. jewellery)	- risk - minimizing - loss - management - low commitment of domestic resources
STAGE 2 Disposal of Productive Assets (Coping)	- sale of livestock (e.g. oxen) - sale of agricultural tools - sale or mortgaging tools - sale or mortgaging of land - credit from merchants and money lenders - reduction of current consumption levels	- high commitment of domestic resources
STAGE 3 Destitution	- distress migration	- failure to cope

Source: Davies (1993:66) as adopted from Cirbett 1988 and Frankenberger 1992.

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Table 3: Proposed Areas and Measures for Attaining Food Security

Major areas	Proposed measures
Boosting food and agriculture Production	- Strengthening agricultural research and extension services and develop infrastructural and human resource capacity - Development of rural and feeder roads - Supporting development of indigenous agricultural knowledges - Provision of training to improve local level capacity - promoting of small-scale irrigation schemes - Development and improvement of storage capacity at the farm and other levels
Improving distribution and marketing system	- Encouraging private sectors in grain marketing - Expanding and strengthening public storage, distribution and processing facilities - Strengthening market information system - Ensuring minimum and stable grain price through buffer stock
Promotion and protection of food consumption	- Promoting self-employments schemes - Initiating labour intensive public works - Diversification of production capacity - Information exchange to mitigate drought and famine - Expanding emergency food security reserves and building-up reserve stock capacity at all levels

Source: Tesfaye Zegeye and Debebe Habtewold (1995), Food security in Ethiopia: A situation analysis. In: Mulat Demeke et. al. (1995), Food Security, nutritional and poverty alleviation in Ethiopia, AESE, Addis Ababa.

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