GUIDELINE FOR AGRO-ECOLOGY BASED PACKAGES OF NUTRITION SENSITIVE INTERVENTIONS

Feed the Future Ethiopia – Growth through Nutrition Activity

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LAND O'LAKES IDD

Contents

1. Introduction

Experience and lessons learned from this project's predecessor, ENGINE (Empowering New Generations to Improve Nutrition and Economic opportunities), deeply influenced the development and organization of the proposed agro-ecology specific resource packages of the Growth Through Nutrition project. ENGINE project followed blanket approach while introducing and implementing its livelihood development interventions. Experience from ENGINE showed that, head cabbage failed to head in lowland and moisture stressed areas. Similarly, distribution of livestock for landless households and Livestock provision without adequate feed supply was not effective. Likewise, fruit seedling supply, in areas where there was no year round water supply was not effective.

Growth through Nutrition is USAID's flagship five-year (2016-2021) multi-sector nutrition and WASH project, which aims to improve the nutritional status of women and young children in the four regions of Ethiopia (Oromia, SNNPR, Tigray and Amhara). To achieve Growth through Nutrition's goal of improving the nutritional status of women and young children; IR1 of the project is focused on Increased Access to Diverse, Safe, and Quality Foods. To achieve IR1 of the project component, the project will work in collaboration with public and private partners, from national down to woreda and kebele level, to address the barriers smallholder households face in accessing and utilizing diverse, safe and quality foods. Growth through Nutrition stretched out covering 100 woreda; 80 out of 100 woredas are productive while the remaining 20 woredas are food insecure. The 100 woreda of Growth through Nutrition are located in different agro-ecological and livelihood zonation. Therefore, to increase the project targets' access to food requires implementation of activities relevant to the specific agro-ecological system of a given area. In Growth through Nutrition project, emphasis was placed on developing packages of agro-ecology specific livelihood/agriculture interventions based on a review of relevant literatures and experience from ENGINE project.

Definition of Agro-ecology and its importance

The concept of agro-ecology has evolved as a scientific discipline, a set of practices and a social movement:

As a *science* - it studies how different components of the agro-ecosystem interact

As a *set of practices* - it seeks sustainable farming systems that optimize and stabilize yields

As a *social movement* - it pursues food sovereignty and new, multifunctional roles for agriculture.

Agro-ecological practices support food sovereignty by enabling farmers to boost and diversify their production, stabilize yields and decrease dependency on expensive and often hard-to-access inputs. The benefits of scaling up agro-ecology across the landscape include greater agrobiodiversity, lower environmental impact, improved landscape stewardship and increased climate resilience.

Agro-ecological Zoning (AEZ) refers to the division of an area of land into smaller units, which have similar characteristics related to land suitability, potential production and environmental impact. The purpose of zoning, as carried out for rural land-use planning, is to separate areas with similar sets of potentials and constraints for development. Specific programs can then be formulated to provide the most effective support to each zone. The particular parameters used in the definition focus attention on the climatic and soil related requirements of crops and animals on the management systems under which the crops and/or animals are grown.

2. Agro- ecological and Livelihood System classification - Ethiopia

2.1 Agro-ecology

There are different ways of classifying agro-ecological areas. This guideline opts to use a combination of the traditional classification system and the agro-ecological zones (AEZ) system.

The AEZ classification method is based on combining growing periods with temperature and moisture regimes. According to the full AEZ classification system, Ethiopia has 18 major AEZs, which are further subdivided into 49 zones (Table 1).

Table 1: Major Agro-ecological Zones

1	Hot to Warm Arid Lowland Plains	7	Tided to Cool Arid Mid Highlands	15	Cold to very Cold Sub-Moist Sub-Afroalpine to Afroalpine
2	Hot to Warm Semi-Arid Lowlands	8	Tided to Cool Semi-Arid Mid Highlands	16	Cold to very Cold Moist Sub-Afroalpine to Afroalpine
3	Hot to Warm Sub-Moist Lowlands	9	Tided to Cool Sub-Moist Mid Highlands	17	Cold to very Cold Humid Mid Highlands
4	Hot to Warm Sub-Humid Lowlands	10	Tided to Cool Moist Mid Highlands	18	Water Bodies
5	Hot to Warm Humid Lowlands	11	Tided to Cool Sub-Humid Lowlands		
6	Hot to Warm Per-Humid highlands	12	Tided to Cool Sub-Humid Sub-Afroalpine to Afroalpine		
		13	Tided to Cool Mid Highlands		
		14	Tided to Cool Pre-Humid Mid Highlands		

Source: Temesegen et al., (2010)

The AEZs are also grouped under six major categories (Chamberlin & Schmidt, 2011) as indicated below and this classification is used for the development of the guideline. This classification includes:

1. Arid zone: This zone is less productive and pastoral;
2. Semi-arid: This area is less harsh;
3. Sub-moist: This zone is highly threatened by erosion;
4. Moist: This agro-ecology is the most important agricultural land of the country where cereals are the dominant crops;
5. Sub-humid and humid: These zones provide the most stable and ideal conditions for annual and perennial crops and are home to the remaining forest and wildlife, having the most biological diversity; and
6. Per-humid: This zone is suited for perennial crops and forests.

According to the traditional classification system, which mainly relies on altitude and temperature, Ethiopia has 11 climatic zones (Table 2) (Hurni, 1998).

Table 2: Traditional climatic zones and their physical characteristics

Agro-ecology	Altitude (Masl)	Rainfall (mm/year)	Length of growing period (days)
Berha	<500	<900	<120
Dry Kolla	500 – 1500	<900	<120
Moist Kolla	500 – 1500	900 -1400	120-240
Dry Weyna Dega	1500 – 2300	<900	<120
Moist Weyna Dega	1500 – 2300	900 -1400	120-240
Wet Weyna Dega	1500 – 2300	>1400	>240
Moist Dega	2300 – 3200	900 - 1400	120-240
Wet Dega	2300 – 3200	>1400	>240
Moist Wurch	3200 – 3700	900 -1400	120-240
Wet Wurch	3200 – 3700	>1400	>240
High Wurch	>3700	>1400	>240

Source: Hurni (1998)

2.2 Livelihood System

On the basis of a combination of biophysical and socio-economic determinants, livelihood zone analysis divides the country into different areas where rural people in each area share relatively homogeneous living conditions. Livelihood Zone Analysis describes the main sources of livelihood of rural populations (by category of people), their natural resources base, agricultural potential and key constraints to development. Among the biophysical factors, altitude and rainfall are fundamental to determine the livelihood zones and are also the basis for classification of the traditional agro-ecology. According to the Livelihood Atlas of Ethiopia (USAID, MOARD, 2010) the country is divided into 175 livelihood zones. This classification system is too detail and considered most variable parameters such as infrastructures such as access to road and market. Since it has relevant information, in this guideline we have followed the livelihood classification used by IWMI (2011) for planning agricultural water management investments that classifies the country into 18 livelihood zones. In addition, we have used Ethiopia: Agro-ecological Climatic Zones map of OCHA (2012) to assess the presence of more than one agro-ecology in each district (Annex 3).

Using an overlay approach combining the Traditional Agro-ecology Zonation and the Livelihood Zone Analysis, the 100 woredas covered by Growth through Nutrition Project have been grouped into 7 agro-ecologies and 10 livelihood systems which together describe the package of agro-ecology based nutrition sensitive livelihood interventions used by Growth through Nutrition (Annex 1). This approach was confirmed following a field visit to 6 selected woredas and discussions with the agriculture staff of each woreda office to verify the agro-ecology classification and to solicit the opinion of the woreda staff as to

the relevance of the proposed package of nutrition sensitive interventions. As a result, the number of agro-ecology based recommendation/intervention domains further narrow down into four major groups such as dry and moist Kolla, dry Weyna Dega, moist and wet Weyna Dega, and moist & wet Dega. Fruits and vegetables are more sensitive to agro-ecological variations (altitude, rainfall and temperature) compared to animal species. Therefore, one animal species can be produced in more than one agro-ecology based recommendation domain. It has to be noted that a woreda could consist more than one agro- ecologies. These groupings are also matched with the agro-ecology requirements of the proposed crops (Annex 2) for homestead production by nutritionally most vulnerable households (NMVHHs), and promotion of the same in FTCs, school gardens and model farmer's plots.

3. Agro-ecology Based Package of Nutrition Sensitive Livelihood Interventions

3.1. Project Impact Group and Selection Criteria

Nutritionally Most Vulnerable Households (NMVHHs) are households with food gap for more than 3 months and with pregnant mother or bearing children under 2 years old are the principal focus for project inclusion. In terms of the NMVHHs' resource ownership, Growth Through Nutrition target will likely be classified as NMVHHs who own land and the landless including adolescent girls.

NMVHHs who own land will receive fruit and vegetable crops and productive livestock to diversify and enrich the nutritional value of their diet. But Growth Through Nutrition project support for landless rural households is not well rectified yet. Landless rural households reside in a kebele where Development Agents are posted may be targeted for a project support to be engaged with off-farm activities that have direct impact on nutrition such as trading of egg or vegetable or complementary food for children. After consultation with stakeholders and field offices income generating off-farm activity business plan with a detail implementation guideline will be developed in due course. Likewise, Growth through Nutrition has planned to conduct formative research in order to inform possible interventions to address nutrition issues related to adolescent girls. Based on the findings and recommendation of the formative research livelihood intervention will be developed in due course if need be. To this point, below proposed agro-ecology specific nutrition sensitive agriculture interventions are for NMVHHs who own backyard and/or farm land who can able to manage horticulture and livestock production. In order to avoid inclusion and exclusion errors and to reach the intended needy beneficiaries establishing targeting criteria do have paramount importance. Accordingly, the targeting criteria indicated in tables 3-5 below should be followed strictly to extend the project support.

Table 3: Targeting criteria for NMVHH and Landless Rural Household (LRHH)

Description of Criteria	Targets		Possible Source of information
	NMVHH	LRHH	
Household should be member of the community/kebele*	X	X	Kebele ID and community
Female headed household (receive priority)	X	X	Kebele record and community
Economically Poor household with above three months of food gap*	X	X	Community
Households with children less than 2 years of age*	X	X	Kebele record and health facility record
Pregnant woman and lactating mother*	X	X	Health facility record and Community
Household who do have plot of land for on-farm activities. For homestead gardening and grazing land for animals	X		Kebele record and community
Disabled person who do have family labor		X	Community
Willing to be organized in a saving group and regularly save	X	X	Individual consent
Landless households willing to engage in off-farm activities		X	Kebele record and community
Physically able to do on-farm activities, and willing to construct separate room for animals and have the capacity to manage animals	X		Community & individual consent
Household who did not receive support from INGOs/NGO/donor	X	X	Kebele record and community

* *mandatory criteria to qualify for project support.*

Table 4 Targeting Criteria for Model Farmer

Description of Criteria	Possible verification
Model farmer should be member of the community/kebele	Kebele ID
Economically better-off lead farmer	DA, Kebele administration and Community

Adopter of improved agricultural technologies (improved seeds, fertilizer, pesticides, improved farm tools)	DA and Community
Who do have access to perennial irrigated land	DA and community
Who is engaged in production of vegetables and fruits during the rainy season and off-season	DA and Community
Respected and reference for information on improved agricultural practices	DA and Community
Willing to promote vegetable and fruit production to address nutrition and advise his followers	Individual consent

Table 5: Targeting Criteria for FTC and Schools

	Farmers Training Centers (FTCs)	School Gardening
1	Capacitated with the support of ATA, AGP with proper fencing and functional at least for 2 years	Functional at least for 2 years
2	Access to water for irrigation or deep wells is mandatory	Access to water for irrigation or deep wells, spring, etc. is mandatory
3	Suitable soil type for horticultural crops preferable	Suitable soil type for horticultural crops (vertisol) or black soil not recommended
4	Accessibility or location of the site suitable for demonstration	Adequate plot area without drainage problem, in a range of 250 - 500m^2
5	Adequate plot area without drainage problem, a in a range of 250 - 500m^2 …….	Active parents and teachers association (PTA)
6	Willing to sign MOU to promote nutrition sensitive vegetables and fruits production and food preparation jointly with HEW	Willing to sign MOU to promote nutrition sensitive vegetables and fruits production and food preparation and to work with HEW and DAs
7		Market availability for the produce, preferable
8		Elementary or secondary schools (not nursery schools)

3.2. Proposed Agro-ecology specific Nutrition Sensitive Packages for land owning NMVHHs

As indicated in table 6 below, four agro-ecology informed packages of nutrition sensitive livelihood interventions are proposed for the corresponding project woredas. As one woreda may consist of more than one agro-ecology, in the course of implementation, the agro-ecology setting of kebeles should be considered rather than the agro-ecology classification of the woredas (refer Annex 1 Remark column).

Table 6: Package of Livelihood Interventions based on Agro-ecology by Growth through Nutrition Woreda

	Woreda	Agro-Ecology	Proposed Livelihood Package
1	Tselemti, Asegde Tsimbla Tsegede, Welkait Jawi, Alfa, Taqusa, Debub Ari, Semen Ari, Benatsemaye, Besketo, Esira, Tocha, Konta (14)	Dry Kolla (1500 - 500masl & <900mm) and Moist Kolla (1500 - 500masl & 900 - 1400mm)	• Homestead Vegetable & Fruit ✓ Sweet potato (white flesh), Orange flesh sweet potato, Moringa, Pumpkin, Mung bean/ Cow pea/ Pigeon pea, Papaya/Banana/cooking banana /Mango (free from white fly) • Productive animal ✓ Mix of chicken with Goat or Sheep • Farm hand toll ✓ Hoe, spade, Pick axe
2	Kobo, Habru, Tarma Ber, Antsokia, Kewot, Raya Alamata, Tach Gaint, Zeway Dugda, Adami Tulu Jido Kombolcha, Arsi Negelle, Heban Arsi, Siraro, Shalla, Tahtay Koraro, Medabay Zana, Nader Adet, Ebenat, Merab Belesa, Misrak Belesa (19)	Dry Weyna Dega (2300 -1500masl & <900mm)	• Homestead Vegetable ✓ Sweet potato (white flesh), Orange flesh sweet potato, Swiss chard, Carrot/Pumpkin, Haricot bean/Pigeon pea, Mango/Papaya • Productive Animal ✓ Mix of chicken with Goat or Sheep • Farm hand toll ✓ Hoe, spade, Pick axe
3	Cheha, Gita, Anlemu, Misha, Bule, Gedeb, Wonago, Gewata, Gimbo, Wondo Genet, Merab Azernet, Misrak Azernet, Alichowuriro, Moretnajiru, Ginir Horo, Jima Geneti, Jima Rare, Jerdegajarte, Diga, Wayu Tuqa, Guto Gida, Gida Ayana, Boneya Boshe, Genji, Haru, Nolekaba, Lalo Asabi, Yem Debre Elias, Dejen, Enarj Enawga, Baso Liben, Semen Achefer, Jabi Tihinan, Guangua, Wegera, Dembia, Ankasha, Gimbicho, Liben, Dugda, Lume, Girar Jarso, Yaya Gulele, Were Jarso, Becho, Wenchi, Kersa Malima, Bako Tibe (50)	Moist Weyna Dega (2300 – 1500masl & 900 – 1400mm) and Wet Weyna Dega (2300 -1500masl & > 1400mm)	• Homestead Vegetable • Irish potato (improved variety), Head cabbage/Swiss chard/Kale, Carrot/Pumpkin, Green bean/Pigeon pea, Avocado/Apple/ • Productive Animal ✓ Chicken standalone ✓ Mix of chicken and Sheep • Farm hand toll ✓ Hoe, spade, Pick axe
4	Shirka, Tiyo, Agarfa, Gasera, Sinana, Endamehoni, Enemaye, Baso Worana, Delanta, Lay Gaint, Geto, Gumer, Malga, Gorche, Bursa	Moist Dega (3200 – 1500masl & 900 -1400mm) and Wet Dega (3200 –	• Homestead Vegetable ✓ Irish potato, Head cabbage/Swiss chard/Kale, Carrot, faba bean (improved variety) Apple

	Dabat, Debark, (17)	2300masl & >1400mm)	• Productive Animal ✓ Chicken standalone ✓ mix of chicken and sheep • Farm hand toll ✓ Hoe, spade, Pick axe

The above indicated package of interventions are intended for NMVHHs who qualify as per the targeting criteria and do have farm land entitlement in the kebele they reside for homestead vegetable production and animal husbandry.

3.2.1. Homestead Vegetable and Fruits Production

Different fruits and vegetable crops selected based on their adaptability to the agro-ecologies of the project area and their nutrient content. Leafy vegetables, root crops, pumpkin & carrot, pulses and fruit crops are proposed to enrich the regular diet of MVHHs. List of proposed fruits and vegetable crops are given as follows.

- One green leafy vegetable (kale or Swiss chard or head cabbage or moringa) among which is not customarily produced in the locality;
- One root crop (sweet potato or Irish potato or Orange flesh sweet potato (OFSP)) with a priority for OFSP and improved variety of Irish potato which is not common in the locality:
- One vegetable with source of Vitamin A (carrot or pumpkin). If pumpkin is a common crop in the locality better to focus on the possibility of different type of food preparation rather than distribution of seeds;
- One among the pulses (mung bean or cow pea or pigeon pea or haricot bean) – as an inter-crop with cereals such as maize, sorghum, millet rather than cultivated only as vegetables on seed beds. In highland (Dega) promotion of improved variety of faba beans and pea will be an option.
- One type of fruit tree (papaya or Banana (preferably improved variety of cooking banana) or mango (free from white scale), avocado or apple). A minimum of five seedlings per household in areas where access to water for irrigation is a prerequisite for the distribution of fruit seedlings.

The plot size for homestead vegetable production is assumed to be in the range of 55 - 100 meters square of land. The assumptions followed for plot size were availability of land, and the minimum quantity and types of vegetables required for an average household (5 family members). Each household will have at least four seedbeds each with an area of 5m^2 to grow one vegetable crop from each group. Fruit crops will be planted around the four borders of the garden.

Targeted NMVHHs will receive three basic farm hand tools such as hoe, spade and pick axe that aids the preparation of proper seeds beds for vegetable production.

3.2.2. Livestock Production

With regard to Animal production targeted NMVHHs will receive chicken only or mix of chicken with sheep or goats. Based on resource availability, small animal (mix of chicken and sheep or mix of chicken with goat) recipient households will be co-funded to strengthen their economic transition to large animal ownership; mainly to dairy cow ownership. The support per NMVHHs will be:

- 12 improved chicken (2 cock and 10 pullets) preferably meat and egg type chicken breed capable of self-replacing through natural hatching using local broody hen
- 6 improved chicken (1 cock and 5 pullets) preferably meat and egg type chicken breed capable of self-replacing through natural hatching using local broody hen plus 2 breeding female sheep
- 6 improved chicken (1 cock and 5 pullets) preferably meat and egg type chicken breed capable of self-replacing through natural hatching using local broody hen plus 2 breeding female goat
- NMVHHs who are successful in raising small animals received from the project and willing for cost share could be supported to transit from small animal to dairy cow through a matching fund approach (this will be considered in the years to come based on fund availability). Available fund amount and households capacity to meet the required contribution will qualify who will benefit from the cost share and who is not.

Efforts will be made to introduce prime examples of agro-ecologically appropriate local breeding males sheep (ram) and goats (bucks) in project groups. (A prime example means that the animal meets the breed standard definition for the local breed, is of good size, conformation and stature, passes a breeding soundness exam, and possesses positive genetic traits. 1 Breeding ram and buck management will be by an individual group member whom members of the group selected and agreed for managing the improved ram or buck (caretaker). Ram or buck ownership is for the group; the selected caretaker will be responsible for managing the ram or buck and let the ram or buck to serve the group animals for 2 consecutive births of the group's animals. After two consecutive gestation cycles (16 months) the improved ram or buck ownership will be transferred to the caretaker. The proposed ram/buck management system is the responsibility of the specific group representatives and the local administrators of the kebele; the SCI Zonal Coordinator in charge of the woreda and development agent are responsible for the technical support and follow-up.

In addition to the introduction of the breeding ram or buck, efforts will be made to introduce technologies that can help improve reproductive efficiency of breeding female sheep or goats. This may include using a hormone called prostaglandin F2α,(PGF2α) which can be used to synchronize heat cycles in ruminants. (PGF2α) is locally available in woreda livestock offices as it is used for dairy cow breeding programs; the hormone administration does not require a particularly high level of expertise, however

there is risk of abortion when administered to pregnant animals. Hormonal synchronization on sheep combined with natural mating has been practiced in Ethiopia by the Livestock and Irrigation Agriculture Value Chain for Ethiopian Smallholders (LIVES) project implemented by International Livestock Research Institute. The in person communication on the efficiency of the hormonal synchronization method reveled 80% birth rate; based on this success rate, Growth Through Nutrition is interested in investigating the possibility of adopting the practice of using PGF2α in small ruminants. In addition to investigating the possibility of using PGF2α the project is interested in piloting the use of ultrasound machines to detect pregnancy to minimize risk of abortion that might arise due to the hormone administration for synchronization and provide more information to small ruminant producers on the reproductive status of their animals. There are certain woreda livestock offices that are geographically proximal to regional research centers already have ultrasound machines that were donated by the LIVES project; Growth Through Nutrition is interested in piloting the use of these machines in tandem with PGF2α administration and measuring differences in conception and birthing rates between areas that have access to improved breeding technologies, and those that don't. The project also anticipates working with regional breeding centers that are producing prime examples of agro-ecologically appropriate local breeding animals, and understanding their breeding methods, to see if there are applicable methods and technologies appropriate for Growth through Nutrition.

3.3. Promotion of Homestead Vegetable and fruit production

FTCs capacitated by ATA and AGP, selected schools and model farmers will be an entry point for the promotion of vegetables in order to reach the wider smallholder farming community. Vegetable crops, fruits and legumes listed in the agro-ecology based nutrition sensitive livelihood interventions, among others will be promoted at the indicated entry points. FTCs and schools will receive planting materials and financial support to promote agronomic and food preparation of the crops that are interest of Growth through Nutrition activity. The expected plot size for the promotion of the intended vegetable crops will be in the range of 250 - 500 meters' squares. Development Agents will receive technical support to undertake the intended promotion.

With respect to model farmers, selected five model farmers per a kebele will receive training in order to promote homestead vegetable and fruit crop production of their interest. As model farmers are expected to be economically better off and adopters of improved agricultural technologies planting material support will not be extended to model farmers except technical support.

As much as possible the implementation of agro-ecology based nutrition sensitive livelihood package of intervention should be supported with SBCC efforts, viewed from the integration of gender and WASH

in order to impact on the improvement of nutritional status of children, pregnant and lactating mothers and the community by and large.

4. Cost Sharing

Nutritionally most vulnerable households are expected to construct separate room for the animal they are provided whereby their labor and materials will be considered as a cost share. In addition, any cost of production of animals like feed, labor and healthcare are part of the initial capital that can be accounted as a cost share since target NMVVs will not generate benefit unless the distributed animals start production of egg, milk or sealable/slaughtered offspring. Which is a common practice among the common interest group (CIG) supported by AGP in the respective woredas. As the NMVHHs are economically poor and trapped in the poverty cycle therefore, monetary contribution in a form of cash is unlikely. Rather they will be encouraged to engage in a compulsory saving among their groups and to establish group insurance mechanism that will cover death of their livestock once they are in rolled in the project support.

5. Market based approach for project support delivery (voucher and committee approach)

5.1 Voucher System (Private input suppliers)

Access to agricultural inputs is the major constraint which hinders rural families of producing diversified agricultural products to improve the nutrition status of their family – for example, improved variety of vegetable seeds are not locally available to the rural community. Hence to solve this input accessibility challenges through creating strong linkage between importers of agricultural inputs, private sector input suppliers and the farmers, growth through nutrition will provide support to the NMVHH applying market based approach using a voucher system, whenever applicable.

The private and farmer's organizations (primary cooperatives and cooperative unions) agricultural input suppliers are the key intended participants in implementing voucher system. Therefore, prior to implementation of the voucher system private and/or farmer's cooperatives engaged in the marketing of agricultural inputs and licensed livestock traders in every project operational woredas should be identified and assessed for their capacity, technical gaps, interest and willingness to participate in the voucher system. Implementing the voucher system will help to improve access to improved vegetable seeds and breeding animals to households, expand local markets, sustain availability of agricultural inputs to project beneficiaries beyond the project lifespan, expands and improves functionality of the local markets and minimizes staff (Project and Government) burdens related with purchasing process of agricultural inputs and implement the interventions timely, which allows to allot enough time on technical supports to the

households, that will improve their productivity. However, the system requires thorough proactive planning and create strong knowledge among the system's stakeholders for its effective implementation. The project will develop detailed vouchers system implementation guideline and sensitization workshop that will be delivered to participating stakeholders, ahead of implementation. In order to ensure the quality of breeding animal supplies and competitiveness of the price offered by the traders to that of the local market a purchasing committee will be established in each project woreda where by the committee consist of relevant experts from the woreda office of agriculture and respective kebele administration as a control measure.

5.2 Committee purchase

If there is no sufficient number of licensed livestock traders or input suppliers the use of voucher system across all intervention woredas will not be feasible, especially of livestock provision. Hence, the project will use mixes of approaches to deliver breeding animals. Besides, voucher system is not perfectly advantageous input deliver mechanism over the committee purchase systems and have its own drawbacks, such as high price could be quoted by the vendors to leverage high profit, low quality inputs might be delivered, it will incur additional costs; difficulty to meet the beneficiaries' preference; especially in the case of animals for breeding and color preference. Even in some woreda contexts, local bidders may not be available to implement the voucher system in a competitive bidding; hence committee purchase which had been customarily in the course of ENGINE project implementation, will be the remaining option in such instance. Timely delivery of the intended inputs to project beneficiaries, workload and safety of cash handling will be the factors that will be compromised in committee purchase approach to that of voucher system. These impediments could be mitigated through proactive planning and proper management. Committee purchase system developed during ENGINE will be adopted for growth through Nutrition as the second option to that of voucher approach; which is advantageous in that is transparent to project beneficiaries with regard to purchase price, their preference and adaptability to the local environment.

5.3 Public, private and institutions – input source (ranch, poultry farm, research centers, Universities, nursery etc.)

On the other hand, some agricultural inputs and technologies are not widely disseminated and readily available in local markets. In such instance it is imperative to establish working relationship with public and private institutions; such as ranch, poultry farms, federal and regional agricultural research centers, Universities and nurseries. Growth through Nutrition will forge a linkage among these institutions to access improved agricultural technologies that will be promoted through the extension system.

6. Organizing NMVHHs into Saving and credit Groups/Cooperatives

To facilitate the formation of saving groups at kebele level the technical gaps of kebele level cooperative development agents will be capacitated in coordination with woreda level saving and credit cooperative experts. The cooperative development agents will provide training to the project beneficiaries and support the saving and credit committees' operations to manage their cooperative effectively.

NMVHHs targeted by the project will be organized in saving groups by the technical support of kebele level cooperative development agents. Prior linking the targeted NMVVHs to the existing saving and credit cooperatives in their locality they will receive training on basic concept of cooperatives there after they are expected to start voluntary saving being issued passbook and actively participate on saving and education days of the saving and credit cooperatives. In order to be recognized as a member of the saving and credit cooperative they are expected to pay registration fee, share values and compulsory saving on regular basis as per the bylaw of the cooperative. As the NMVHHs supported by the project are the poorest of the poor in the community efforts will be exerted to convince the cooperative for a preferential treatment for NMVHHs without contradicting the bylaws. These could be payment of membership fees (registration and share) on installment (monthly bases-in small amounts) and become member of the cooperative. Upon settlement of the membership fees they will be granted full membership and start regular compulsory saving which qualify them to access loans from the cooperative.

7. Capacity Building

Growth through Nutrition is designed to be implemented in collaboration with the government structures at grassroots levels. Woreda staff of agriculture office and development agents (DA) based at kebele levels are frontline implementers of the project with a technical support from the agriculture sector zonal and regional government and project staff. Woreda staff of agriculture (horticulture, animal science and Cooperative experts) will be trained as trainers on nutrition and subject matters relevant to the agro-ecology package of nutrition sensitive agriculture interventions (homestead vegetable production, animal husbandry, saving and credit, marketing). The training is expected to cascade to development agents (plant science, animal science and cooperative) based at kebele levels.

Selected model farmers (five per project kebeles) will receive nutrition and homestead vegetable production training at the respective FTCs in order to promote vegetable production through farmers to farmers' exchange in their neighborhood. Training will be provided to model famers and their spouse interested to engage in poultry production. The project will develop different menus of chicken production so that the model farmers will choose among based on their resource endowment.

Nutritional most vulnerable households targeted for the project support will receive training on nutrition, homestead vegetable and animal production prior receiving in kind project support.

As part of routine extension service DAs are expected to provide frequent technical advice to NMVHHs and model farmers in order to promote nutrition sensitive agriculture so as to impact on nutritional outcomes.

Agriculture/livelihood coordinators hired by the project and posted at the zonal office of agriculture are tasked to coordinate, facilitate and provide technical support to woreda office of agriculture staff and Development Agents.

8. Learning and documentation

Structured assessments will be conducted for project supported agriculture and livelihood interventions in order to inform the progress of implementation, to make informed adjustments in the course of implementation if need be, and to document the project outcomes for exchange of experience and scale-up.

9. Reference

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Annexes

GTN Woreda by agroecology and liv

Agro-ecology Annex 2.docx

Agro-ecological Map of Ethiopia.doc