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Policy advisory brief - Agroecology



BACKGROUND

ABOUT PELUM Zambia

Participatory Ecological Land Use Management (PELUM), is a membership based network of Civil Society Organisations, NGOs, Academic and Research Institutions as well as Individuals. PELUM Zambia strives to promote sustainable agriculture practices, sustainable use of natural resources and promote improved livelihoods for the marginalized in society.

Agricultural transformation

The Green Revolution of the 1940s to 1960s developed technologies that increased industrialized agricultural production in parts of Asia and Latin America. The initiatives involved the development of high yielding varieties of cereal grains, expansion of irrigation infrastructure, and the distribution of hybrid seeds, synthetic fertilizers and pesticides to farmers. During this period Africa was not affected, as the small amount of hybrid seeds that were brought to Africa did not perform well. Food in Africa was relatively inexpensive to

produce, populations were low and development aid was directed to urban areas. It was in the 1970s that things began to deteriorate in African agriculture (Action aid report: 2009). The introduction of fertilizers, which feed the crops and not the soils, deteriorated the soils' capacity to give good yields. At the same time the population was increasing and the forests were being cleared, reducing the diversity of both fauna and flora, and altering the environment and the ecosystem so that it could not support the life it used to support. Food insecurity became a challenge in most households that could not afford the inputs nor use environmentally friendly methods.

Presently the threat of hunger in third world countries brought about by un-environmentally friendly farming methods is likely to cause unprecedented poor living standards and further food insecurity among the small-scale farming communities in Africa. This is true especially among the small holder farmers who comprise about 75 % of the farmers. It is estimated that 25,000 people are hungry and need food and possibly die every day due to hunger-related



causes (WFP, Oxfam, UNICEF: 2001)¹. The cause of hunger is multidimensional and to overcome it, a multidimensional paradigm shift is needed. One such shift would be the effective use and adoption of ecologically sustainable and integrated land use practices at all levels of social, political, economical and ecological spheres.

Zambia's agriculture sector employs approximately 48.8% of the total labor work force and it contributes about 10% to the national GDP. This only shows how important the agriculture sector is to the development of the economy of the country as well as attaining the vision 2030 of the country. It is also important to note that with the current system of agriculture production it is impossible to attain the vision 2030 with its principles that are underpinned by the principles of: (i) gender responsive sustainable development; (ii) democracy; (iii) respect for human rights; (iv) good traditional and family values; (v) positive attitude towards work; (vi) peaceful coexistence and; (vii) private-public partnerships.

Zambia's agriculture is at the cross roads. This is so because there has been a push for the use of synthetic fertilizers, herbicides and pesticides. This has been promoted mainly by the multi corporate who have found an avenue through the government to sell their products to the small scale farmers. In a developing economy Like Zambia growth in the agriculture sector is one of the ways in which sustainable development could be achieved. In other words, when growth comes from a sector that most poor people work in, there is a much higher likelihood to address poverty². The system of agriculture being employed and promoted is neither

sustainable nor can it feed the present and future generations without destroying the soils and environment. What is clear is that the type of agriculture currently used has substantially reduced productivity and caused the farmers to be more dependent on external expensive inputs.

This calls for immediate action and a more sustainable form of farming which is environmentally friendly, sustainable and able to provide the much need food and improve the people's wellbeing.

Problem statement

The Small-scale Farmers (SSFs) in the region and Zambia in particular have continued to face lots of hardships despite the amount of energy and resources that are invested into their farming activities. Investment in agriculture has been skewed towards one crop at the expense of other crops and activities such as research, extension services and infrastructure development. Modern agriculture technologies have not favored the small scale farmers who struggle to access finance and affordable inputs coupled with harsh weather and environmental challenges that are affecting their capacity and ability to produce high yields.



¹ FOOD SECURITY AND VULNERABILITY PROFILE OF GUJARAT REFLECTIONS FROM COMMUNITIES

² IAPRI 2016 Policy brief: Economic Diversification in Zambia: Agriculture leading the way



Agricultural activities have been going on since time in memorial but it has been realized that productivity has been declining, poverty increasing and food insecurity increasing. This is mainly due to the fact that the land which is the main resource is being degraded at a fast rate rendering it unproductive. In the recent years most governments have introduced Input subsidies through the farmer input support programme (FISP) but this has further destroyed the soil and in many cases changed the soil composition, and soil biota killed as the soil organic content completely diminished. The soil lost its ability to hold the nutrients and water because of the low organic content and many farmers have not been able to rejuvenate the soil as they have been polluted to believing that synthetic fertilizers, pesticides and herbicides are the way to go.

Where to now?

Modern farming systems/technologies have managed to supply large quantities of food at global level. However the technologies applied have generated negative effects such as degradation of land, water and eco systems, emitting high GHG, loss of biodiversity and increased obesity due to dietary issues.

It is therefore important that a different model of agriculture based on diversification, replacing chemical inputs, optimizing biodiversity so as to build long term fertility, healthy agro systems and secure livelihoods is promoted and developed. This system of agriculture has been practiced by indigenous people for a long time and needs to be revived. Indigenous knowledge will play a significant role in this.



This patterns calls for a rapid and proactive approach to food production systems such as Agroecology.

As an applied science, Agroecology uses ecological concepts and principles for the design and management of sustainable agricultural systems in which natural, locally-available resources for soil fertility and biological control are privileged over costly external inputs such as chemical fertilizers and pesticides. Agroecology takes greater advantage of beneficial on-farm interactions in order to reduce off-farm input use and to improve the efficiency of farming systems.

Agro ecological farming entails use of farming systems that are critical to sustaining ecosystems in the face of land usage. It involves a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Agroecology farming combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved in the ecosystem. Agroecology seeks in principle to sustain the environmental stewardship, economic viability and social responsibility. It adopts a holistic approach that recognizes the interconnectedness of everything and incorporates the promotion of linkages between various actors



Agroecology aims at achieving the livelihood needs of the family depending on the farm by optimizing the use of local resources, knowledge and technologies which promote interdependency and not competition.

Principles of Agroecology farming:

The principles of ecological land use management are based on the following:

- Principle of soil fertility such as soil and water conservation, maintenance of nutrients status/ equilibrium, check of PH.
- Principle of crop rotation – for soil fertility, pest and disease control, diversity etc
- Principle of integration - of enterprises, systems e.g. Agro forestry, Animal Husbandry.
- Principle of biodiversity – natural resources [air, water, vegetation, soil, animals]
- Principle of appropriate technologies - only what works like low cost e.g. Animal traction
- Principle of Empowerment – one who can manage, make right decision, control, own, adjust, confident and appropriate use
- Principle of cooperation – collaboration, partnership, linkages at all level
- Principle of composting – use of biodegradable materials of plant or animal origin for soil improvement, pest control and disease control.

- No use of synthetic fertilizers and chemicals and no use of any GMO or its derivatives.

Agroecology and policy

Factors that have led to Zambia’s failure to transform its agricultural sector have mainly been due to lack of an enabling policy environment as well as low capacities among the small scale farmers to implement Agroecology forms of farming. In Zambia the policy documents available such as the vision 2030 and the NAP do not give attention to Agroecology but mentions sustainable agriculture. The problem is what sustainable agriculture is and how sustainable is it?

Vision 2030

As a national document it cannot specifically state Agroecology but it does not also mention any regenerative form of farming. Only paragraph 2.2 says:

The nation should have an economy which is competitive, self-sustaining, dynamic and resilient to any external shocks, supports stability and protection of biological and physical systems and is free from donor dependence. In getting the vision 2030, Zambia’s aspirations include “Diversified and balanced and strong industrial sector, a modern agricultural sector and an efficient and productive services sector”

Among the key challenges in attaining the vision 2030, elaborates in the following statement;

“Maintaining a safe, sustainable and secure environment for sustainable economic growth and development”



The Second National Agricultural policy - 2016³

The 2nd NAP also is not clear on Agroecology but places emphasis on sustainable agriculture.

According to the 2nd NAP 2016, “low productivity in maize and most other crops has been attributed to unfavorable rainfall performance, poor farming practices, weak extension services and poor research and technology transfer. In Zambia, Fertilizer usage among smallholder farmers is low, averaging less than 100kgs per hectarethe major fertilizer sources of nutrients that farmers actually use are limited”.

The same policy under objective 8 under measure I and VI which states:

- i. Promote sustainable land management technologies (including conservation agriculture, appropriate stock densities.
- Vi. Promote integrated agriculture especially among smallholder farmers

Objective 9 under measure I and IV which states that:

- i. Promote and strengthen agricultural production methods that are resilient to climate change;
- iv. Promote environmentally friendly and climate smart farming systems

Objective 10 under objective VI which states that promote the development of appropriate agricultural technologies for women and youth.

The shows that the current policies do not recognize Agroecology as a major form of farming which can help regenerate the land and improve the environment as well sustained

³ Ministry of Agriculture (2016) Second National Agriculture Policy, Lusaka, Zambia

livelihoods for the farmers especially the small scale farmers. The policy environment will continue to fail to make a sustainable impact on the economic, social and environmental development of the country.

Why Agroecology

Sustainability and ecological land use management

The sustainability of ecological farming is so explicit. The following are some of them.

- Agro ecological agriculture reduces the vulnerability of the SSFs to pest and disease attack. It also reduces the vulnerability of SSFs dependency on government inputs through the use of locally available resources such as manures, composts and rotations.
- Agroecology enhances the asset base of the farmers in terms of social, natural, human and financial resources
- Agroecology improves the health of the SSFs as food produced is diversified moving away from the maize centric farming.
- Food produced using Agroecology methods of farming is known to be more nutritious, safe from chemical pollution and of high quality.
- Use of locally available resources makes the farmers become self sufficient and develop local economies.
- Agro ecology conserves the environment as it helps to replenish the soil fertility rather than feeding the plant only.

- Soil building such as rotation, intercropping encourages the buildup of flora and fauna improving soil formation and structure creating stable and resilient soils to climate change.
- The uses of substances that are of animal and plant origin do not pollute the environment and all the water bodies in it.
- Agroecology forms of farming are more sensitive to women and girls as they use locally based traditional systems of seed saving and post harvest management which in a traditional set up are mainly manned by the women.



10 Elements of Agro ecology

Efficiency <i>Optimizing the use of natural resources within farming systems. Using inputs more efficiently means that fewer external resources are needed and the negative impacts of their use will be reduced.</i>
Balance: <i>Securing favorable soil conditions and self regulation inside the food system. Natural ecosystems have the ability to self regulate and attain a natural balance between pests, disease and natural elements.</i>
Diversity: <i>Maximizing species and genetic resources across time and space within food system. Diversity in a farming system is a condition of having different elements working in a harmonic way, each providing a specific ecological function.</i>
Co-creation and Knowledge: <i>Local and traditional knowledge and innovation to create sustainable food systems based on local needs and local ecosystems. Agro ecology is knowledge intensive</i>
Recycling: <i>Reutilising nutrients and biomass existing inside the farming system and increased use of renewable resources promoting a healthy food system.</i>
Synergies: <i>Designing food systems with an optimal crop/animal assemblage, while promoting ecological functions for self regulation in food systems.</i>
Human and Social Value: <i>Building food systems based on the culture, identity, tradition, innovation and knowledge of local communities and livelihoods, favoring social dynamics which focus on women's and youth's role in agriculture development</i>
Circular Economy: <i>Local solutions and local markets creating virtuous cycles. Incomes (monetary and non-monetary) need to be fair and sufficient to sustain livelihoods. In this regards food traditions play a central role in society.</i>
Culture and Food Traditions: <i>Healthy, diversified and culturally appropriate diets deliver good nutrition and while assuring the health of ecosystems. Agriculture is a core part of the heritage of human kind</i>
Land and Natural Resources governance: <i>Recognizing and supporting smallholder food producers as sustainable managers and guardians of natural and genetic resources.</i>

Adopted from: FAO Agroecology Knowledge Hub



PELUM Zambia gives specific recommendations on how the country can move forward in developing the agricultural sector, while managing the environment and improve the wellbeing of the people

1. There is need for a deliberate inclusion of Agroecology in the NAP and create an enabling policy environment which will also outline the implementation framework for Agroecology in Zambia
2. Need for sustained investment in Agroecology in research and development at national level
3. Need to raise agricultural productivity through the adoption of Agroecology form of farming among the rural small scale farmers who are practicing it by default.
4. The government FISP should allow farmers access to organic fertilizers as well as pesticides which have a sustainable impact on soil health and ecosystem balancing.
5. Need for strategic institutional reforms to allow for other players in organic industry to fully participate and this should be anchored on a strong political will.

PELUM Association encourages SSFs to use the Agroecology production practices, use of draught resistant seed varieties, diversification to avoid single variety failure, adherence to early warning systems information on climatic change conditions and other methods and techniques that help in the adaptation and mitigation to climate change effects.



References

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4. Ministry of Finance and National Planning (2006) Vision 2030, Lusaka, Zambia.
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