AGRO-ECOLOGICAL SYSTEM ANALYSIS (AESA) AND FARM PLANNING

VALUABLE TOOLS FOR A FARMER FAMILY LEARNING GROUP TO SUPPORT ALL FFLG MEMBERS TO DEVELOP THEIR FARMS

Organic agriculture is based on knowledge, insight and whole farm approaches. The farming system must work for each farmer family. Crop rotation cycles must be based on planning ahead, sometimes more than 2 years, so that different elements of the farm can work together. Intercropping must be based on knowledge on which crops support each other. The surrounding nature must be considered in the planning, e.g. rainfall, animals in the environment, where some of them can be predators and some can eat the crops. Herbs and weeds can prove to be valuable sources of nutrients, medicine or bio-pesticides.

Agro-Ecological System Analysis (AESA)

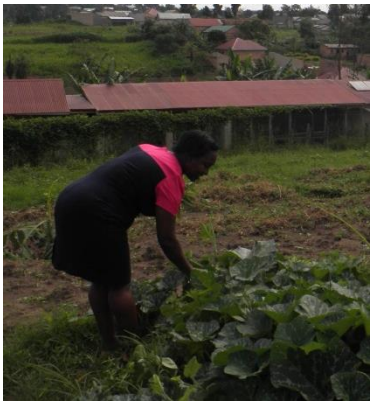
An AESA gives a good overview over the farm. An AESA should capture all elements of importance for the farming on every particular farm. AESA is an approach which allows us to look critically and analyse what is on a farm and how these existing things can work together for the benefit of the farmer family and the sustainability of the farming system.

It is a very good approach to use together in the FFLG. The host farmer family may have become 'blind' to what is on the farm. Maybe they only focus on the daily life and work. The FFLG members can help opening eyes to the different elements on the farm. The whole FFLG learns from going through all the farms belonging to group members, and see different things.

The flip chart to the left was made at a facilitator course, where the participants were divided into groups and made AESAs. It illustrates is not about making a lay-out or map of the farm and how much land is allocated to crops, or how many chicken are there. The fact that chicken are drawn as big as pigs exactly illustrates this. The pictures are elements of existence and importance. As you can see on the photo, insects are mentioned, and sunshine. Both are important contributors to make farming possible, and may be part of the discussion about this farm. Flowering plants could be discussed in relation to attracting more bees and other pollinators. This exercise opens up all FFLG members' eyes to see the resources available on the farm, the interaction with its surroundings, and the interaction between the different elements of the farm.

How to make an AESA in practice

Walk around. Observe carefully all levels of the whole farm. Study the different elements, and how they come together. Bend down, look up, capture what you see. Every member should draw or note down on his or her own paper what she or he senses (sees, smells, hears, feels (e.g. soil with the fingers)). After the walk, the members share what they have sensed, and bring all the different elements together. The group can discuss during the walk, but it is important that everybody makes his or her own observations. Do not rush through the farm and quickly identify the enterprises – that is not what it is about. Use both you macro-eye and your micro-eye. Look at photos below: Jane found several different useful herbs and weeds on her walk:



- Forages, which can be used as animal feed,
- Nitrogen-fixing plants, and plants for plant tea, as fertilizer
- Plants, which can be used for medicines,
- Plants, which can be used as bio-pesticides
- 'Terrible weeds' which need to be taken out before they start setting seeds,
- Flowering herbs which attract pollinators and insects,
- Plants which are good in mulching and compost

Note the crops, the animals, all farm elements, all household elements, such as latrine, stove, compost, birds, insects, trees, streams, biodiversity and other nature elements and surroundings, like roads. On the photos below, a group of participants adds their observations in drawing and writing, put it up on the wall and make a gallery presentation. Below you find an example of a check list for an AESA analysis; you can use it to make sure that you have covered everything.

Topic	Check list, e.g. (find more relevant points when you work with it)
Land	How is it organized and used? Are there poor versus good plots (e.g. poor soil)? Does it slope? Are there places, which are not used, and for which reason?
Farm tools	What is available at the farm?
Labour / skills	Who work on the farm? Who have the responsibility for the different activities? How do they communicate? How do they improve skills?
Homestead	Is it placed well in relation to the crops, animals, water, etc.?
Source of power	Electricity? Trees? Sun? Slope (gravity can be used in irrigation)
Water	Source? Distance? Is it placed so that manure cannot contaminate? Does the family boil water for own consumption? Management of the waste water at the homestead? Run-off water? Water harvesting?
Stove	Where is it placed? Does it work well? Is it fuel saving?
Animals	Housing, shelter, feed and management of all age groups? What is it made of? Handling of diseases? Where are they placed and can they be properly watched?
Compost and organic fertilizer	How is the flow organized? How does the farmer family make compost? Are the materials available on the farm? Is it placed where it is healthy in relation to the animal herds, the water source and the humans? Is it made close to where it is intended to be used? Is it well covered?
Latrine and hygiene	How is the latrine placed? Is there water for washing hands close by? Is the latrine of a good hygienic standard and easy to keep clean?
Crops for family food	Family food, vegetables, fruit and medicinal plants – how is it organized? Intercropping? Labour? Annual pattern? Placed on the farm?
Commercial crops	Does the farm produce crops or animal products for sale, or sell surplus of e.g. staple food? Crops? How is it integrated into the family food crops?
Seeds	Use of local / bought in seeds? Costs? Quality? On-farm seed selection? Preservation and storage?
Trees	Use of living fences? Animal feed trees, fruits for the family or which trees and plants, and how are they organized? Agro-forestry systems?
Storage facilities	Post-harvest treatment of food and products? Design? Ventilation? Storage of animal feed?
Security	Safely kept animals? Stores etc?
Infrastructure	Farm paths / roads, access to places where value adding can take place (e.g. maize mill, coffee)
Nature elements, eco-system services	Flowers, herbs, plants, which can be used as resources or should be controlled, trees, biodiversity, soil quality, micro life, insects, pollination, sun, shade, weather and climate (e.g. rain), wild animals around the farm
Resilience of the agro-ecological	Is the ground well covered? Soil erosion prevented? Intercropping? Crop rotation cycles? Protection against wind and water? Do plants support each other? Harmony between livestock and available land? Can the farming system absorb disturbances and shocks (e.g. extreme weather events) and still maintain its function?

You can make special in-depth inquiries of the animals, if the farmer wants to focus on this. Below there is an example of an AESA check list for a poultry flock

Topic	**Check list, e.g. (find more relevant points when you work with it)**
Characterize the group of animals	How many are there? In which age groups and which sex? Are they bought – if yes: where? - or hatched in the farm?
The condition of the animals you can observe	How do they look? Feathers? Are the animals healthy looking? Do they walk normally? Are their droppings normal? Is the color of the legs and beak normal? Do they show any signs of parasitism? Are they in a good body condition?
Death and sickness	Have animals died? How? For which reasons? Under which circumstances? Can you observe any ill animals? Have they been treated using any medicine recently? Are they vaccinated? Which diseases are prevented and how?
Production	How many eggs and chicken can they produce? Are they sold, or consumed in the family? Sometimes a small economic analysis can help to understand how the poultry fit into the farm
Fodder and water	How are the animals fed? Any preservation initiatives of feed? Which water source? Do they have access to water throughout the day? Is feed available at all times? Do they get sufficient amounts of vitamins and minerals? Do they get vegetables? Which differences between dry and wet season, and how it this handled? Where do they lay their eggs?
Surroundings	Cleanliness? How is the hygiene? Can they dust bathe sufficiently? Do they have perches? Are age groups separated? How are the routines of maintaining the surroundings? Are there any predators? Outdoor access? How are the animals protected?

Farm planning as an activity in the FFLG

Farm planning is about constant development of the farm. If social capital is present among the group members then they will trust each other and open up for discussions, and listen respectfully to the host farmer when he or she presents the farm plan and show people around on the farm. If the group members have made an AESA together on the farm, they all have a clear picture of what exists. Now the farmer can explain it in more detail and explain his or her or their thoughts, when they planned it as it is.

After this, the group members can suggest improvements in a respectful way, and explain the suggestions. After all the inputs, the farmer can choose and explain which of the suggestions he/she/they will consider, and the group can discuss practical implementation of the suggested improvements, if relevant.

During the discussion, remember that it is not only about how the land is used, or about the number of animals or crops, but about all the factors of the farm, which can make improvements difficult, or which can be considered as resources, such as:

- Time for the current and suggested activities,

- Labour and skills – e.g. capacities and skills of some of the family members, e.g. a son can maybe repair some equipment, or maybe the FFLG members can help with things which the family members cannot.
- Costs and expenditures, which has to be planned carefully for.
- Do the family plan for new productions?
- Available ressources, and maybe unused resources.

Mityana, Oct. 2013,
Compiled by Mette Vaarst and Jane Nalunga together with ECOSAF team members, with photos from the course and photos from the SATNET project on FFLG in the Rwenzori Region.