Permaculture as concept for efficient and environmentally sound agro-forestry on small farms in Sierra Leone

Brigitte Amara-Dokubo¹, Fatmata Bangura², Peter M. Bangura², Edwin Sam Mbohah³, Falko Feldmann⁴
¹Löwe für Löwe e.V. Braunschweig, Germany; ²Moringa Innovation and Start-up Centre (MOST), Robekeh Village, Sierra Leone; ³Njala University, Institute of Environmental Management and Quality Control; ⁴Julius-Kühn-Institute, German Federal Research Centre for Cultivated Plants, Institute for Plant Protection in Horticulture and Forests, Braunschweig, Germany; Contact: falko.feldmann@julius-kuehn.de

To achieve subsistence, food security and food safety, a permacultural agro-forestry approach basing on the wonder-tree (Moringa oleifera) underutilized in Sierra Leone is currently developed.

Permaculture

- Integrates design principles reflecting whole system thinking
- Combines cultivated plants of all growth form types
- Produces as diverse products as possible (from timber, oil and fibres to vegetables, fruits and starch crops)
- Is purely organic avoiding agro-chemicals
- Extracts as much as is revolved
- Circulates nutrients
- Produces no waste
- Includes water harvesting methods
- Catches and stores Energy
- Aims at regenerative, divers and self-maintained habitats
- Observes and Interacts
- Applies self regulation and accepts feedback
- Designs from pattern to details
- Integrates rather than segregates
- Use small and slow solutions
- Develops use and value diversity
- Uses edges and values the marginal
- Creatively uses and responds to change

Starting with Moringa, the growing system will integrate more and more useful plants of all growth form types:

Agro-forestry

Moringa oleifera starts the transformation process towards permacultural agro-forestry

- Degraded soil planted with Moringa
- Conventional production: assessment of carrying capacity
- Use of Moringa stems for hugelkultur construction
- Diverse permacultural agro-forestry system established

The Moringa Innovation and Start-up Centre (MOST) re-thinks agriculture as citizen science approach

- Farmers learn by doing, monitor, document and teach their community
- Own facilities for diagnosis and analyses complement the centre and allow education of farmers and students on-farm.
- The offer of a start-up consultancy service should lay the basis for small-scale entrepreneurial actions of the MOST.

Progress

Since 2014: Fundraising
2016: Foundation
2016-2017: Planning
Since 2017: Constructions
2019: Planting
2020: First harvest
2020: Train the trainers

The Moringa-project is planned as demonstration farm connected with education facilities and consultancy services. The project is NGO-driven by Loewe fuer Loewe Germany and Sierra Leone, with support by Njala University, Sierra Leone, and Julius Kühn-Institute, Germany.

Permacultural agro-forestry will create food, expertness and ecological stability: the MOST