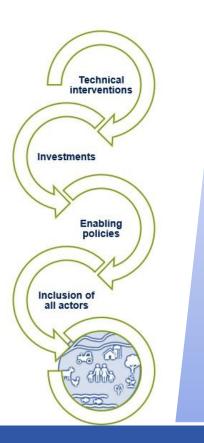
#### Agroecology

- Holistic approach looking at whole farms and farming systems
  - Soil and natural resources
  - o Agronomy
  - Livestock and grazing
  - o Forestry/plantations
  - $\circ \quad \text{Mechanization and energy} \\$
  - Organisational innovations
  - Post-harvest management
  - o Marketing
- maximise natural functioning of ecosystems
  for ecosystem services

agroecology

**Fransition towards** 

• nutrient cycles and ecology



# Redesigning the agroecosystem as a new set of ecological processes

This involves a fundamental change in overall system design focusing on the prevention of problems before they occur, rather than trying to control them after they happen.



Model farmer explaining her agroecological practices to peers in a farmer-to-farmer exchange

# Agroecology and the SDGs - Sustainable Development Goals

Agroecology is a key response to guide the sustainable transformation of our food systems and supports the achievement of most SDGs.



For more information please contact the ISFM+ Project ProSilience component at <u>tesfay.haefom@giz.de</u>.

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# Agroecological Practices

A holistic approach to agricultural development and food systems



# Increasing input use efficiency

- reduce the use and consumption of costly, scarce, or environmentally damaging inputs
- nitrogen fixation by legumes
- lime for balanced pH and efficient uptake of nutrients
- precision agriculture



## Improving soil health and conservation

- incorporating organic fertilizers
- crop rotations with legumes
- green manuring
- crop residue management (mulch)
- barriers or hedges (stone walls, ditches, grass strips, trees along contour lines to reduce erosion)



#### Improved agronomic practices

- improved seed
- optimal seed spacing
- row planting rather than broadcasting
- intercropping, relay cropping or diversified cropping
- minimum tillage

# Reduced or improved use of water

- soil water holding capacity (org. matter)
- rainwater harvesting
- tied ridges between crop rows



#### **Integrated Pest Management**

- biological prevention measures with minimum chemical pesticides and drugs
- Push-pull, based on companion or intercropping (stem borer and Striga)

# Integrated Crop Livestock Management

- create synergies
- making optimal use of resources with the waste products of one component serving as a resource for the other
- manure→improve soil fertility
- crop residues and other by-products  $\rightarrow$  supplementary feed for animals

# Use of locally produced livestock feed

- feed scarcity major constraint
- transition from free grazing to tethering or barn/pen husbandry
- cultivate forages and fodder trees for cut-and-carry system
- use of by-products and supplementation



Farmer feeding freshly cut fodder grasses to tethered cow



#### Use of waste products

- waste products of one sector = inputs to another
- enhancing productivity
- reducing pressure on ecosystem functions and services.
- use of bio-slurry or animal urine



Application of animal urine as part of nutrient recycling



## Agroforestry

- provides sustainable livelihoods
- achieving biodiversity targets
- offsetting greenhouse gases



## Diversification

- for farm enterprises to maximise use of the environment or waste products
- honey production, aquaculture (fish) and small-scale poultry production