Sustainable Food and Energy Producing Landscapes for Supporting Urban Populations

Constance Neely and Katja Kehlenbeck

World Agroforestry Centre

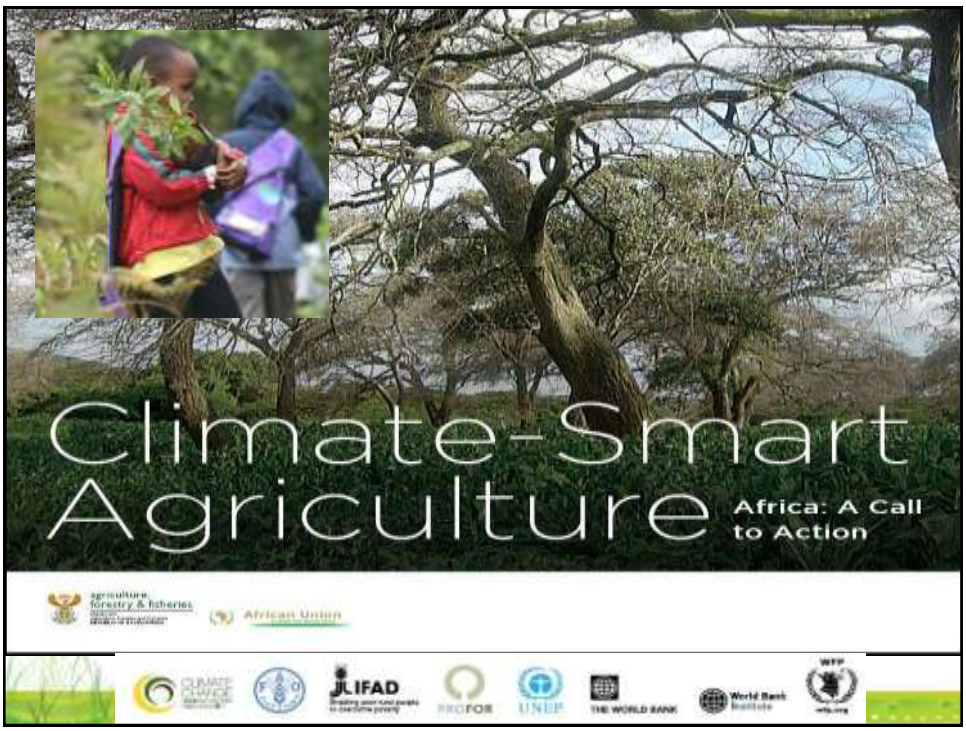
www.worldagroforestry.org

www.worldagroforestry.org

Integrating Trees into Landscapes

- **Products**
  - Fruit
  - Medicines
  - Fodder
  - Fuel
  - Fertilizer
  - Shade
  - Timber
- **Services**
  - Food and nutrition security
  - Ecosystem Processes
  - Genetic Resources
  - Climate Change Adaptation and Mitigation

Kenyan Farmlands: Bold policy to achieve >10% tree cover on farms through a National Evergreen Agriculture Programme




Solar Energy Flow
Nutrient Dynamics
Managing Ecosystem Processes
Water Cycle
Biological Community Dynamics
Photos: C. Leggett


Photo: C. Neely
Photo: C. Neely

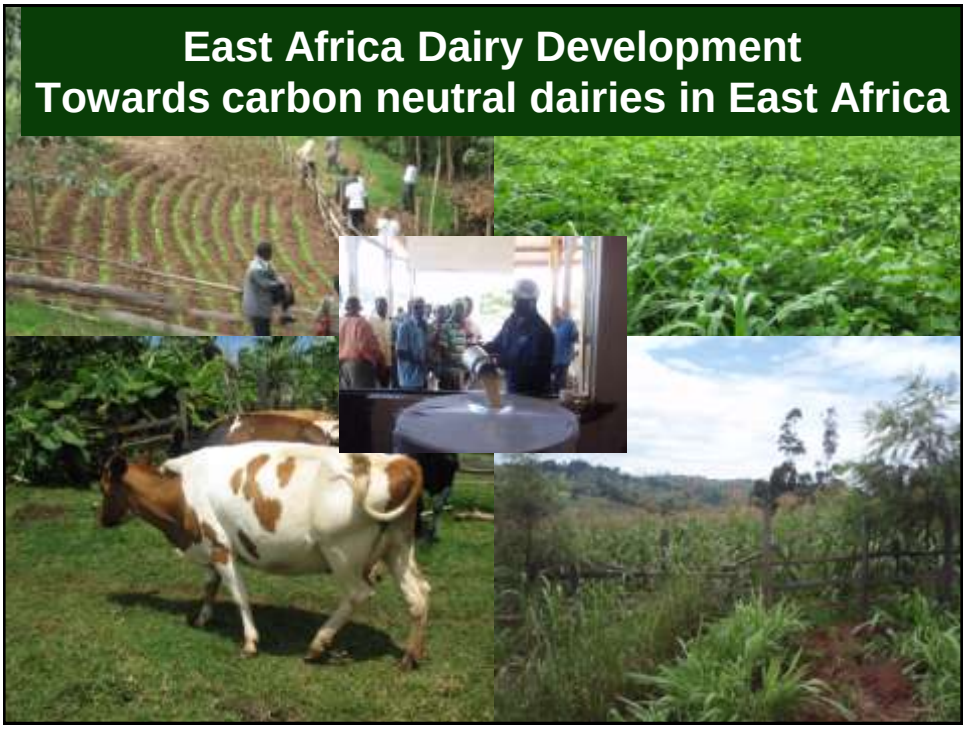
Challenges and Opportunities

- Livestock is the fastest growing subsector of agriculture.
- The meat chain is a complex one
- Poor pastoralists and poor consumers (urban rural linkages)
- Predominately an informal sector (not an export commodity) – 75% of supply.
- Safety and sanitation
- Enhanced Partnerships are needed (local private sector)
- Opportunity for green products and greening local economies
- Issues of tenure and grazing corridors




Keekonyokie Conservation Meat

Pastoralist Innovation Field School
Sustainable Value/Benefit Chain
Kajiado, Kenya



Example: Fruit trees

- Two types:
  - Exotic species → usually commercialised
  - Indigenous African species → often neglected
- Important functions:
  - Nutrition and health
  - Income generation
- Ready and growing markets (domestic, export)

Challenges along the fruit value chain

- Lack of modern varieties (pest/disease, drought)
- No own breeding programs
- Poor access of farmers to planting material
- Lack of knowledge on tree management
- Poor harvest and post-harvest handling
- Lack of processing facilities
- Poorly organised marketing pathways
- Lack of consumer awareness

→ Low production and consumption

→ Huge post-harvest losses

Fruit processing possibilities

- Drying
- Juice and wine making
- Sirups and concentrate making
- Jam and chutney making

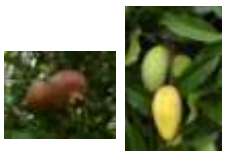
→ Possible for micro-processors, women groups, but need for training and market linkage


Mango products


Baobab products

ICRAF's planned 'Fruiting Africa' project

- Locations: Kenya and Mali
- Fruit species: priority exotic and indigenous species



- Five main outputs:
  - Baseline data on fruit production
  - Decentralised nursery systems
  - Improved fruit production
  - Enhanced fruit processing + marketing
  - Increased consumer awareness

Case study: Are fruit trees important in urban and peri-urban gardens of Niamey, Niger?

- Location: Niamey, altitude 200 m asl, prec. 500 mm/year
- 51 gardens selected: 29 urban, 22 peri-urban ones
- Species inventories performed, farmers interviewed

- 35 fruit tree species grown, 14 indig., 21 exotic (93% of trees)
- Most frequent exotics: Mango, lemon, date palm, pawpaw
- Most frequent indigenous: Baobab, doum palm
- 33% of gardens without any fruit trees

- More fruit trees and fruit species in larger gardens
- More fruit trees and species in gardens managed by men (n=40) than in those of women (n=11)

Challenges of urban/periurban fruit production:

Transformation of mixed gardens into commercial gardens:

→ increasing dominance of annual vegetables at the expense of trees

Extensive use of pesticides
→ Food safety, pollution


There are many opportunities to enhance healthy
landscapes and cityscapes to support healthy urban populations