Opportunities for building nutrition sensitive NWFPs value chains in Uganda

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Overview

1. Background
2. Project Objectives
3. Main findings
4. Interventions
5. Conclusions and recommendations

Background

- "Non-wood Forest Products consist of **goods of biological origin other than wood**, derived from forests, other wooded land [and trees outside forests]." (FAO, 1999)
- NWFPs **cover** (1) wild products; (2) managed products; (3) cultivated products.
- **Includes:** mushrooms, fruits, nuts, herbs, aromatic plants, game, fibres (used in construction, clothing or handcrafts), resins, gums, saps, and products used for medicinal, cosmetic or cultural scopes.

Background cont'd

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Non-Wood Forest Products (NWFPs) Provide

- **resilience** to food & household income systems in many countries
- Adequate quantities of **nutrients** reduces risk of malnutrition
  - ➢ Improves cognitive abilities
  - ➢ Enhances normal growth among children
- Can be the basis of sustainable **livelihoods**

Challenge

↓Despite potential values of NWFPs in West-Nile, NWFPs in west-Nile has not received much attention

↓The influx of refugees and competing land uses continues to cause degradation of landscapes, affecting NWFP availability

↓Land-use and forest management plans & restoration activities not considering NWFPs

↑Assessment of NWFPs and their value chains can improve prospects for nutrition and livelihoods

Project Objectives

Aim: Increase access to nutritious NWFPs for improved dietary diversity and improvement of household income

Study questions

i. What key NWFPs are exploited in west-Nile sub-region?

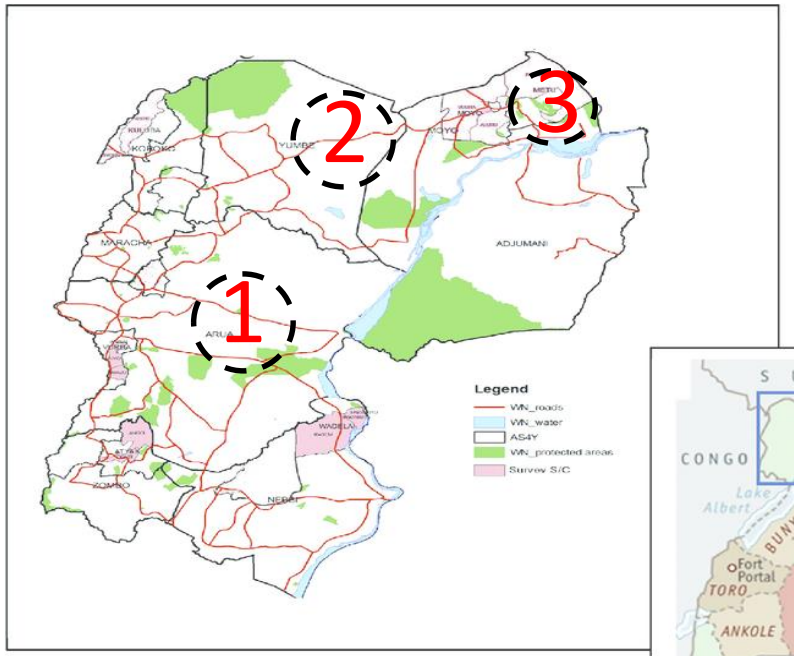
ii. What roles are played by the different stakeholders along the value chain?

iii. What challenges hinder maximum exploitation of the key NWFPs?

iv. What interventions can address identified challenges?

Scope of study

- **Refugee hosting districts** experiencing environmental degradation -Arua, Yumbe & Moyo
- **Focus was on four key NWFPs:**



Justification of study

- Findings will provide suggestions on potential strategies
  - for ensuring adequate nutritious food intake and household income
  - while sustainably utilizing natural resources

Methods used in the study

- Focus Group Discussions
  - 12 FGDs with 10-12 people
- Key Informant Interview
  - Commercial processors
  - District forest officers
- Market surveys
  - Main urban markets in Arua, Yumbe & Moyo
  - Rural markets

Main findings

- **187 participants took part in FGDs**
  - 63% male; 37% female
  - 12% -no formal education
  - 45% -attained primary education
  - 43% - attained beyond primary
  - Crop cultivation –major livelihood activity
- **NWFPs in West-Nile obtained from:**
  - Tree sources e.g. fruits, leaves
  - Insect sources – Ese, honey, white ants
  - Small plants and mammals from terrestrial and aquatic habitats

Key NWFPs in west-Nile

NWFP	Source	Rank
Honey	Insect	1
Shea butter (*Vitellaria paradoxa*)	Fruit	2
Edible grasshoppers (*Ruspolia differens)*	Insect	3
Desert date (*Balanites aegytiaca*)	Fruit	4
Tamarind (*Tamarindus indica)*	Fruit	5
Doodo (*Amaranthus dubius*)	Vegetable	6
Winged termites (white ants)	Insect	6
Osubi (*Vigna ungiculata*)	Vegetable	8
Borassus palm	Fruit	9

NWFPs sold in the markets

NWFPs in rural markets

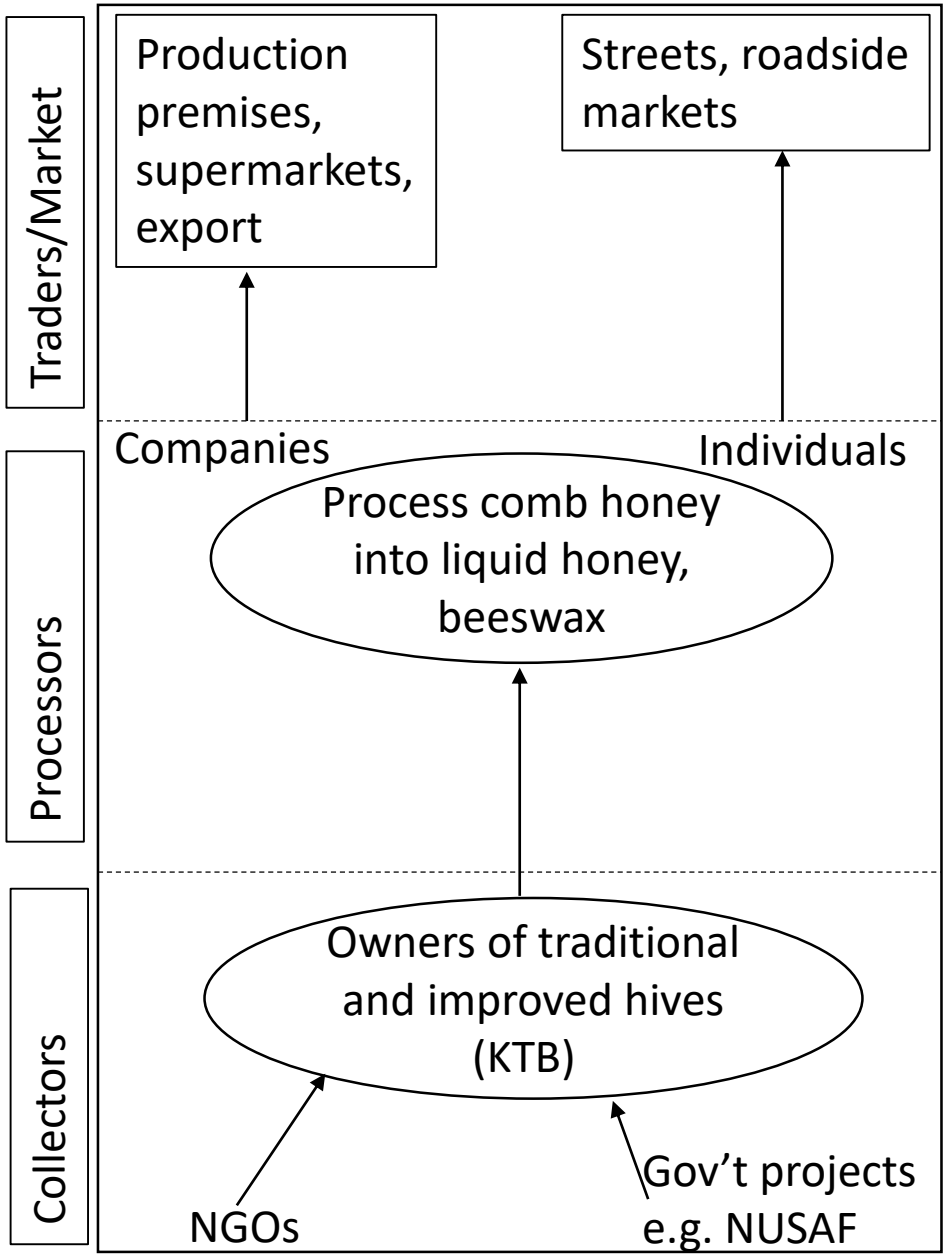
- Sold mainly in raw form
- Usually a single product sold per trader
- Carry headloads
- Sold by collectors
  - To local residents & urban market agents
- NWFPs sold only once a week in some markets

NWFPs in urban markets

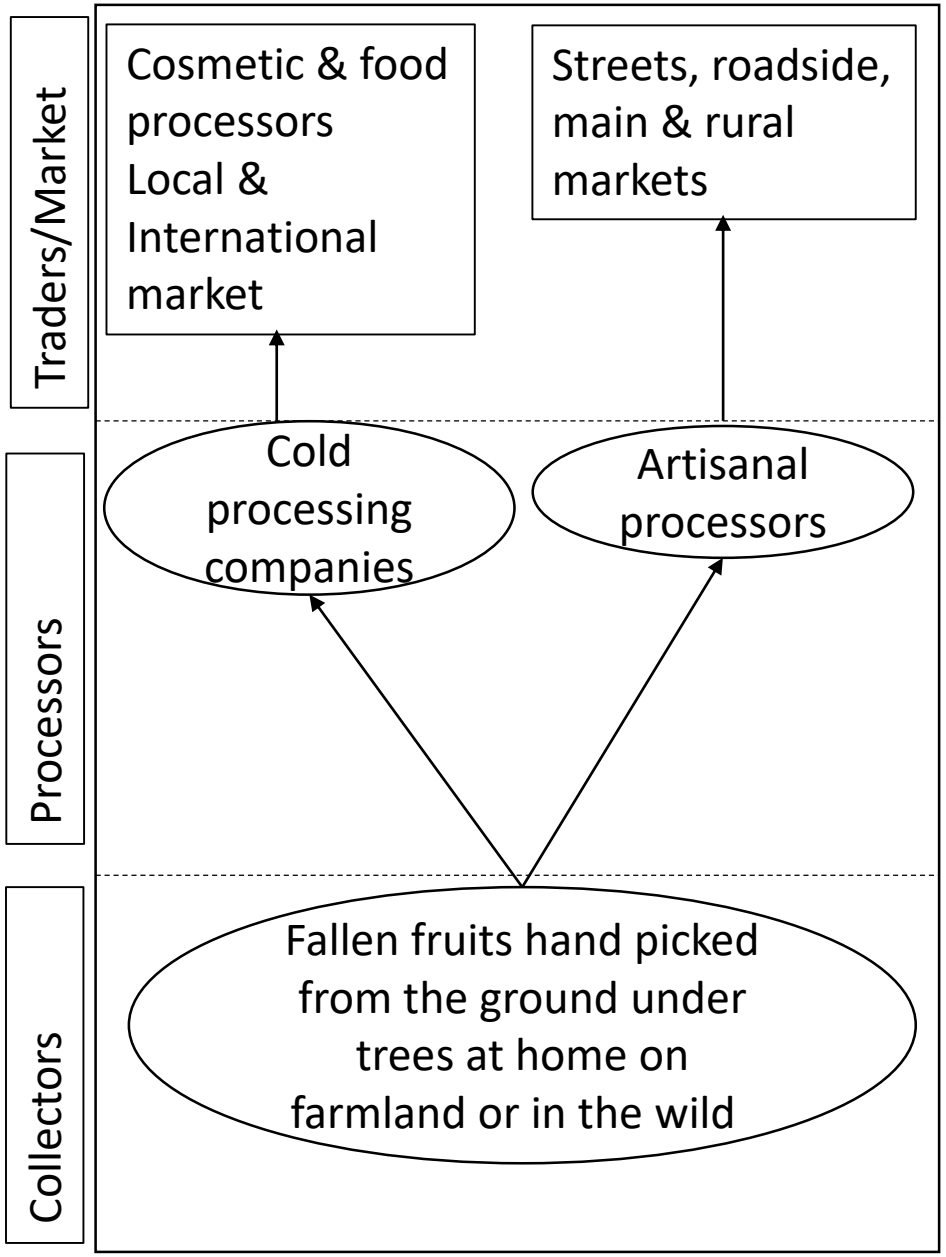
- Sold mainly in processed form
- NWFPs sold together with other products e.g. agricultural produce
- NWFPs brought to the market by vehicular means
- Traders usually buy NWFPs in bulk and store
- Some NWFPs obtained from as far as DRC

NWFPs Value chains

HONEY

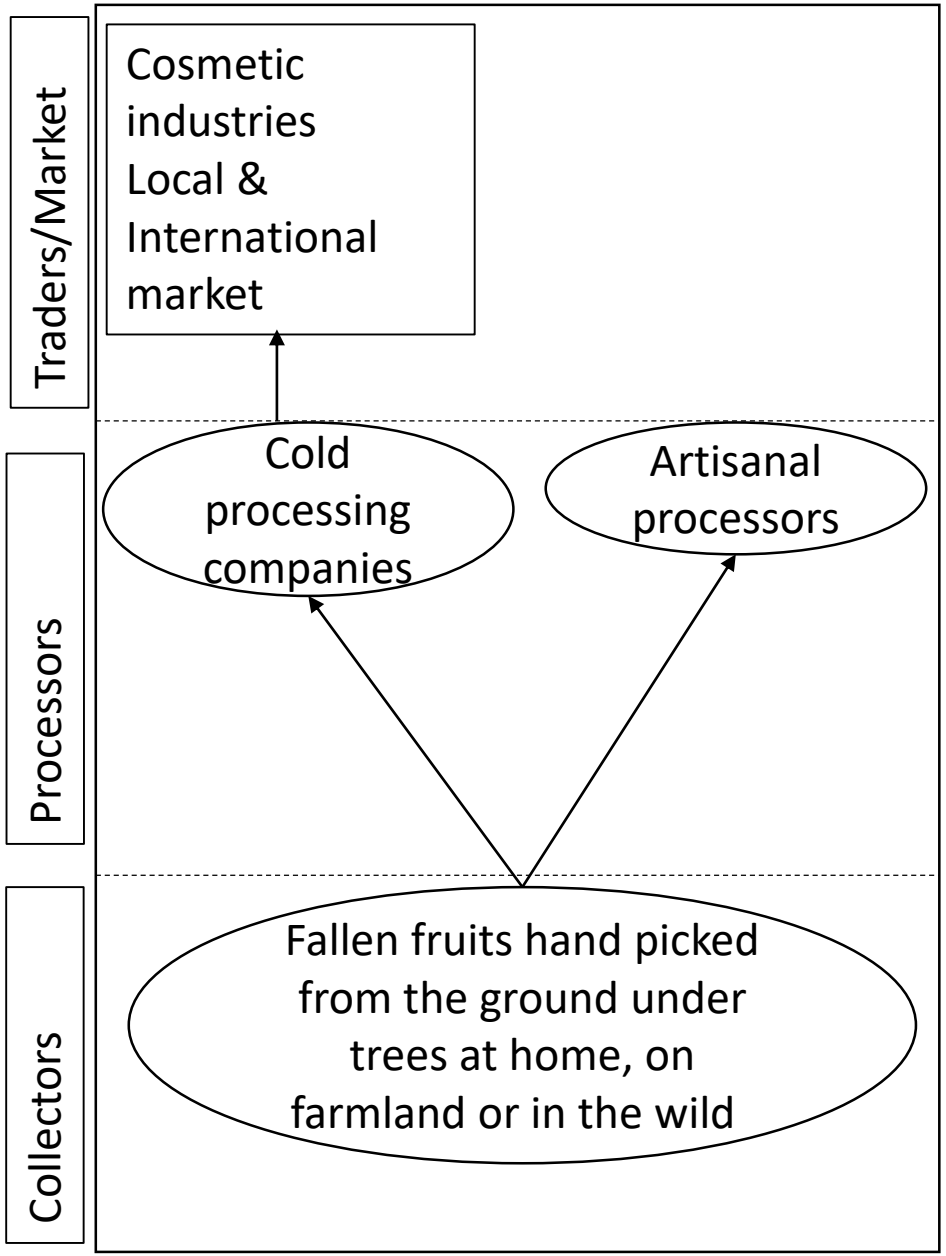


SHEA BUTTER

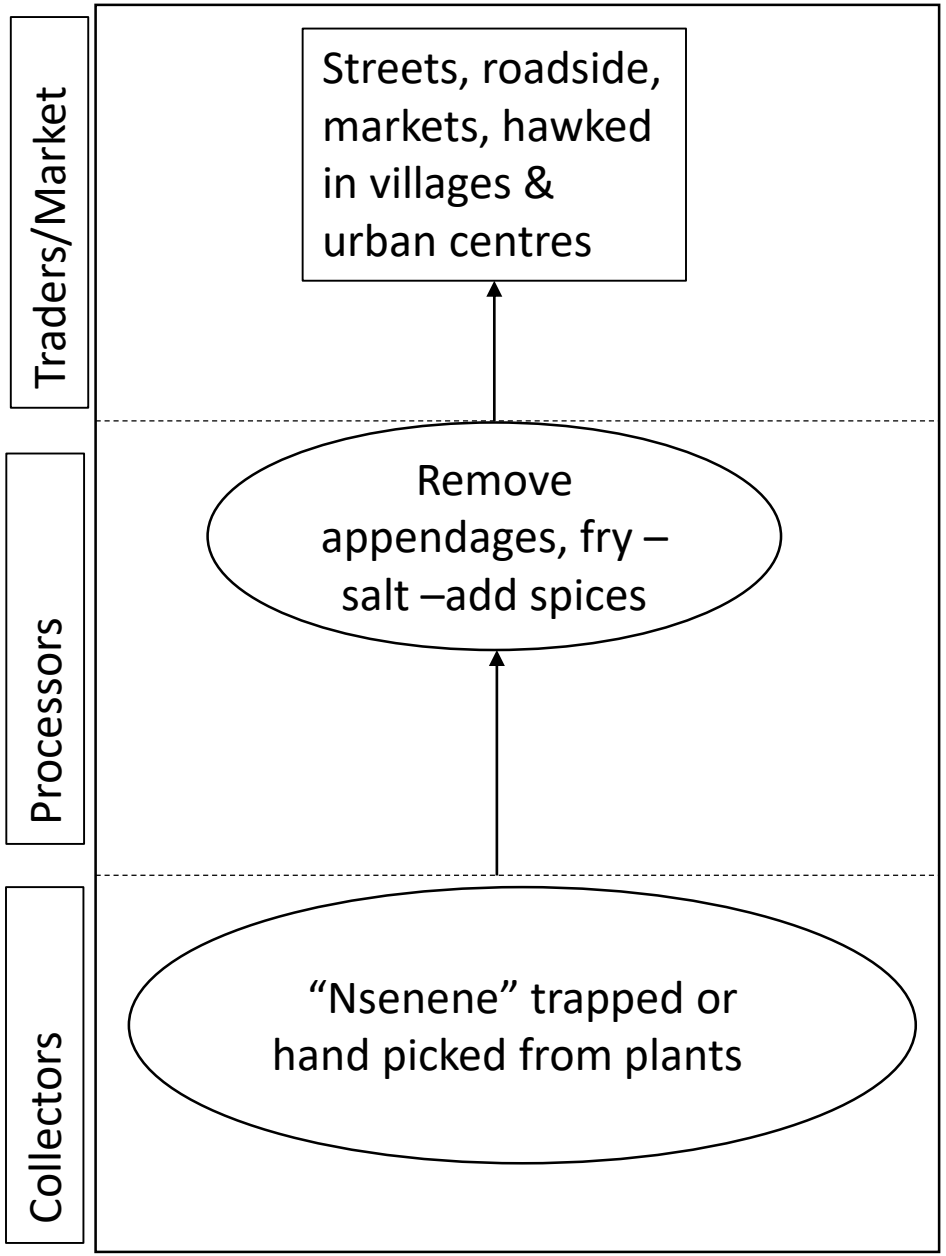


NWFPs Value chains

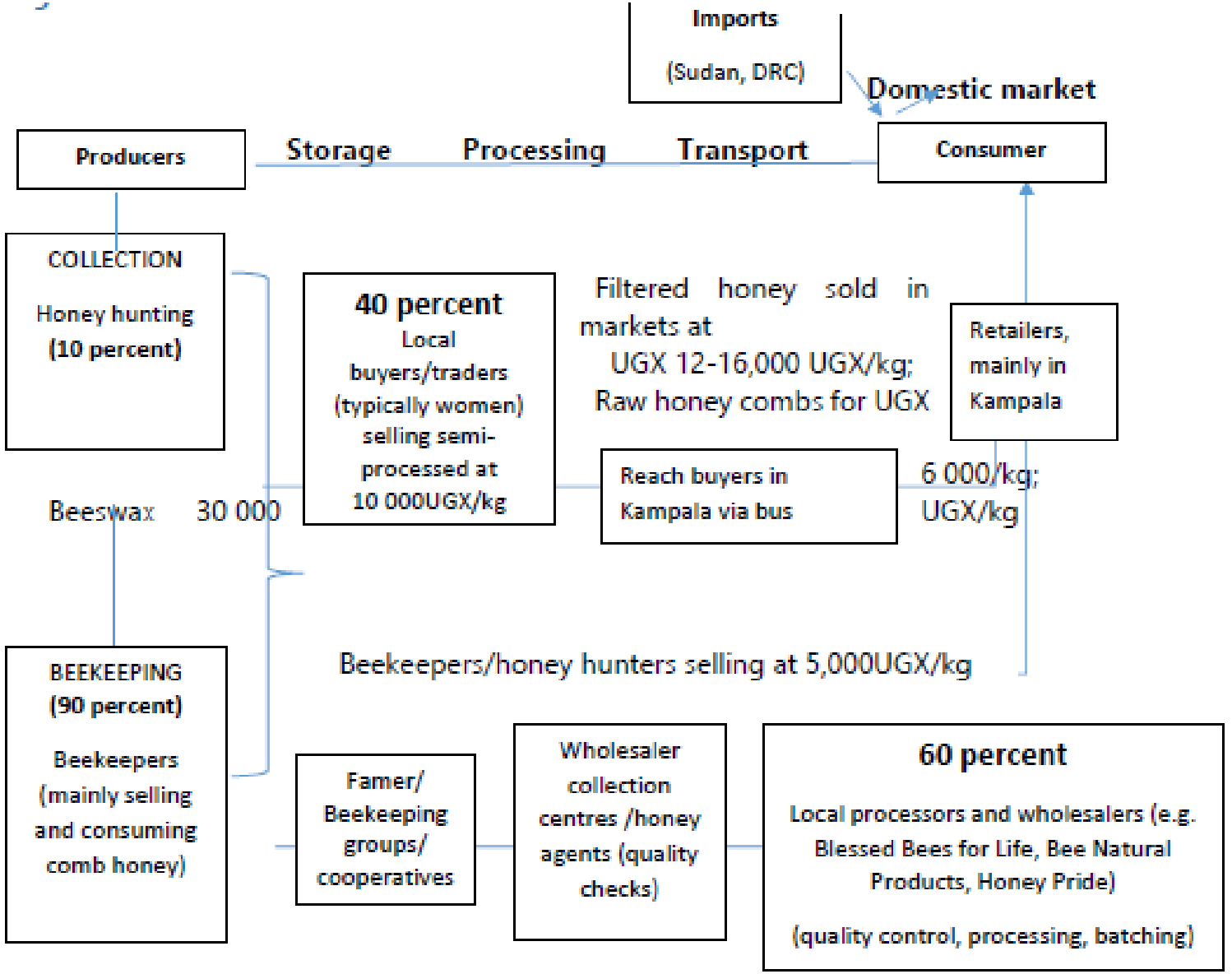
BALANITES OIL



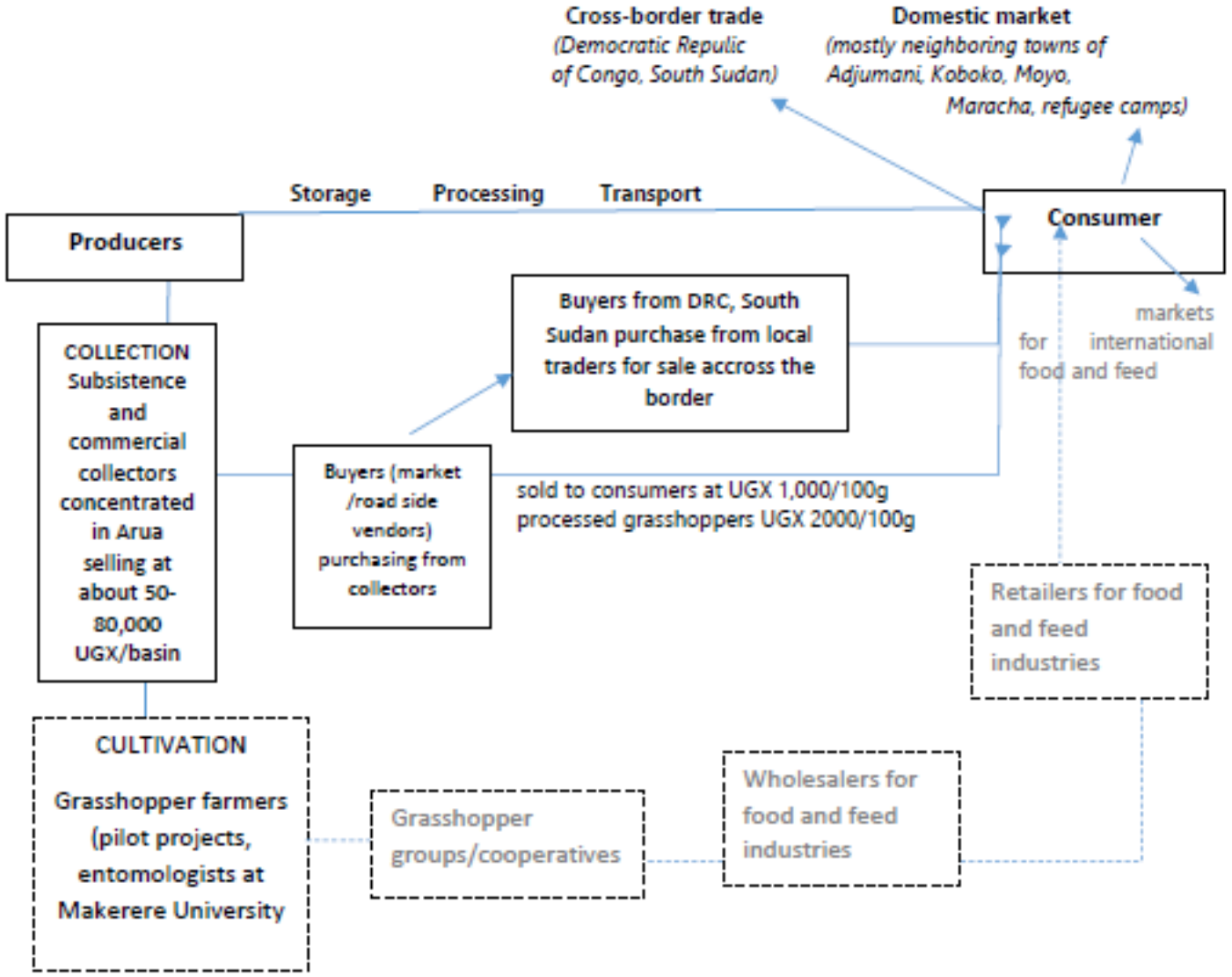
EDIBLE GRASSHOPPER (Nsenene)



Honey production-to-consumption system



Grasshopper production-to-consumption system



Source: Adapted from Belcher & Schrekenberg, 2007 & Odongo *et al.* 2018

Sustainable production NWFPs

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Many IFTs are utilized within drylands

- Important source of nutritious foods
- Are neglected (by agricultural research and development organizations)
- Unsustainably utilized
- Poor regeneration and long maturation period

Participatory domestication

- Long term, iterative
  - Integrated farmer driven
  - Market-led process
- Promotes use and marketing of selected products
- Identification of plant traits desired by communities
  - Organoleptic and morphological traits
- Development & application of efficient vegetative propagation

Tree species with domestication potential

Vitellaria paradoxa

- Folk classification of shea ethno-varieties (Gwali et al 2011)
  - Based on fruit/nut organoleptic & morphological attributes
  - Relationship between colour and oil yield

Way forward

- Selection of superior mother trees for propagation
- Used of other propagation techniques – grafting
- Conservation of wild population and assisted natural regeneration

Propagation of shea from seeds in Arua

Tree species with domestication potential

Food and Agriculture Organization of the United Nations

Balanites aegytiaca

- Two varieties are recognized via organoleptic attributes (Okia 2010)
- Sweet and bitter varieties

Way forward

- Selection of superior trees for propagation
- Further studies on other propagation techniques

Tree species with domestication potential

Tamarindus indica

- Variations in fruit size, shape, flavor, colour and seed have been reported
- Fruits are of sweet/bitter varieties (Okello et al 2018)

Way forward

- Improvement in fruit processing & value addition
- Conservation of wild population

Training in NWFPs value addition

Aim: Improve access to high value nutrition sensitive NWFPs in west-Nile

Objectives

- Demonstration of sustainable harvesting
- Awareness raising among local collectors of potential of NWFPs
- Adherence to quality standards
- Product formulation
- Market awareness and skill building

Honey & beeswax value addition

Food and Agriculture Organization of the United Nations

Training content

- Good practices in apiculture
- Honey harvesting and handling
- Beeswax processing
- **Key message:** Focus on production of high-quality honey and wax

Training in shea & balanites oil VA

Food and Agriculture Organization of the United Nations

Training content

- Fruit harvesting and management
- Quality standards for oils
- Value addition –product formulation

- **Key message:** Improve quality production of oils in adherence with national and int'l standards

Workshop on edible grasshoppers

Food and Agriculture Organization of the United Nations

Issues discussed

- Potential of edible insects in Uganda
- Ecology of grasshoppers
- Harvesting and utilization of edible grasshoppers
- Nutritional benefits of edible grasshoppers
- Farming grasshoppers

Key message: Improve harvesting methods (hygiene, food safety, working conditions), processing (storage) & explore rearing potential

Conclusions and recommendations

- NWFPs value chain improvement in west-Nile can contribute to:
  - Improved dietary & nutrient diversity
  - Improved household income
- If utilization is sustainable, can meet present and future needs
- NWFPs as a source of food and household income can be used to:
  - Advance conservation of natural resources in fragile ecosystems

Recommendation

- Improve technology for more efficient oil extraction from kernels
  - In adherence with food standards, especially for balanites oil production
- Scale up training in sustainable and quality honey and beeswax production
- Integrate nutritional NWFPs values of trees and forests in planning refugee settlements and subsequent forest management plans
- Roll out edible grasshopper procedures for sustainable harvest, use and commercial farming
- Develop standards for edible insect food production
- Identify other important NWFPs (IFTs) for domestication efforts

World Agroforestry

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QUESTIONS?

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