Was “small” ever beautiful?

Getting Sweetpotato Seed Systems Moving in sub-Saharan Africa

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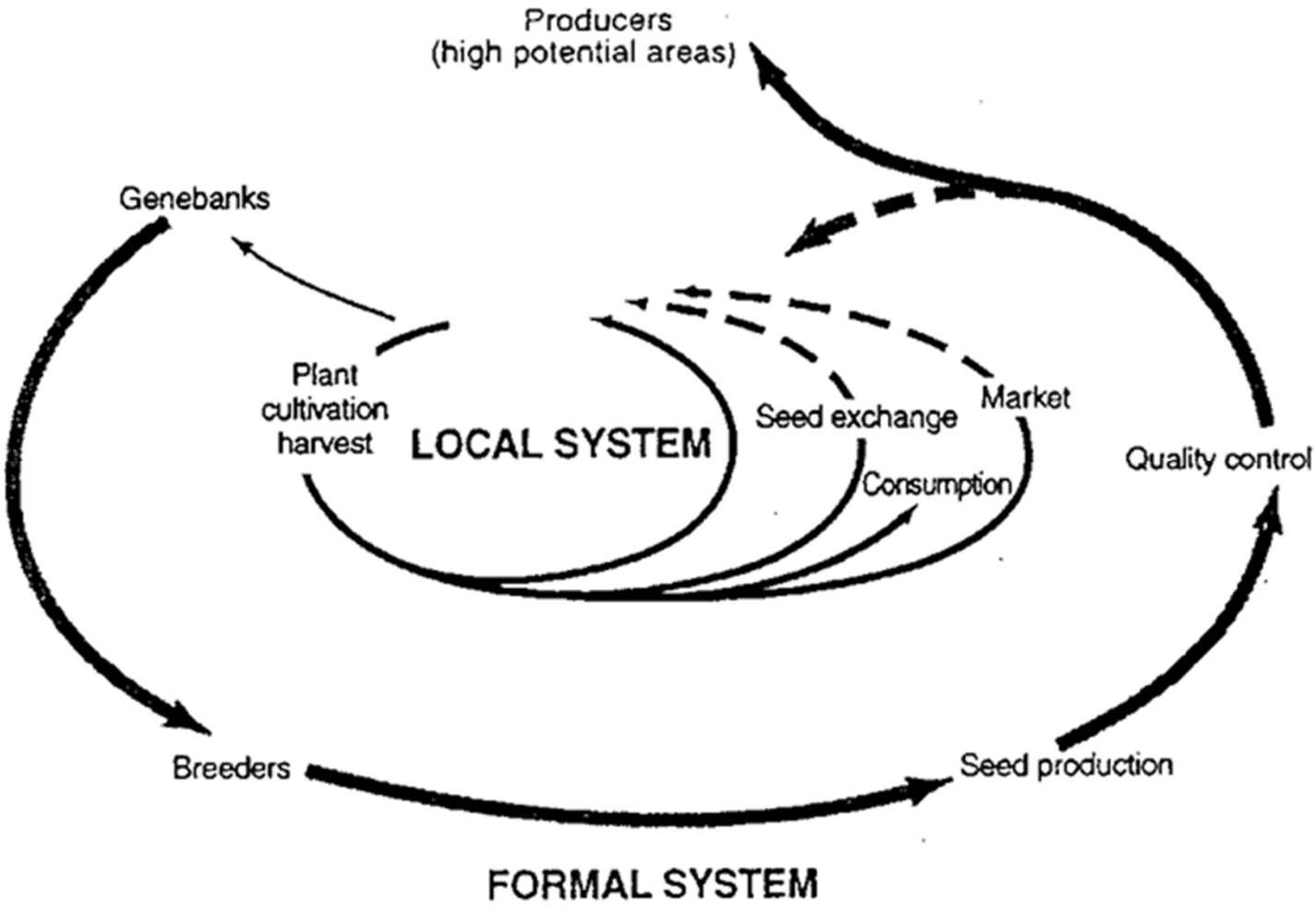
40 years of seed system interventions…

- **Do smallholder farmers have timely access to sufficient quantities of quality seed?**

- **1970s-80s:** Western seed sector models (FAO, 1973; Douglas, 1980)
- **1990s:** Shift away from provision by public / parastatal sector
- **1990s-2000s:** Emergency seed relief
- **2000s:** Private sector involvement in high value crops
- **Sweetpotato left behind….**

Informal & Formal Seed Systems



Source: Almekinders, Louwaars, 2002

Seed Systems…

- **For sweetpotato - we need to better understand:**
  - Relationship among components & how the "whole" functions in the real world
  - the nature of farmer demand & other drivers of sweetpotato seed systems
  - the dilemmas we face in moving forward

Farmer demand for sweetpotato seed

- New & low input adapted varieties
- Broad portfolio to meet a range of needs
- Close source & timely availability
- Demand patterns?
- Limited cash (incentive) to invest in seed
- Limited capacity for transaction costs to source seed

Characteristics of informal SP seed systems

- **Complex & diverse:** farmers' management responds to broad climatic conditions, specific agro-ecologies & local preferences
- **Exchange or cash:** depending on social network, geographical distance, market proximity
- **Quality managed** by farmer selection of planting material
- **Limited quantities** available at start of rains: uni-modal rainfall systems
- **Pest & disease build up:** bi-modal rainfall systems

Why are sweetpotato seed systems a challenge?

Sweetpotato seed

- Perishable
- Hi-bulk
- Lo-value
- Easily propagated
- Cyclical demand
- Lower status product

Vegetable seed (e.g. Tomato)

- Storable
- Lo-bulk
- Hi-value
- Specialist skills
- Consistent demand
- High status product

Case #1: Nigeria: commercial multipliers

- **Significant specialized vine production where there is a strong root market:** e.g. Kano, Kaduna
- **Farmers (male) combine high value horticultural crops & vine multiplication** in wetland areas or along the banks of rivers
- **Customers:** local/regional farmers come to buy vines direct from source

Source: S. David 2012/2013 field notes; T. Carey et al 2013

Case #2: Ethiopia, integrated business model

- **Primary and processed products from:**
  - Crops (including sweetpotato), horticulture, livestock, poultry
- **Economic value from sweetpotato**
  - Vines, fodder, rotation, erosion control
- **Social values: extending knowledge & practices to community**
  - Farmers started growing vines for livestock fattening and poultry
  - Households started using roots for food (preferred by children)

Source: Menon, 2012

Case #3: Malawi, decentralized vine multiplication

- **Varietal characteristics**
  - root, leaf shape and vine characteristics responding to local preferences
- **Adaptation of local inter & relay-cropping practices to address**
  - uni-modal rainfall system & land pressure
- **Strong partnerships** developed with
  - government, NGOs, private sector & farmer associations
- **Use of awareness and demand creation campaigns** in conjunction with subsidized voucher system

Source: Abidin et al, 2012

Emerging lessons

- **Nigeria commercial vine multipliers:**
  - Linked into **strong markets for roots & high value horticultural crop**
  - Government investment into agriculture **infrastructure**: irrigation in fadamas; market collection points
- **Ethiopia integrated model**
  - Private sector led with some project support
  - Not a stand-alone vine enterprise
  - **Economic and social sustainability** built in
- **Malawi: 1-2-3 system**
  - Careful planning & scheduling to utilize upland & lowland areas
  - OFSP varieties: integrated **production/nutrition/market approach**
  - Integrated into national & international policy initiatives – Scaling up Nutrition (SUN) – **nutrition and societal objectives**

What have we tried & learnt to date:
four broad approaches

1. Mass multiplication and mass distribution

- Mozambique (floods)
- N. Uganda (post-conflict)
- Tanzania (food security)
- Ethiopia (drought)

- Used in post disaster & conflict
- High wastage/loss
- Limited farmer choice & information

But…..

- Campaign approach for dissemination of replacement material can be fast & for new varieties may be appropriate in bi-modal rainfall areas

2. Decentralized multiplication and distribution

- **1-2-3 approach with variations**
  - Piggy-back with cassava
  - Multi-stakeholder platforms
- **NGO/project managed**
- **State managed**

- **On-going institutionalized linkages & coordination needed to source & foundation material**
- **Quality may reduce as system is decentralized**
- **Institutional and financial sustainability under project conditions?**

3. Seed system linked to other value chain segments

- **Root production & semi-processed products**
  - Rwanda
  - Western Kenya
- **Integrated with other high value crop enterprises**
  - Nigeria
  - Ethiopia

- **Diversification allows spread of risk**
- **Vertical integration can strengthen coordination in the chain**
- **Economic & environmental benefits in mixed system**
- **Needs to be business driven with strong market linkages**

4. Seed system as a social enterprise

- **Farmer groups or special interest group**
  - Linked to novel entry points
- **Subsidized through voucher system**
  - Malawi, Kenya, Mozambique, Tanzania

- **Easier to target particular groups:**
  - Pregnant women
  - Children under five years
  - School children
  - People living with HIV
- **Builds on farmer to farmer dissemination**
- **Initial subsidies required**
- **Long term economic benefits: DALYs**

Moving to scale with sweetpotato seed systems – what are the dilemmas?

Dilemma #1: profit orientation

Areas with strong market access:

- Consistent supply of quality roots linked to quality seed supply
- Medium to large-scale multipliers or organised farmer groups supplying the market

- **Varieties**
  - Wider range to meet needs of different end users (fresh root, semi/processed, nutrition content)
  - Long shelf-life (root shape, dry matter content)
  - One-time harvest
- **High demand for seed but short window**
- **Operates within a market economy**
- **Unanswered questions:**
  - Equity considerations?
  - Barriers to market entry?

Dilemma #2: food security orientation

Areas with limited market penetration

- High seasonality of supply & uneven quality of roots
- Small scale scattered producers
- Poor road, information infrastructure

- **Varieties**
  - Suitable for piecemeal harvesting
  - In-ground storability
  - Nutritional content
- **Broad but locally specific portfolio**
- **Limited demand for seed**
- **Female dominated?**
- **Operates within a "moral economy"**

Dilemma #3: maintaining diversity at scale

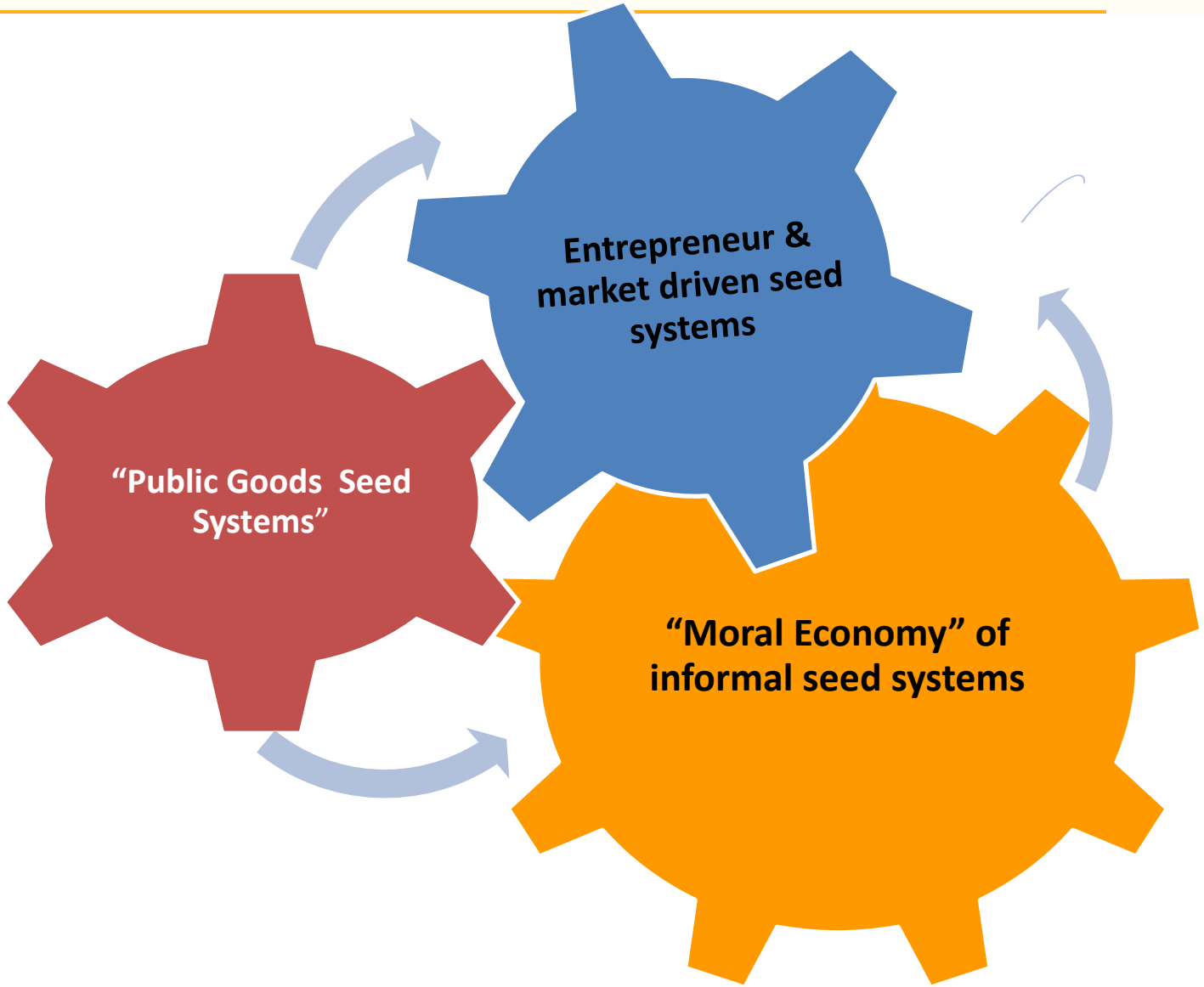
Small-scale

- **Local specificity**
- **Flexibility, dynamic**
- **Complex practices & diverse contexts:** underpins resilience of existing seed systems
- **Uncertain demand**
- **Unknown seed quality**

At-scale

- **Principles not "Models"**
- **Understand local drivers:**
  - agro-climatic context, market, social objectives, new varieties
- **Identify mixed enterprises responding to local need & opportunities**
- **Balance economic and social sustainability**
- **Breeding for a broad portfolio to meet varied demand**
- **Appropriate quality assurance & regulatory mechanisms**
- **Farmer capacities:** technical & entrepreneurial
- **Eclectic choice of partners and partnering mechanisms**

Getting SP seed systems moving



1973-2013: what has changed?

- **Climatic & crop disease threats**
  - Sweetpotato: short-duration, flexible in different farming systems, rotation & substitute for other crops
  - Investment in sweetpotato breeding
- **Demographic changes drive demand for SP roots**
  - Rural population density
  - Urbanisation: dietary patterns & double burden of malnutrition
- **Infrastructure improvements:** roads, irrigation, markets (regional & export)
- **Information technology**
  - Market prices, payment systems, farmer capacities
- **Policy & institutional environment**
- **Effective partnerships & integrated approaches needed to address complexity**

Conclusions

- **Complexity & diversity in the elements & in the contexts where SP seed systems work:** how to retain this at "scale"?
- **Key drivers:** agro-climatic context, varieties, market for roots, and famer capacities
- **The "public goods" "entrepreneurial" & "moral economy" seed systems, contribute different drivers**
  - will interact differently according to context & relative strengths,
  - but we don't know how
- **Systems are "emergent" & need to configure themselves,** therefore
- **Need to keep scanning the "landscape", be able to respond in an appropriate way & keep learning**

Acknowledgements

- Co-authors, CIP country offices, national sweetpotato programmes, donors, CIP-SSA office, CRP-RTB, WUR, NRI.