



**Maximizing Sweetpotato's Contribution to  
Poverty and Malnutrition Reduction:  
The Sweetpotato for Profit and Health  
Initiative**

# **Development of the SPHI: 10 months in 2008/2009**

## **Participatory investigation into the challenges faced and the way forward**

### **Features**

- **Phased process seeking input from stakeholders through field visits, multi-disciplinary theme papers, internet survey, and a series of five workshops**
- **Working paper published on 6 major themes**
  - **Breeding**
  - **Seed systems**
  - **Crop Management**
  - **Nutrition**
  - **Value Chains**
  - **Partnerships**



# 7 Major Constraints Identified and Prioritized & Way Forward Debated



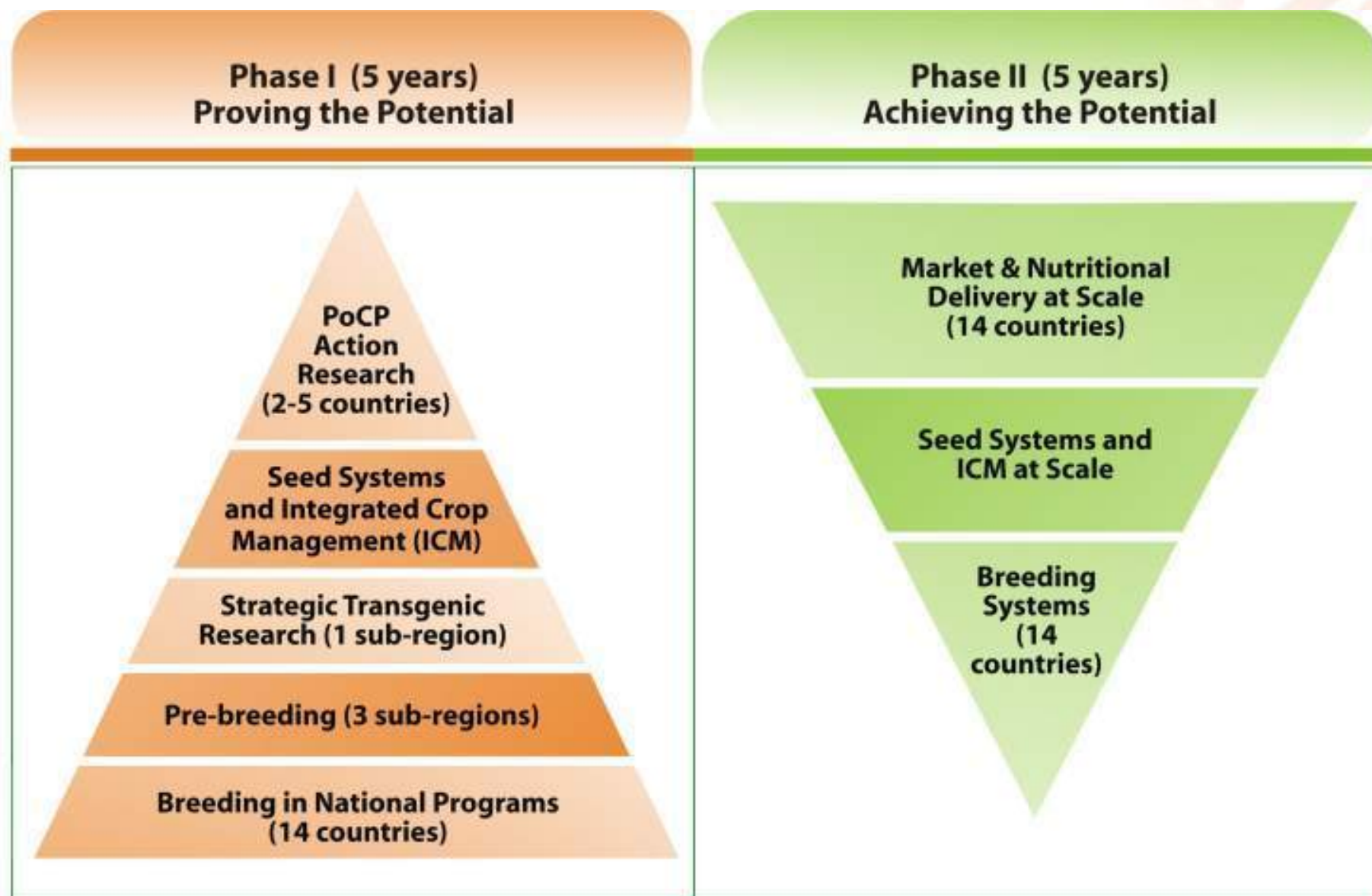
- Lack of timely availability of adequate quantities of disease-free planting material
- Varieties with limited yield potential in specific agro-ecologies & quality characteristics that do not meet demands of specific target groups
- Damage due to the sweetpotato weevils in drier zones
- Limited demand and inadequate market
- Poor agronomic practices
- Limited awareness of decision makers about potential contribution of the crop to poverty and malnutrition reduction due to inadequate evidence base ac
- Need for a critical mass of informed stakeholders with good information exchange to maximize investment return

**Participants at the Challenge Workshop  
Reached Consensus on the Following  
*VISION* for a 10 year Initiative:**

**Repositioning sweetpotatoes in  
African food economies, particularly  
in expanding urban markets, to  
reduce child malnutrition and  
improve smallholder incomes**



# Two Phases: Greater Emphasis in first 5 years on Breeding and Seed Systems Research as the Foundation for Success





Sweetpotato  
Profit  
Health



Sweetpotato  
for Profit and Health  
Initiative

# Sweetpotato Action for Security and Health in Africa Project

- **5 year project builds the foundation for the SPHI**
- **SPHI & SASHA process:**
  - multi-level, multi-disciplinary, multi-challenge and multi-region program
  - common analysis, goals, principles and partnership tools
  - governance and strategic communication
  - national and regional ownership & commitment
  - complementarity with other initiatives (e.g. AGRA)



# Major Focus: Sweetpotato Support Platforms

*to provide a structure that strikes a balance between the specific needs of each region and scale economies in the research process by organizing the work around research for development platforms that integrate and support the work of institutional partners in each sub-region*

- **Provide technical backstopping**
  - Special emphasis on supporting AGRA supported Phd programs in breeding and AGRA support national breeding programs
    - Eastern & Central: Tanzania, Rwanda, Kenya, Ethiopia
    - Southern : Mozambique, Malawi, Zambia
    - West: Nigeria, Ghana, Burkina Faso
  - More limited support for Madagascar, Angola, Burundi
- **Assure clean germplasm exchange**
- **Assure gender-sensitive design and implementation**
- **Assure comparable data collection** between countries engaged in the breeding and germplasm exchange
- **Facilitate information exchange**





Kumasi

Kampala

Nairobi

Mozambique

SPHI Central Base

Sweetpotato Support Platforms

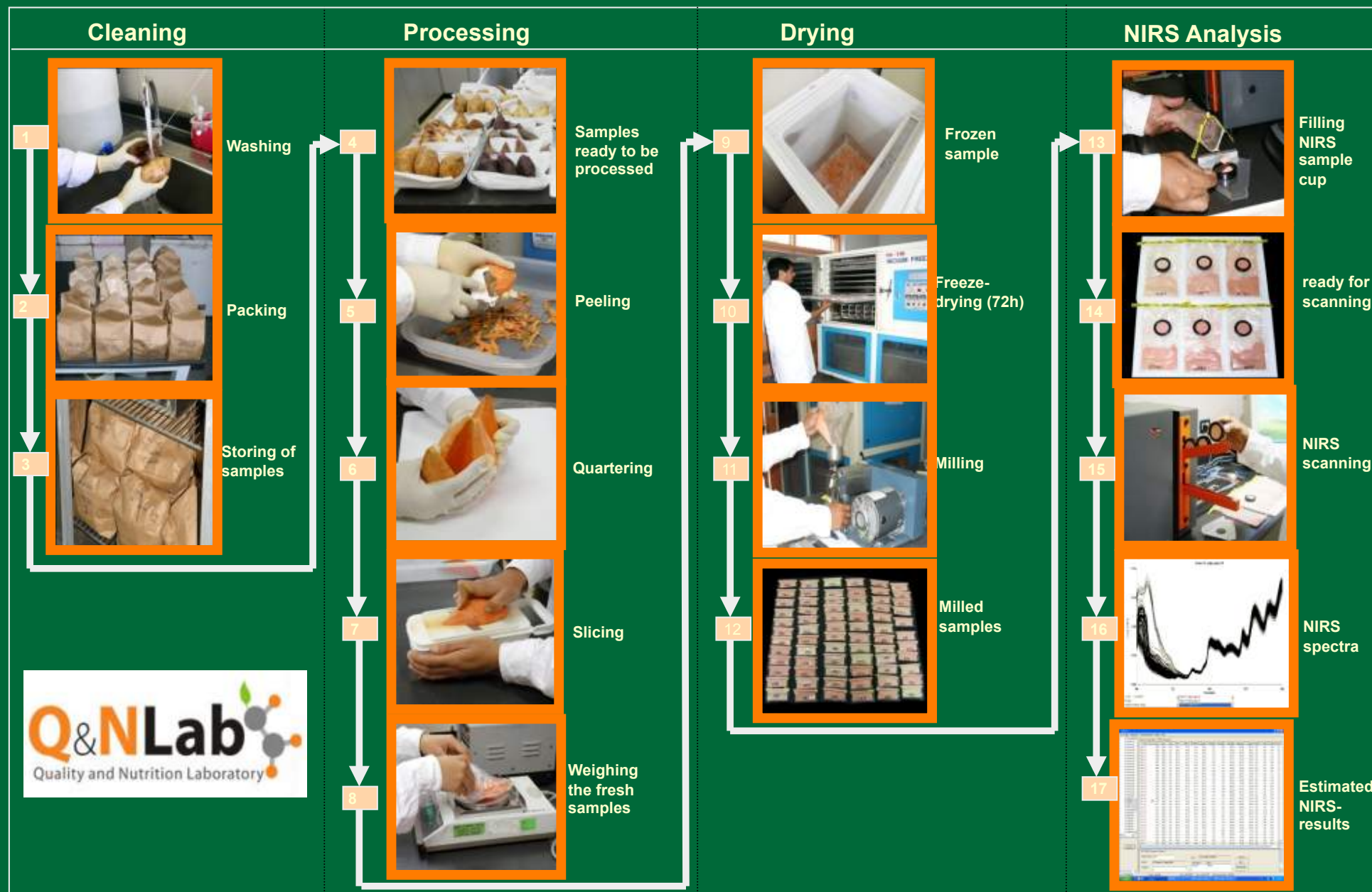
# Major Focus: Breeding & Varietal Development

*seeks to generate a radically expanded range of sweetpotato varieties that combine different quality characteristics with significant improvements in yielding ability*



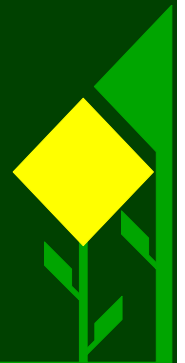
- **Generate populations to meet dominant needs of users**
  - All sites: High dry matter
  - East & Central Africa: virus-resistance, orange-fleshed dual purpose for animal feed
  - Southern Africa: drought resistance, orange-fleshed
  - West Africa: non-sweet sweetpotato, orange & white-fleshed
- **Redesign sweetpotato breeding systems in Africa to produce varieties in fewer years (3-4) than currently (7-8 years): “accelerated breeding”**
- **Additional new breeding methods tackled:**
  - heterosis into sweetpotato breeding
  - molecular markers for breeding for virus resistance

# Workflow for sample preparation and NIRS analysis of sweetpotato samples at CIP Quality and Nutrition Laboratory!



## Advantages to use NIRS

- Do not use of chemical reagents => **No contamination!**
- Fast analysis of **several traits simultaneously** (less than 2 minutes per sample, several hundred samples per day)
- **Non-destructive** (intact seeds can be scanned)
- Easy sample preparation (Sweetpotato/Potato: drying + milling)
- In the application a cheap method, **2 US-\$** per sample



## NIRS calibrations developed in sweetpotato freeze dried roots

- Total Protein
- Total Carotenoids
- $\beta$ -carotene
- Fe
- Zn
- Ca
- Mg
- Starch
- Glucose
- Fructose
- Sucrose
- Maltose



# Major Focus: Seed Systems Research

*establish demand-led cost-effective seed systems for the dissemination of new varieties and high quality planting material*



- **Develop and test strategies for the multiplication and dissemination of sweetpotato varieties**
  - enhanced farmer-based capacities to maintain quality planting material
  - cost-effective public sector distribution programs
  - potential for for-profit nurseries
- **Study the costs of disseminating sweetpotato vines using vouchers and trained farmer multipliers**
- **Assure sweetpotato varieties can be maintained in a disease-free state over time at the sub-regional level and that safe and efficient germplasm exchange occurs between countries**
  - develop field level diagnostic kits for virus detection

# Major Focus: Proof-of-Concept Projects (PoCPs)

*to understand the entry points in the value chain to improve market efficiency or diversify use especially for women, and design and test scalable approaches for improving food-based nutrition programs based on OFSP to combat vitamin A deficiency.*

- **PoCPs evaluate options that influence the capacity to go-to-scale and achieve the outcomes on poverty and nutrition that are planned for the second phase**
  - Kenya Health PoCP: OFSP linked to health services for pregnant women
  - Rwanda Value Chain PoCP: Linking farmers to a large-scale private sector processor
- **Feasibility Studies:**
  - Animal Feed: Dairy cattle and pigs in Kenya and Rwanda
  - Market Study in Nigeria



# Thanks for your attention!

