



# **AVRDC in Vegetable Crops Research and Development in sub-Saharan Africa (SSA)**

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**AVRDC – The World Vegetable Center, Regional Center for Africa**

**Collaborative Research Program (CRSP) Council Meeting**

**5-7 March 2013**

***Morogoro, Tanzania***



# Outline

- **AVRDC – The World Vegetable Center, and its focus areas**
- **Brief on AVRDC's achievement in SSA**
- **Importance of linkage among actors in vegetable sector**

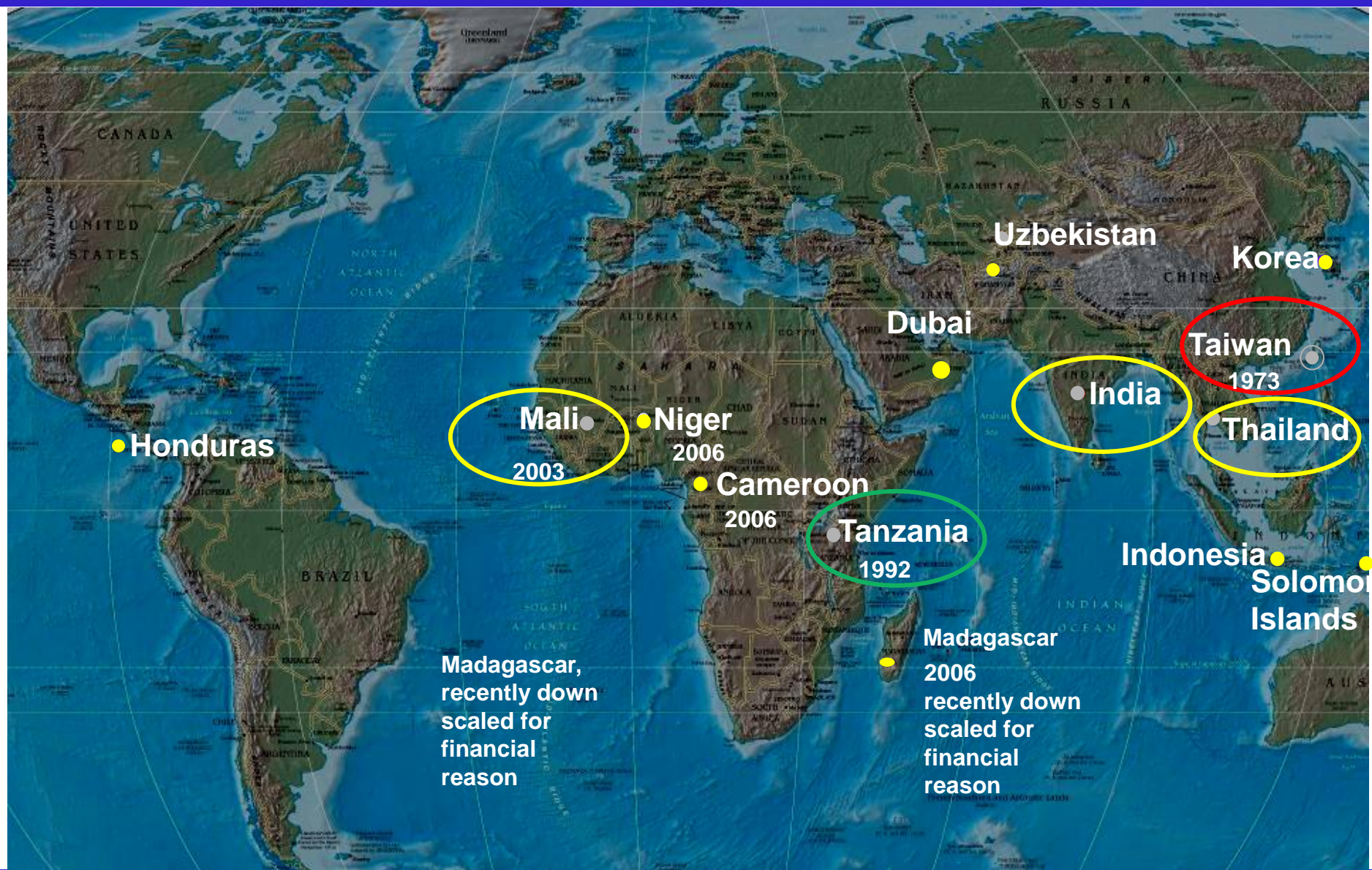


# AVRDC – The World Vegetable Center

- International Agricultural Research Center (IARC) fully focusing on vegetable **R&D**



# AVRDC in various regions of the world







# Indigenous Vegetables



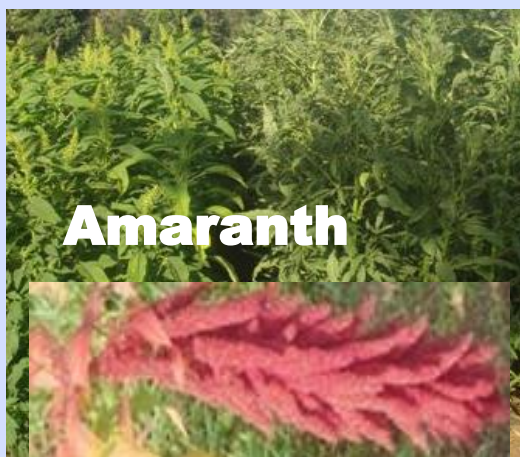
**Spiderplant**



**A. eggplant**



**Vegetable cowpea**



**Amaranth**



**Eth. mustard**

- Okra
- Bitter Gourd



**A. Nightshade**



# Exotic Vegetables



➤ **Peppers**







# AVRDC's Research & Development Thematic Areas

## **Theme 1: GERMPLASM**

Germplasm  
conservation,  
evaluation and  
gene discovery

## **Theme 2: BREEDING**

Genetic  
Enhancement  
and varietal  
development

## **Theme 3: PRODUCTION**

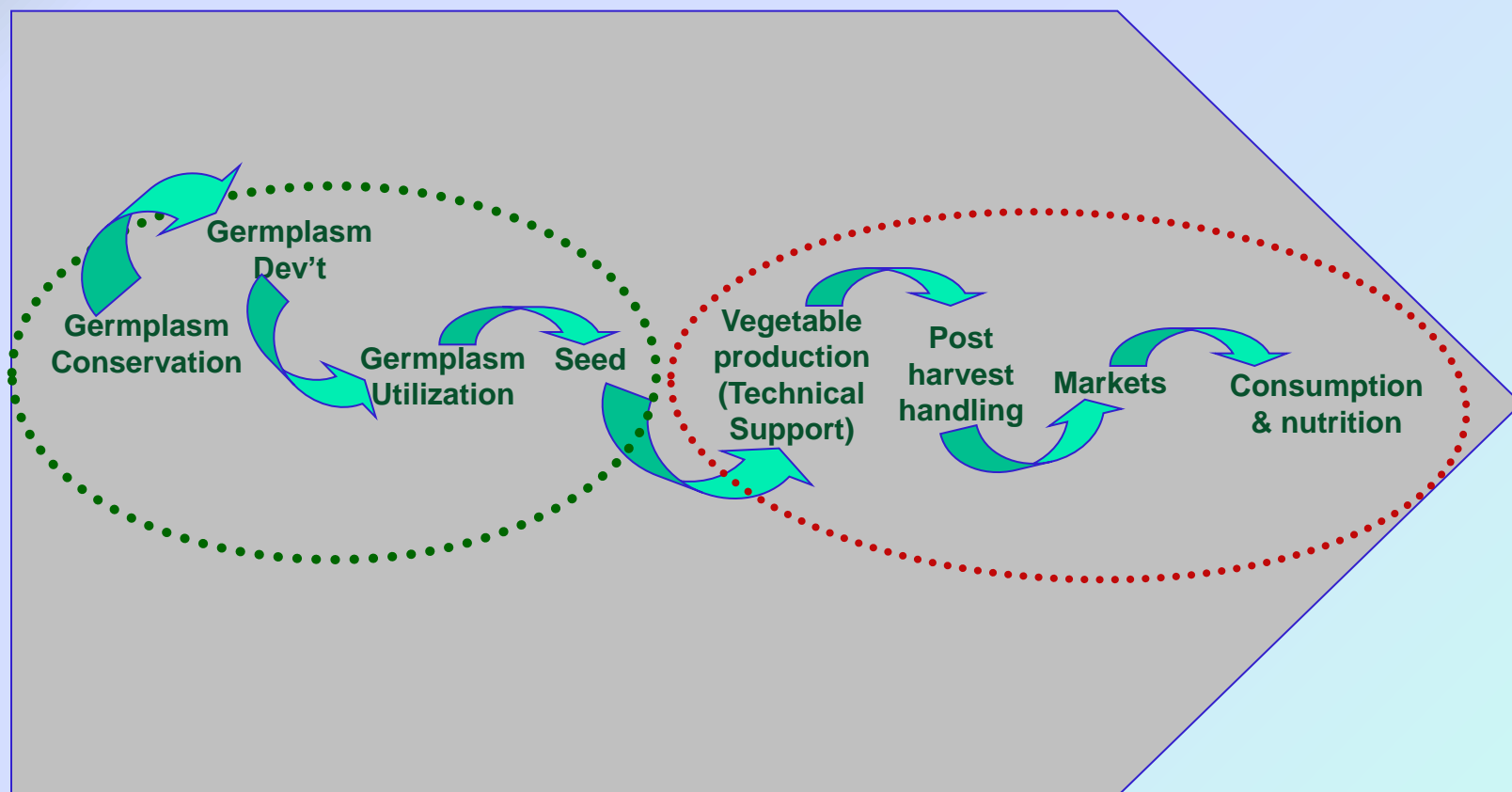
Safe and  
Sustainable  
Vegetable  
production  
systems  
(IPM, ICSWM)

## **Theme 4: CONSUMPTION**

Enhancement balanced diet  
through  
increased access to and  
utilization of nutritious  
Vegetables



# AVRDC involves in the entire vegetable value chain through its various R&D thematic areas







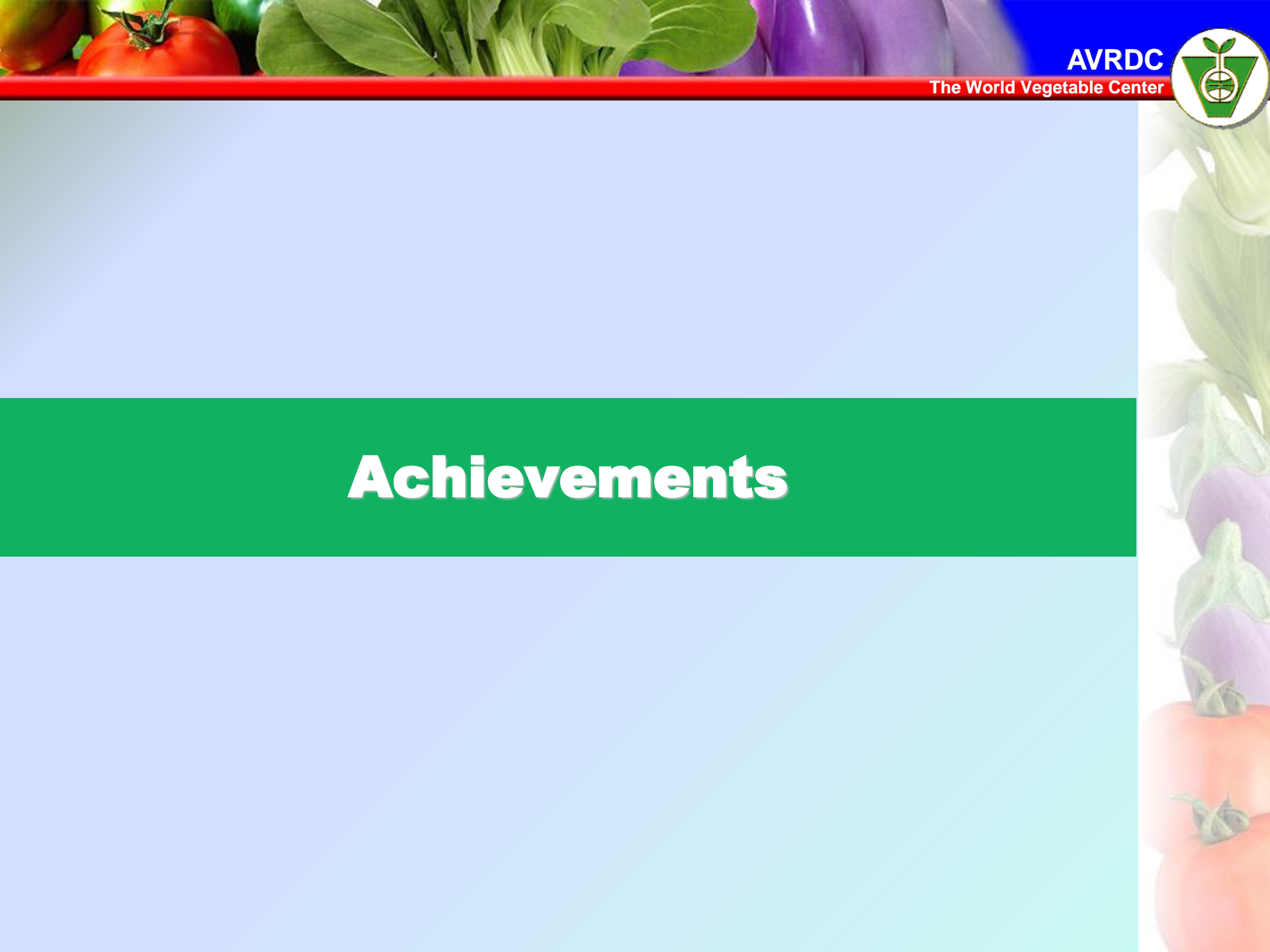
# AVRDC follows Participatory **R&D** Strategy



**PVS in the field**



**Organoleptic taste**



# Achievements



# Tomato varieties released from AVRDC lines from 1997 to 2010/11 and commercialized

Line code	Commercial name	Year released/ Commercialized	Country Released /Commercialized
ARP Det-2	Tanya	1997, 2006, 2007	Tanzania, Kenya Uganda
ARP367-2	Tengeru97 Mbambande	1997, 2003, 2007 2003	Tanzania, Kenya, Uganda Malawi
LBR19-2	Meru	2007	Tanzania
LBR44-2	Kiboko	2008	Tanzania
ARP367-1	Khama	2003	Malawi
ARP366-4-23	Phindu	2008	Malawi
LBR6	Duluti	2010	Tanzania
LBR11	Tengeru 2010	2010	Tanzania





## Mbambande: Malawi 2003



**Tengeru97, Indet,**  
**fresh market**  
**TZ 1997**  
**KY 2006**  
**UG 2007**



**Kiboko: TZ 2008**



**Meru: TZ 2007,**  
**fresh market**

**Tanya, Det,**  
**processing**  
**-Tanzania 1997**  
**- Kenya 2006**  
**- Uganda 2007**







## Late & early Blight Resistant **fresh market** tomato varieties released by Horti-Tengeru/Tanzania in 2010



**Duluti**



**Tengeru2010**



# Indigenous vegetables released by Horti-Tengeru, Tanzania in 2011

Vegetable type	Variety name
African nightshade ( <i>Solanum scabrum</i> )	Nduruma
African nightshade ( <i>Solanum scabrum</i> )	Olevolosi
African eggplant ( <i>Solanum ethiopicum</i> )	DB3
Ethiopian mustard ( <i>Brassica carinata</i> )	Rungwe
Ethiopian mustard ( <i>Brassica carinata</i> )	Arumeru
Amaranth ( <i>Amaranthus cruentus</i> )	Madiira 1
Amaranth ( <i>Amaranthus cruentus</i> )	Madiira 2





## AVRDC Vegetables Commercialized in Africa

### TOMATO

Tanya (1997)

Tanzania, Kenya, Uganda, Zambia,  
Sudan, DR Congo

Tengeru97 (1997)

Tanzania, Kenya, Uganda, Zambia,  
Sudan, Zimbabwe, Mozambique, DR Congo

Mbambande (2003)

Malawi

Khama (2003)

Malawi

Meru (2007)

Tanzania

Kiboko (2008)

Tanzania

Phindu (2009)

Malawi

Manja (2010)

Madagascar

Zina (2010)

Madagascar

ICRIXINA (2010)

Mali, Senegal, Burkina Faso.

Ghana, Niger

### AMARANTHS

AH-NL (2003)

Tanzania, Kenya

UG-40 (2007)

Uganda

### COWPEA

Tumaini (2007)

Kenya, Uganda

### AFRICAN NIGHTSHADE

Simlaw select (2003)

Medium Leaf (2009)

Kenya

### ETHIOPIAN MUSTARD

Mbeya green (2003)

Tanzania

### VEGETABLE SOYBEAN

Edamame1 (2006)

Zimbabwe, Malawi,

Sudan, Zambia

VSS 1 (1999)

VSS 2 (1991)

Mauritius

### PEPPER

F1 Forever, Remington,

CRI-Shito Adope, CRI MakoNtoos

Senegal, Ghana, South Africa

### OKRA

Victoria Spineless (2007)

Uganda, Tanzania

### AFRICAN EGGPLANT

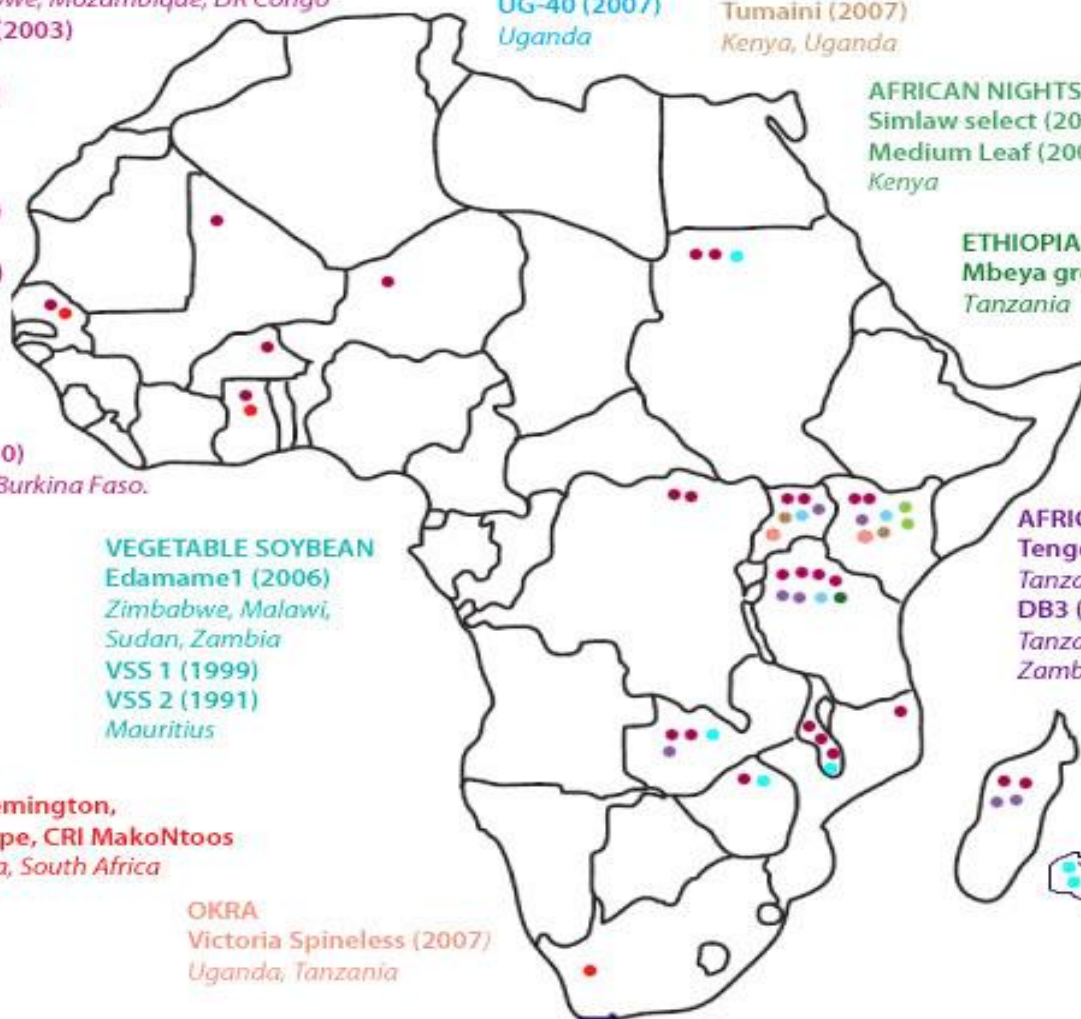
Tengeru White (1999)

Tanzania, Madagascar

DB3 (2006)

Tanzania, Kenya, Uganda,

Zambia, Madagascar





## Other Areas of Contribution

- A large number of germplasm collection and conservation
- Post harvest handling and storage development
- Crop management packages
- Production guidelines development
- Recipe preparation for nutrient bioavailability
- Contribution to the science through publication



# Building the Capacity of NARES, Farmers and PSCs

- Short term trainings 1week – 5 months
- Research interims 1-6 months
- Graduate research
- Farmers/community training; currently a regular program in post harvest handling



Over 30 African countries benefited  
Other countries outside Africa  
Total over 3000 people

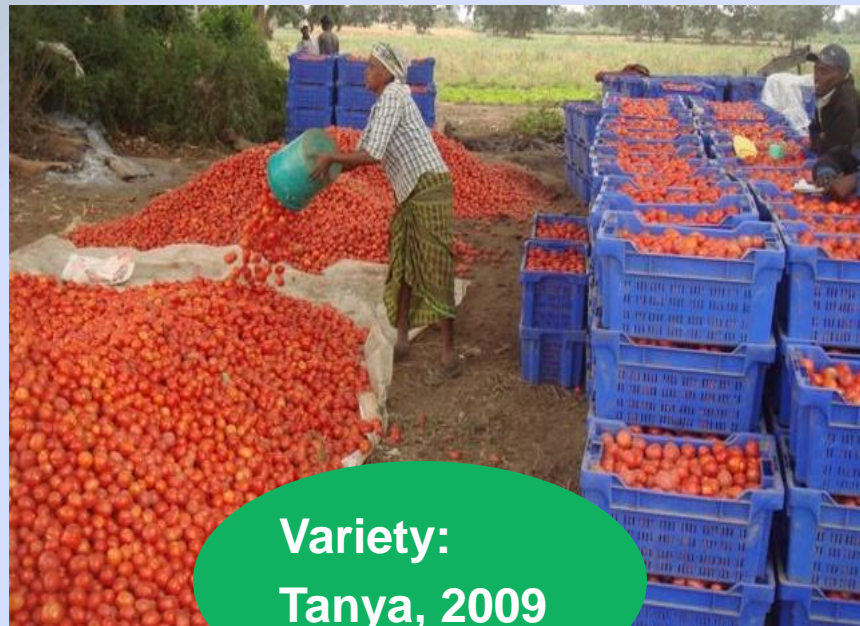
Source: Modified from presentation by Dr. Abdou Tenkouano (2009)





# Technical support to PSCs, NARES

## Seed Production by East Africa Seeds Company, Tanzania, 2009



Variety:  
Tanya, 2009



Tomato creates On- & off- farm  
job; over 80% workforce in  
the field is women



DARSH  
Processing  
company





# Enhancing Homestead Vegetable Production





# Linkage Among Actors





# Importance of linkage among actors for the sector to play its role

- AVRDC values linkage among the various actors of the vegetable value chain for the vegetable sector to contribute to its potential
  - Alleviating poverty
  - Diversifying nutrition and income source



# **AVRDC looks for continuous linkage among actors in the area of**

- **Production constraint identification**
- **Improved availability of seeds**
- **Technology dissemination**
- **Post harvest handling and storage development**
- **Capacity building**
- **Empowering rural, peri-and urban women in vegetable sector**



## **AVRDC also looks for collaboration among actors in more **upstream** vegetable value chain**

- Germplasm collection, conservation, development and sustainable utilization
- Technology generation
- Fundamental studies especially in indigenous vegetables that did not get proper place by the science world
- In the area of national policy and strategy development for vegetable sector





## **Fund** is very important to keep actors together for a tangible work

- Emphasis from the Donor Community to the vegetable sector
- More emphasis from NARES, government bodies for vegetable R&D programs
- Emphasis from public and private seed and development sectors



Asante

Thanks