



The 'New CGIAR'

&

CRP 3.5
Grain Legumes

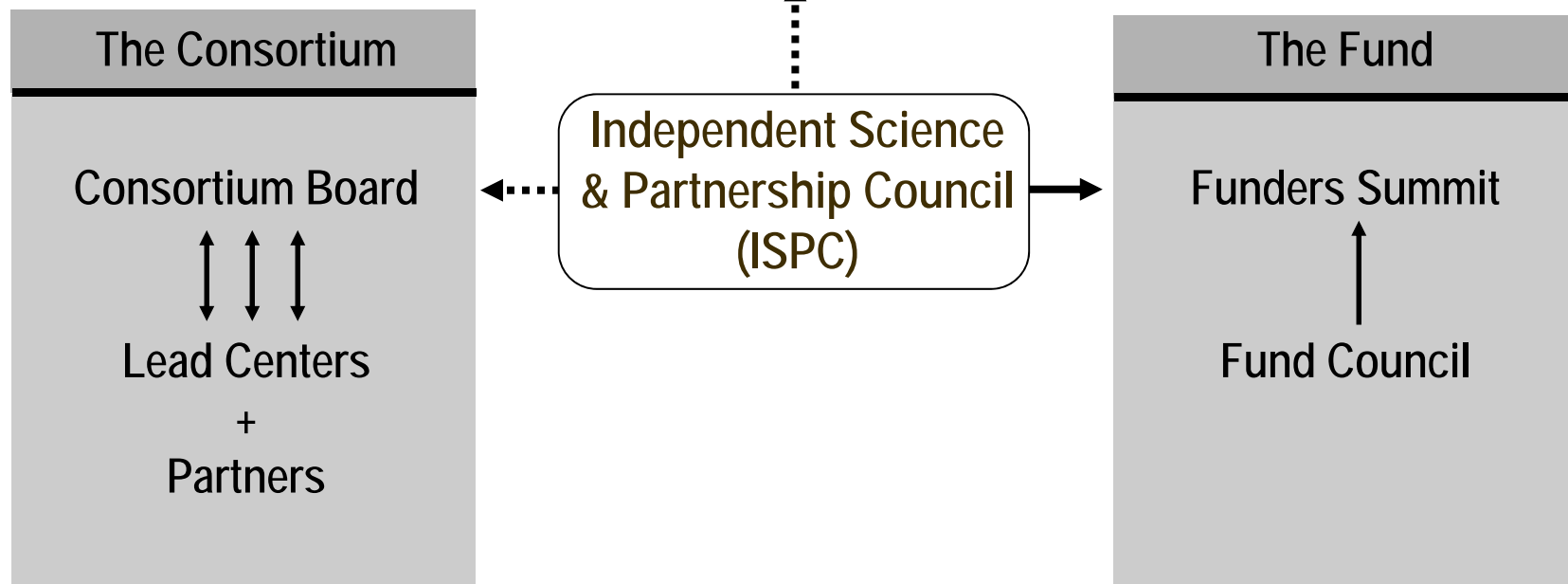




The 'New CGIAR'

Global Conference on Agricultural Research for Development (GCARD)

Strategy & Results Framework (SRF)



www.consortium.cgiar.org



Strategic & Results Framework

- **System Level Outcomes**
 - Reducing rural poverty
 - Improving food security
 - Improving nutrition & health
 - Sustainable management of natural resources
- **Focus on SSA and South Asia**
- **New core competencies**
 - Production systems, climate change, nutrition & health
- **Cross-cutting functions**
 - Gender inequality, capacity strengthening, data management & dissemination
- **Outputs to Outcomes to Impacts**



CGIAR Research Programs

Title	Lead Center
CRP 1.1 Integrated production systems in dry areas	ICARDA
CRP 1.2 Integrated systems for the humid tropics	IITA
CRP 1.3 Aquatic agricultural systems	WorldFish
CRP 2 Policies, institutions and markets	IFPRI
CRP 3.1 WHEAT	CIMMYT
CRP 3.2 MAIZE	CIMMYT
CRP 3.3 GRiSP – A global rice science partnership	IRRI
CRP 3.4 Roots, tubers and bananas	CIP
CRP 3.5 Grain legumes	ICRISAT
CRP 3.6 Dryland cereals	ICRISAT
CRP 3.7 Meat, milk and fish	ILRI
CRP 4 Agriculture for nutrition and health	IFPRI
CRP 5 Water, land and ecosystems	IWMI
CRP 6 Forest, trees and agroforestry	CIFOR
CRP 7 Climate change, agriculture and food security	CIAT



CGIAR Research
Program 3.5

GRAIN LEGUMES





A global partnership



**Public and private sector institutions globally,
regional organizations, and local CSOs**

Priority regions & crops

Regions	Crops							
	Bean	Chickpea	Cowpea	Faba bean	Ground-nut	Lentil	Pigeon-pea	Soybean
LAC	Dark Blue	White	White	White	White	White	White	White
WCA	Dark Blue	White	Light Blue	White	Green	White	White	Orange
ESA	Dark Blue	Dark Blue	Light Blue	Dark Green	Green	White	Brown	Orange
CWANA	White	Dark Blue	White	Dark Green	Green	Teal	White	White
SSEA	White	Dark Blue	White	White	Green	Teal	Brown	White





Importance in reducing poverty, hunger, malnutrition and environmental degradation

- **Poor people's meat**
 - 10-60% of dietary protein for the poor
- **High value for farm families**
 - US \$24 billion farm gate value: equal to maize, wheat
 - Food, feed, fodder, fertility (soil)
 - Export markets – engine of development
- **Vital for sustainable intensification**
 - Double cropping
 - Diversify risk
 - Make their own N fertilizer



Chickpea paste for famine prevention – World Food Programme, Pakistan



Pigeonpea grown for export in Tanzania



Chickpea intensification in Ethiopia

Opportunities and challenges

- **Increasing yield under stresses of less-favored environments**
- **Combating diseases and pests**
- **Genomics to unlock genetic diversity**



Genetic differences in chickpea pod set at high temperatures



Pod-borer damage



Vast diversity, still largely untapped



Opportunities and challenges (cont.)

- **Biological nitrogen fixation**



*Better-adapted
groundnut variety;
nodulation
differences (inset)*

- **Increasing yielding ability**



*Hybrid
vigor in
pigeonpea*

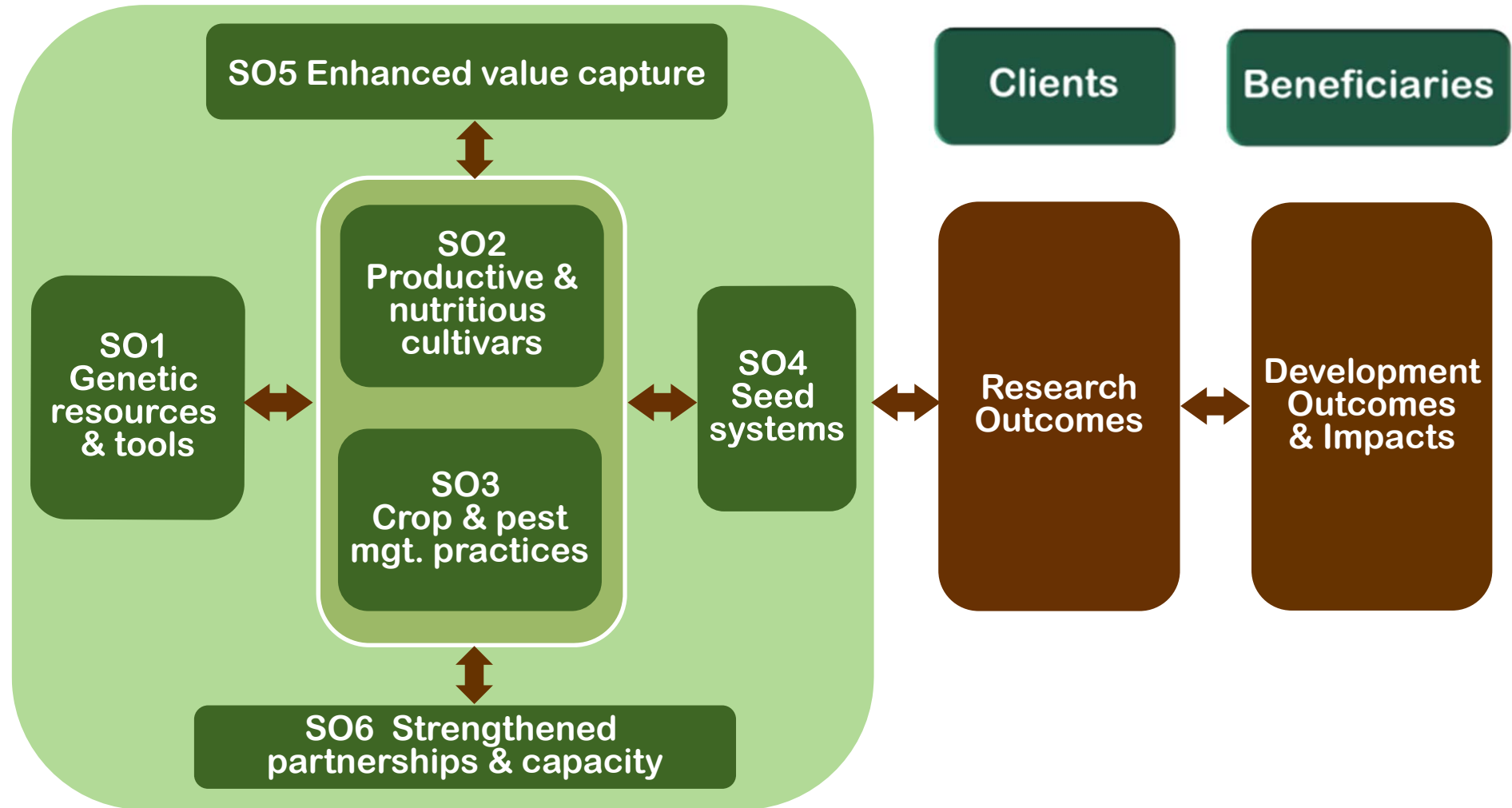
- **Seed systems that serve
diversity**



*Buying seed in
small packs -
seed fair,
Mozambique*



Strategic objectives & impact pathways





- Can diversify sampling tools increase efficient use of genetic resources?
- How can we enhance use of wild species & transgenics to create novel variation for certain traits?
- What new tools & technologies can improve efficiency of breeding?

- How much can yield & stability be improved under stress environments?
- Are there trade-offs in breeding for nutritional qualities?
- How can breeding target climate-change scenarios?



- What R4D approaches are likely to generate affordable IPM technologies?
- How can we reduce GxE interaction for increasing biological nitrogen fixation?
- What practices can optimize grain legume production in short cropping systems?





SO4: Efficient seed production & delivery

- How can participatory varietal selection achieve scale & effectiveness for decentralized system?
- Can integration of formal & informal seed sector lead to sustainability
- How can we engage regional & national policy makers?





SO5: Enhance grain legume value chains

- What adjustments to conventional value chains are required to identify & enhance roles for poor, especially women?
- What are monetary values associated with current & prospective innovations in value chains?
- How can value chain findings contribute to CRP 3.5 priority setting?





SO6: Partnerships, capacities & knowledge

- How can cross-crop, cross-center alliance of CRP3.5 add value?
- How can we develop protocols for enhancing women's participation?
- How can the alliance become a true innovation platform?
- How can we enhance ICTs use for knowledge sharing?





Target impacts by 2020

- \$3 billion in benefits
- 400,000 additional tons of nitrogen fixed
- 7 million additional tons of grain
- 2.1 million additional tons of protein
- 20% yield increase on 20% of the area (12.5 million ha)



- **Whole genome sequencing**
- **Cross-crop learning through comparative genomics**
- **New sources of resistance to drought/heat, disease and insect pressures**
- **Doubled haploids to reduce breeding time**
- **Hybrid systems**



Cross-crop learning: homology between soy and pigeonpea genome sequence



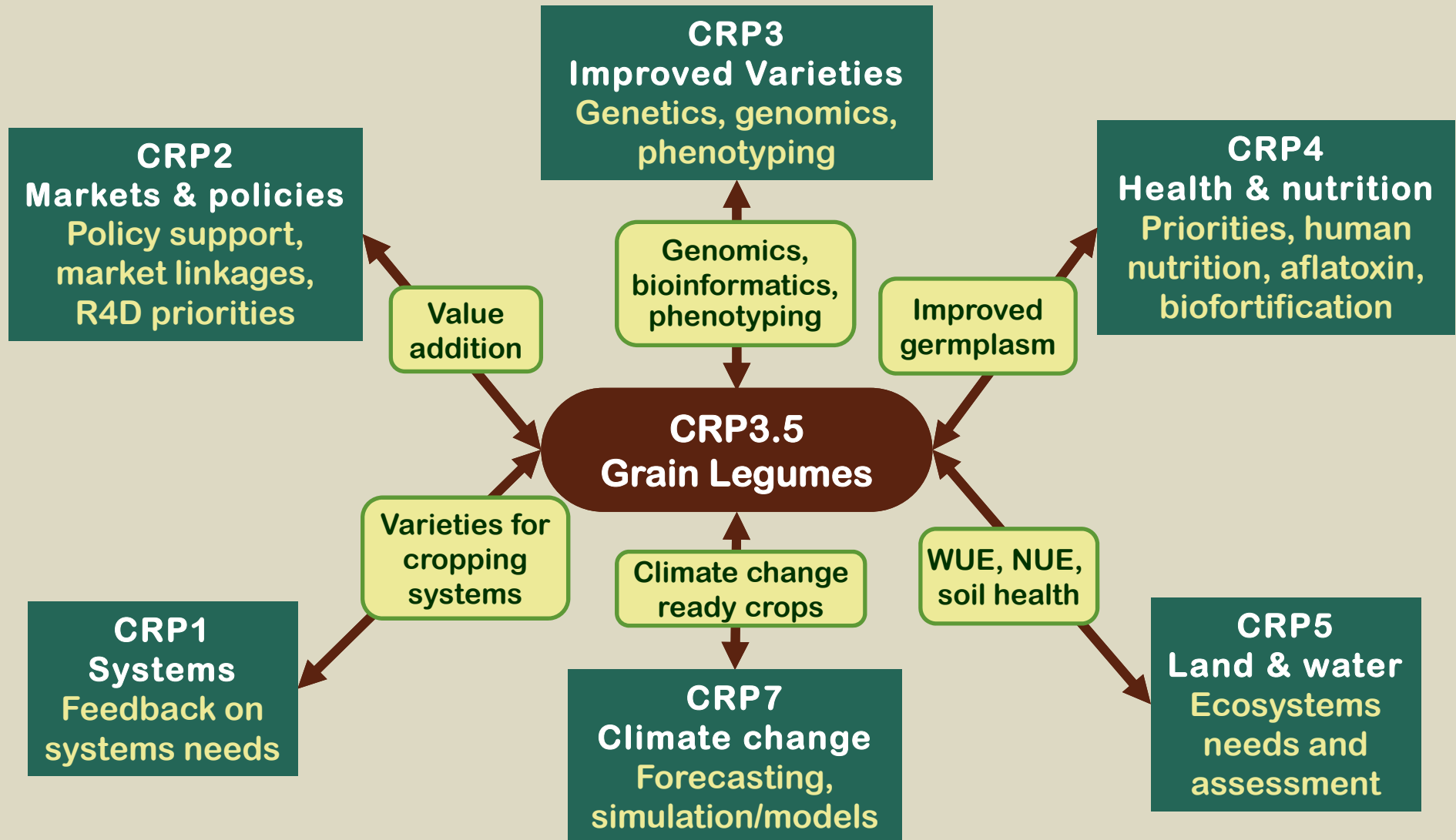
Benefiting women

Through a value chain perspective



Women prepare & sell cowpea moin-moin (left) and soy cheese (right) in Nigeria

Linkages with other CRPs





For further details

GRAIN LEGUMES

Leveraging legumes to combat poverty, hunger, malnutrition and environmental degradation

A CGIAR Research Program submitted by ICRISAT, CIAT, ICARDA and IITA

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In collaboration with

Generation Challenge Program (GCP)
Brazilian Agricultural Research Corporation (EMBRAPA)
Ethiopian Institute of Agricultural Research (EIAR)
Indian Council of Agricultural Research (ICAR)
Turkish General Directorate of Agricultural Research (GDAR)
Dry Grain Pulses Collaborative Research Support Program (Pulse CRSP)
National agricultural research and extension systems in Africa, Asia and Latin America and the Caribbean
National and international public and private sector research and development partners



www.icrisat.org/icrisat-crp.htm



VI International Conference on Legume Genetics and Genomics (VI ICLGG)

Hyderabad Marriott Hotel & Convention Center, Hyderabad, India

October 2-7, 2012

VI ICLGG

Conference Topics

- Next generation genomics
- Nutrition
- Development
- Evolution and diversity
- Symbiosis
- Abiotic stresses
- Pathogenesis and disease resistance
- Translational genomics
- Genomics-assisted breeding
- Harnessing germplasm resources

Featured Speakers

<i>David Bertioli, Brazil</i>	<i>Günter Kahl, Germany</i>
<i>Doug Cook, USA</i>	<i>Suk-Ha Lee, Korea</i>
<i>Martin Crespi, France</i>	<i>Da Luo, China</i>
<i>Jeff Doyle, Cornell Uni, USA</i>	<i>Greg May, USA</i>
<i>Peter Gresshoff, Australia</i>	<i>Henry Nguyen, USA</i>
<i>Valérie Geffroy, France</i>	<i>N Nadarajan, India</i>
<i>CLL Gowda, India</i>	<i>Giles Oldroyd, JIUK</i>
<i>Georgina Hernández, Mexico</i>	<i>Karam Singh, Australia</i>
<i>T J Higgins, Australia</i>	<i>Richard Thompson, France</i>
<i>Sachiko Isobe, Japan</i>	<i>Ana Torres, Spain</i>
<i>Scott Jackson, USA</i>	<i>Michael Udvardi, USA</i>
<i>Eva Kondorosi, Hungary</i>	<i>Carroll Vance, USA</i>
<i>Günter Kahl, Germany</i>	<i>Bert Vandenberg, Canada</i>

and many more ...