

Agricultural PPPs – a horizon scan

Mike Robinson

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The time perspective

Megatrends

- The current megatrends of *Demographics* and *Climate Change*, have put agriculture and food security at the forefront of global debate.
- At the same time, the trend of *Sovereign Debt* has resulted in stagnating public funding (*in real terms*) for R&D, and increased the need for global public organizations like CGIAR* to seek new strategic partnerships.
- Despite the obvious potential importance of Public-Private Partnerships (PPP) in agriculture, to date “few success stories that are pro-poor have emerged, and even fewer examples have surfaced where partnerships have contributed to food security, poverty reduction and economic growth” (IAASTD Global Report, 2009)
- This review poses the question what can be done to improve success of PPPs in agriculture and mitigate against the risks of an increasingly uncertain and complex (*VUCA*) environment

* On average, each of the top 10 CP companies spent almost as much (\$509 mio) as the whole of CGIAR (15 centers, \$579 mio) on R&D in 2009. (source CGIAR Annual Report, 2009)

The landscape of AG PPPs: the dataset

(37 projects, mainly in 2000-2010)

Table 3. Public-private partnerships with the “Big 10s” in the crop-science and agri-food sector c. 2004

Sector/firm/country of headquarters ^a	Sales (million U.S. dollars)	Number of partnerships with CGIAR center ^b	Center
<i>Crop-science sector</i>			
Syngenta, Switzerland	7,270	7	CIMMYT, ICRISAT, Bioversity Int'l, and IRRI
Pioneer Hi-Bred International, United States	4,830	5	CIMMYT, ICRISAT, and Bioversity Int'l
Bayer Crop-Science, Germany	7,390	4	ICARDA, IFPRI, IRRI, and ICRISAT
Monsanto, United States	5,220	2	IRRI
BASF, Germany	4,170	2	CIMMYT
Grupo Limagrain, France	965	1	CIMMYT
Dow AgroSciences, United States	3,370	0	
Savia, Mexico	611	0	
Advanta, the Netherlands	398	0	
<i>Agrifood sector</i>			
Unilever, United Kingdom/Netherlands	25,670	3	World Agroforestry Centre, IWMI
Mars, United States	17,000	1	IITA
Coca Cola, United States	19,564	1	ICRISAT
Nestlé, Switzerland	54,254	0	

Insight:

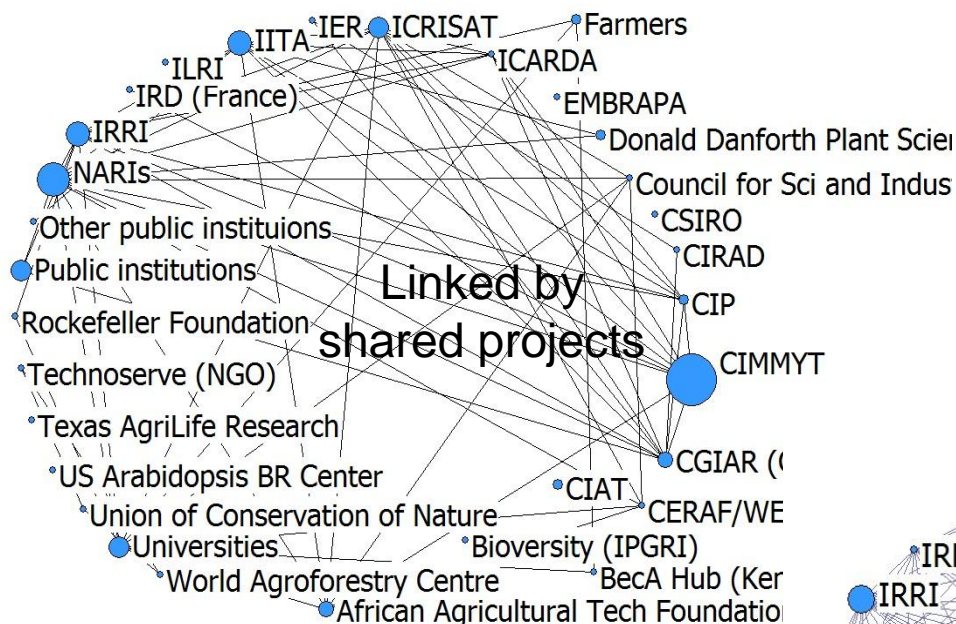
- Only a limited number of records of large AG PPPs are available in the public domain (Spielmann *et al.* 2004, 2007)
- There is no consistent database on AG PPPs, comparable to that in the Health R&D area (e.g. database of the Initiative for Public Private Partnerships for Health, IPPPH has 90 records): and therefore little opportunity for cross project knowledge sharing

This review is based on a dataset extracted from the IFPRI database and an independent deep web search.

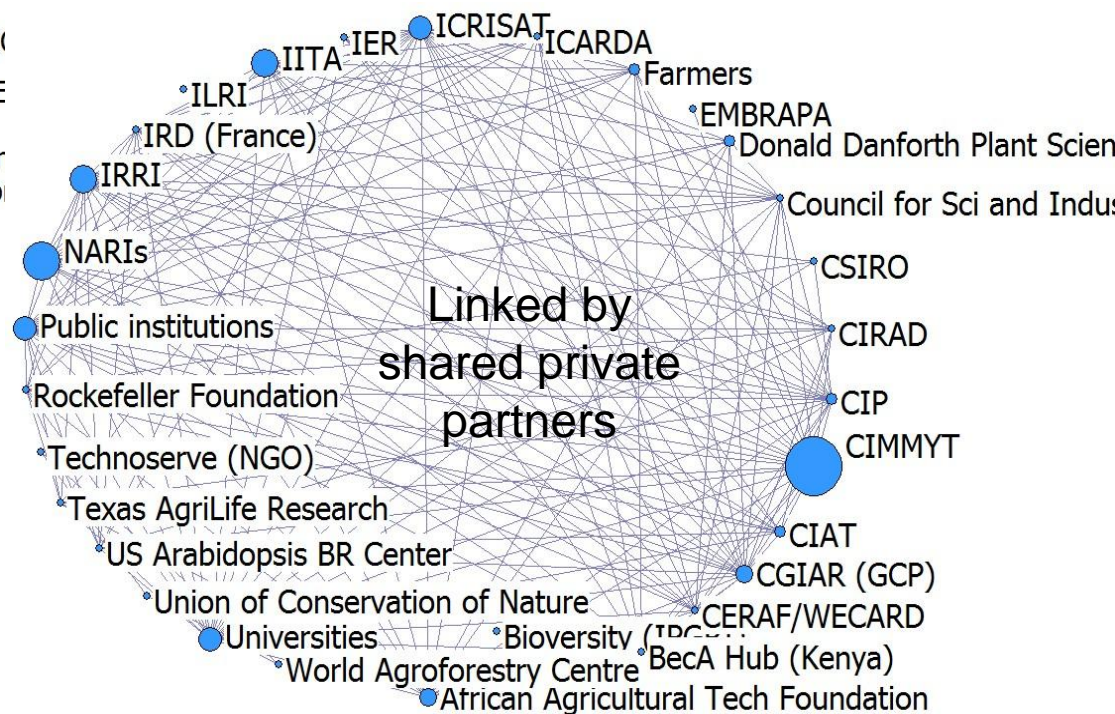
Spielmann, Hartwich & Grebmer, 2007

The landscape of AG PPPs: the linkages

(37 projects, mainly in 2000-2010)



PPPs: The power of partnership

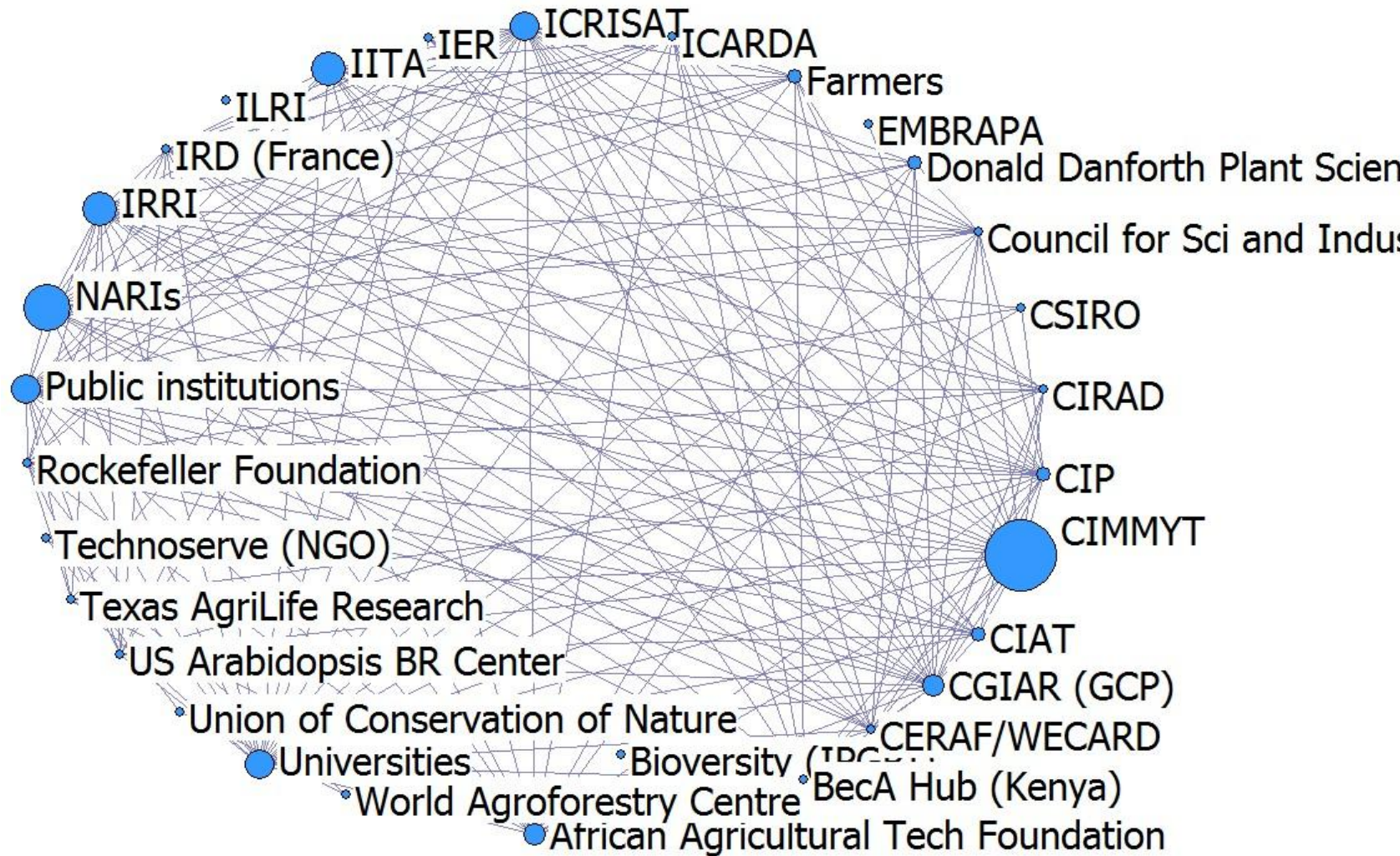


Includes Spielman (25), plus 12 new (37). It is not meant to be exhaustive.

Size of nodes: no. of PPP projects

UCINET software (Bugatti *et al.*, 2002).

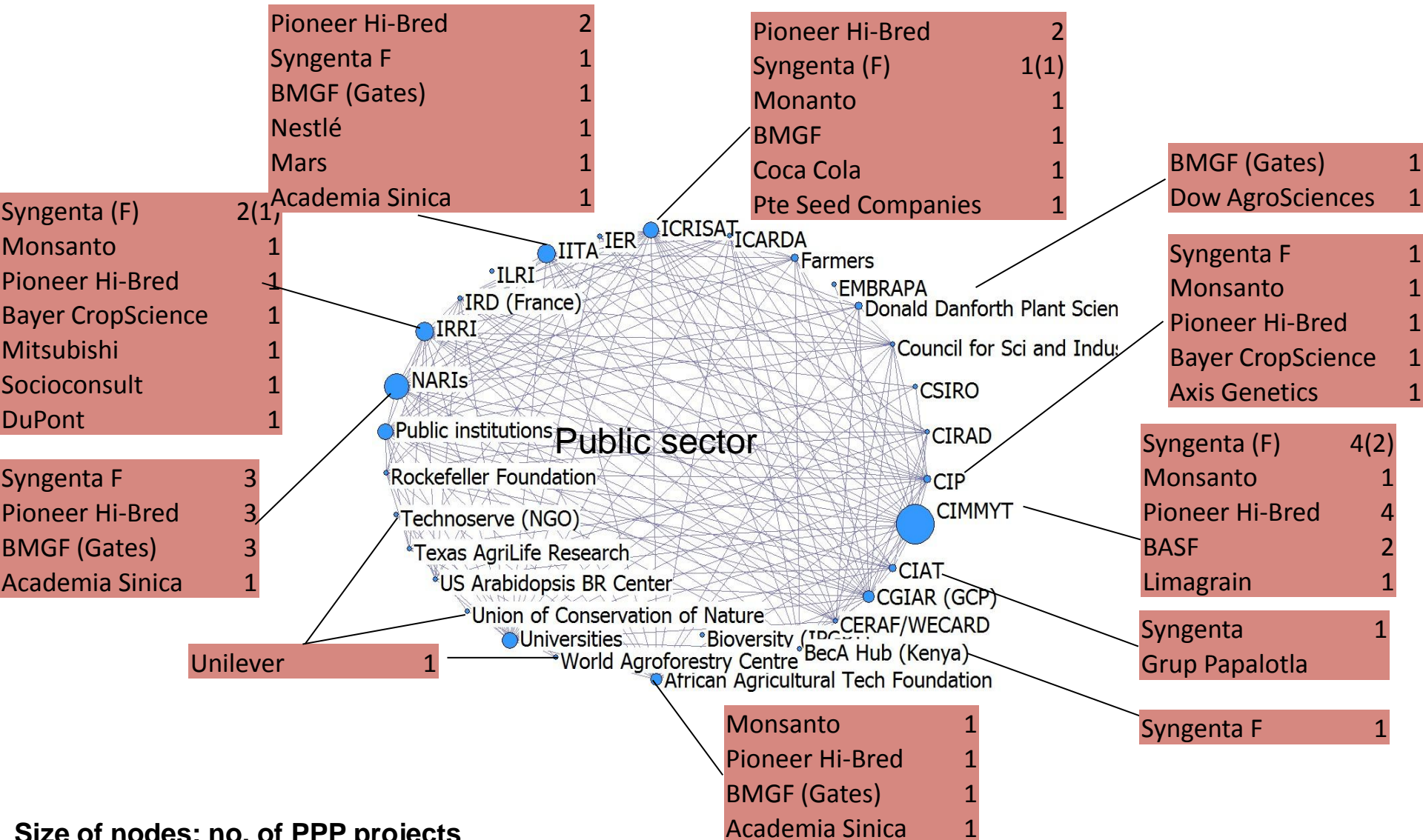
37 projects since ~2000



UCINET software (Bugatti *et al.*, 2002).

The landscape of AG PPPs: the stakeholders

(Agricultural PPPs mainly in 2000-2010)



The role of enabling hubs (example project: African Biofortified Sorghum)

AATF (African Agricultural Technology Foundation) . Activities incl. Banana X. Wilt, Water Efficient Maize for Africa, Africa Biofortified Sorghum. (ABS) **Partnership facilitator** between public and private sectors on transfer and use of appropriate agricultural technologies.



- intellectual property & proprietary information
- aspects of regulatory compliance
- technology inventories
- freedom to operate (FTO) assessments,
- policy manual and provided licensing advisory services.

Insight: do we need hubs?

Africa Harvest **Project management**

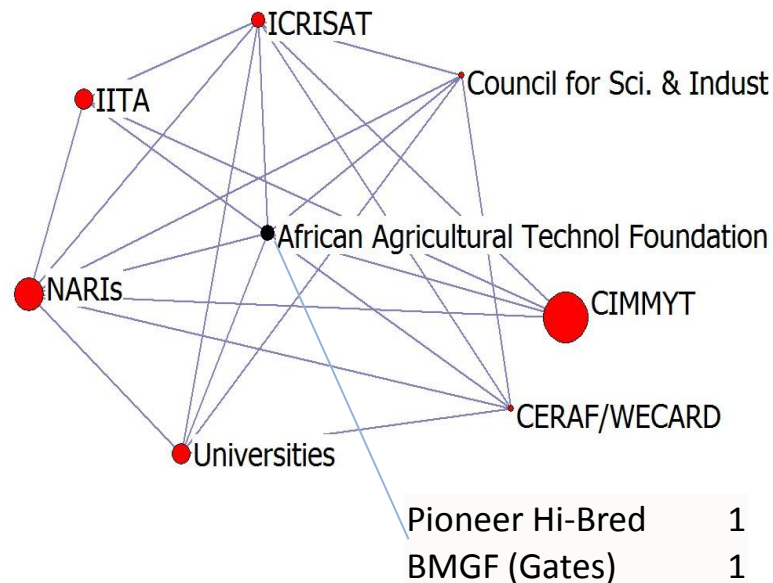
Pioneer Hi-Bred **Technology doner and capability buidling support**

Council for Scientific and Industrial Research, South Africa. **Technology recipient.**

National agricultural research institutes (KARI, ARC, INERA) . **Field trial and expertise providers**

Universities Pretoria, and California Berkeley. **Analytics.**

National instituions e.g. CORAF/ WECARD, AH. **Policies and stakeholder awareness/acceptance.**



EGONET AATF

Lines: represent shared projects

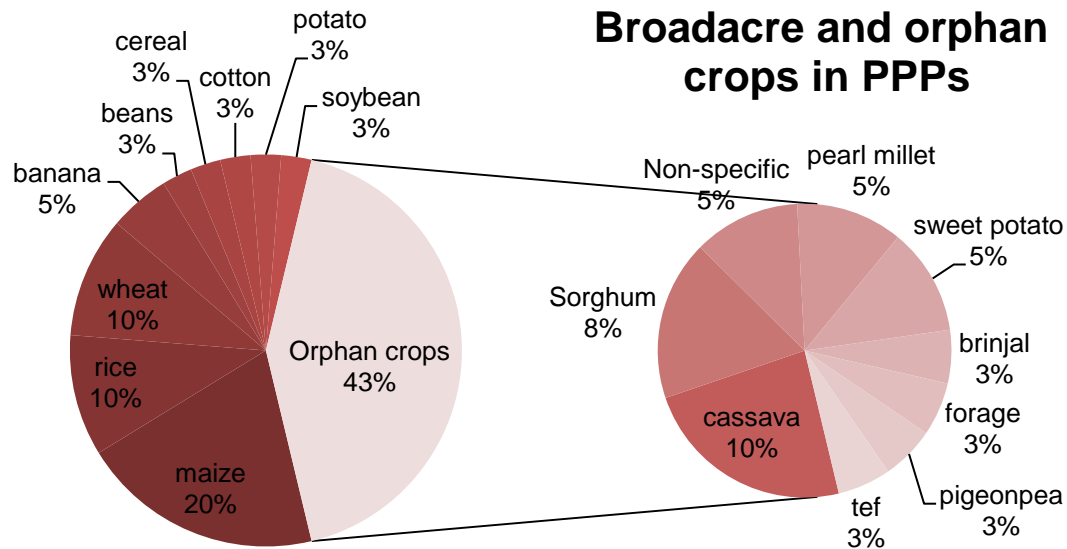
Other hubs

KARI (Kenyan Agricultural Research Institute and Agricultural Research Investments and Services (ARIS)). Activities incl. Insect resistant maize for Africa

Beca (Biosciences eastern and central Africa)) in Nairobi, Kenya. Activities of the BecA Hub include drought tolerant maize, understanding drought tolerance of cassava, striga control, infectious diseases of east african livestock, Tef cereal improvment

The crops perspective: some insights

(Agricultural PPPs mainly in 2000-2010)



Insight:

- Do we have the right mix?
- Can investments in orphan crops produce as outstanding a return as has been seen with broadacre crops? Food Policy 29 (2004)15–44)
- Are we investing enough?

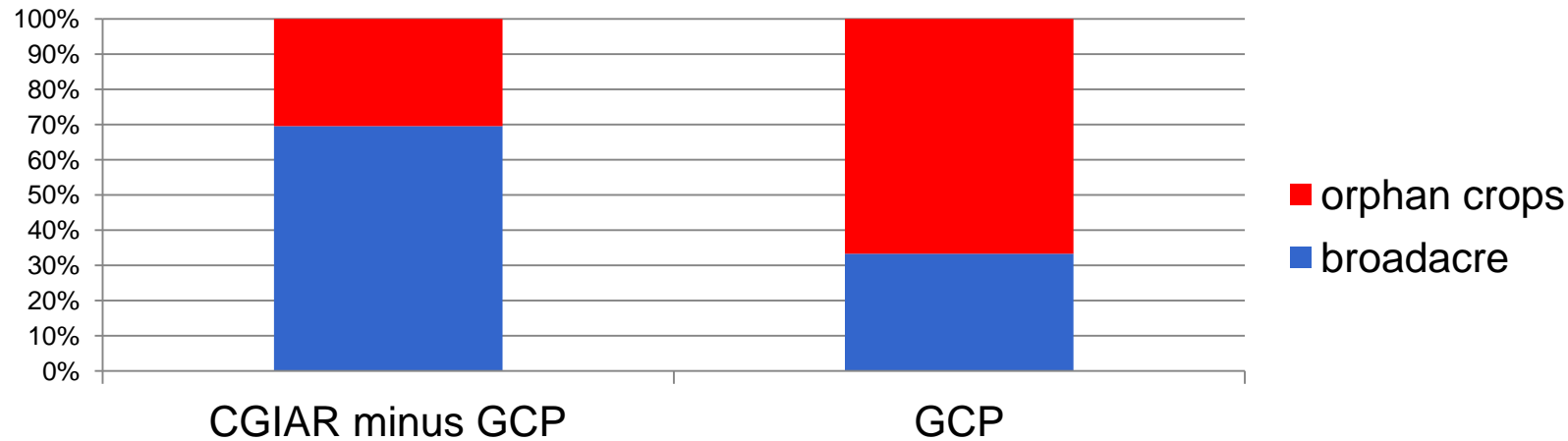
○ Rice, wheat and maize are the most important food crops of the developing countries...centre of global agricultural development policy

Global Alliance for Improving Food Security and the Livelihoods of the Resource-poor in the Developing World, 2011

The crops perspective: some insights

(Agricultural PPPs mainly in 2000-2010)

Crop focus of CGIAR compared to that of GCP in PPPs



GCP focus crops	
1	barley
2	beans
3	cassava
4	chickpeas
5	cowpeas
6	groundnuts
7	maize
8	millet
9	rice
10	sorghum
11	sweet potatoes
12	wheat

○ Rice, wheat and maize are the most important food crops of the developing countries...centre of global agricultural development policy

Global Alliance for Improving Food Security and the Livelihoods of the Resource-poor in the Developing World, 2011

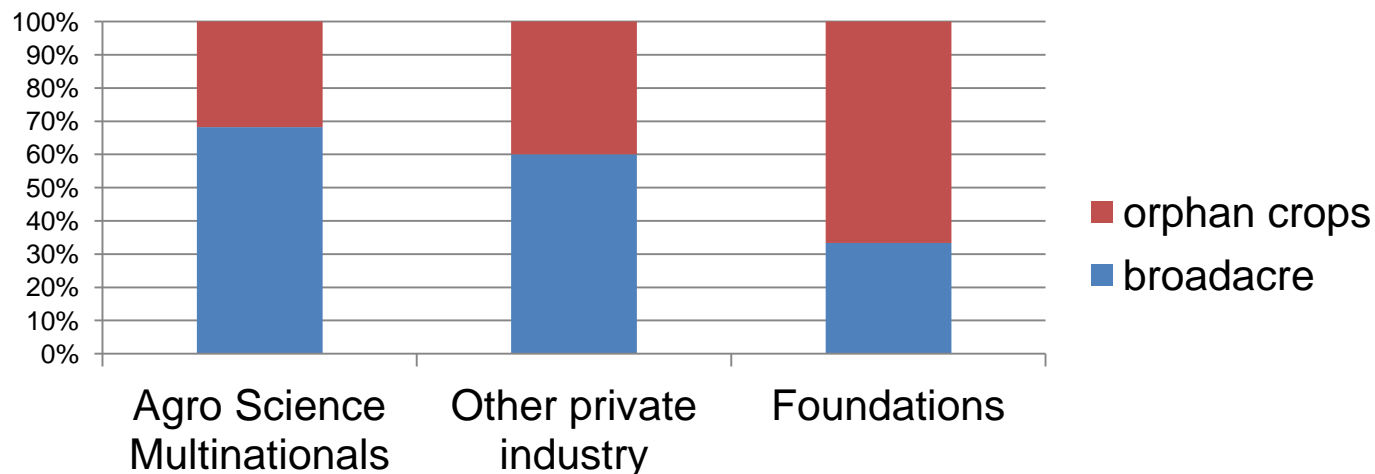
Insight:

• Do we have the right mix?

What crops are we focusing on?

(Agricultural PPPs mainly in 2000-2010)

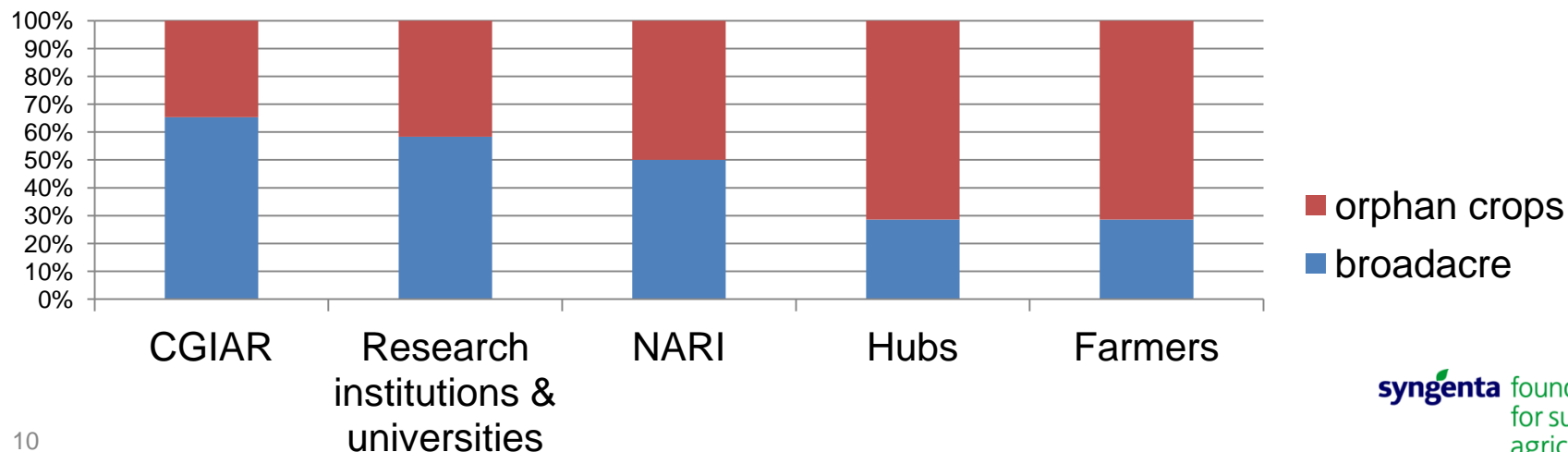
Private sector crop focus in PPPs



Insight:

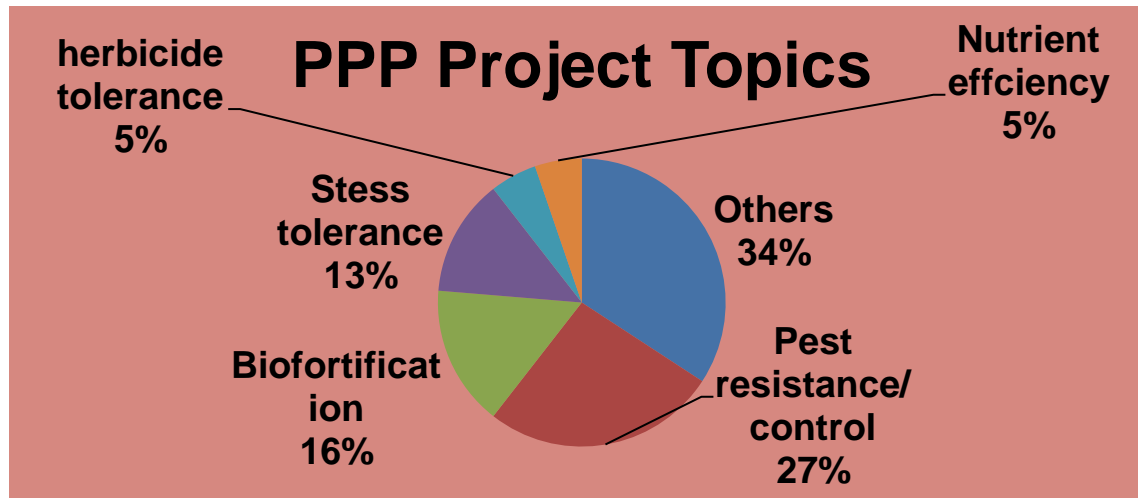
- Agro Science multinationals and CGIAR have a similar balance
- Foundations are closer to NARIs Hubs and farmers

Public sector crop focus in PPPs



What traits are we working on?: some insights

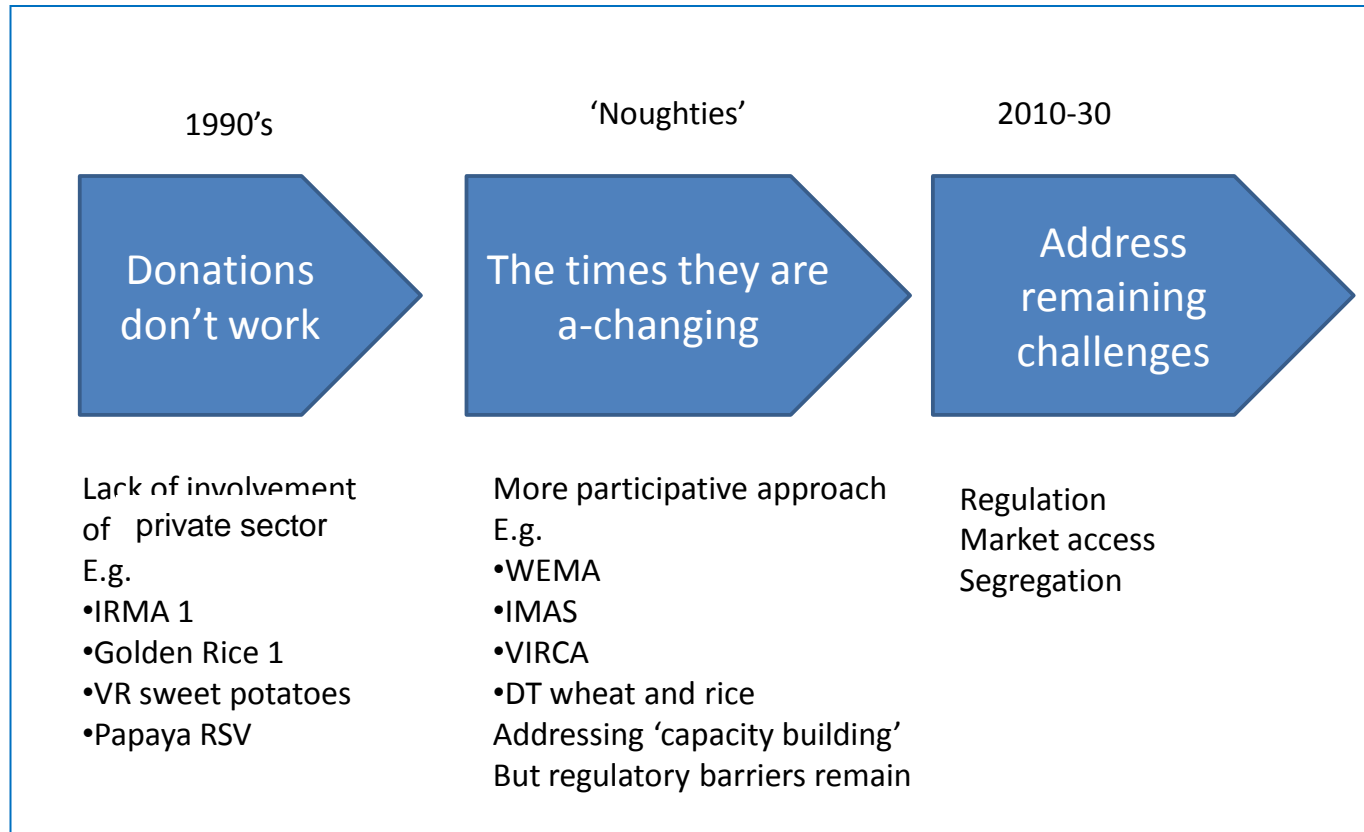
(Agricultural PPPs mainly in 2000-2010)



Insight:

- Does this focus reflect global needs in AG?
- Pest resistance/control and herbicide tolerance is the biggest single chunk, reflecting the major expertise of the multinationals
- Taken together, stress tolerance, nutrient efficiency and biofortification however exceeds the pest control area! (..in keeping with current concerns?)

Historical perspective of PPPs in GM



Agbiotech perspective: some insights

(Agricultural PPPs mainly in 2000-2010)

Will Agbiotech Applications Reach Marginalized Farmers? (Spielman, Cohen, Zambrano, 2006)

..although developing countries invest in agricultural biotechnology and genetically modified crop research, their policy and investment environments inhibit the contribution of such research to agricultural development and poverty reduction.

..valuable private-sector resources are not being brought to bear on the development challenge. For such research to benefit developing countries, greater effort is needed to enhance the international exchange of safety and efficacy information, remove the isolation of public research institutions, and overcome barriers to public-private research collaboration.

BASF and Embrapa's biotech soybeans on track for Brazilian market launch from 2011 onward

2009-01-30
First seeds expected to be available to Brazilian farmers from 2011 onward

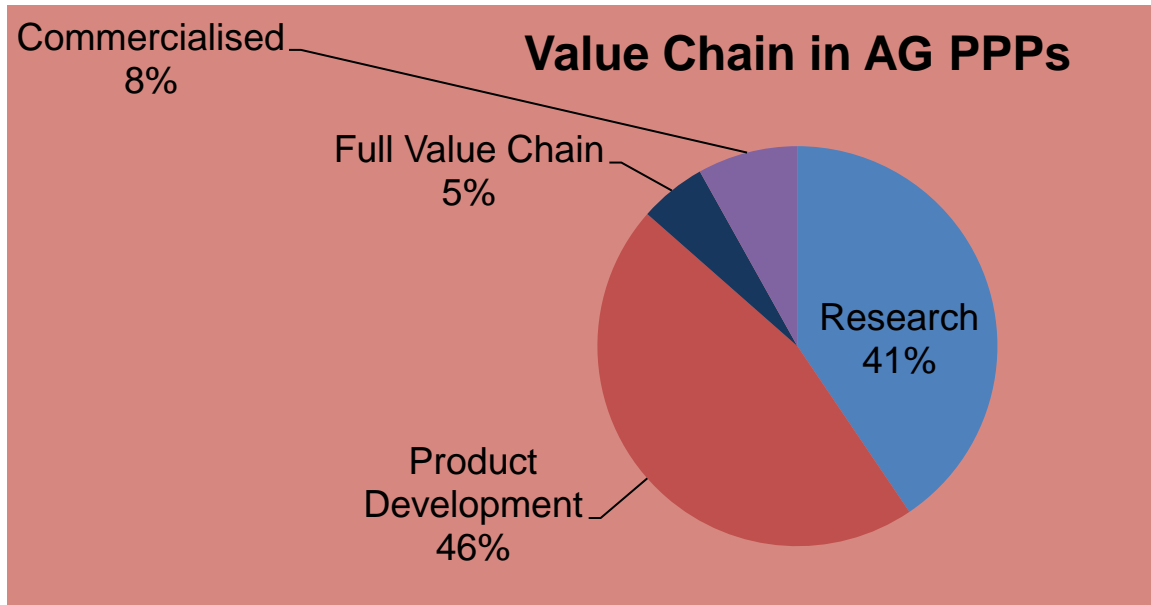
SÃO PAULO and BRASÍLIA, Brazil, January 30, 2009 – BASF and Embrapa, Empresa Brasileira de Pesquisa Agropecuária, today announced that the organizations' jointly developed herbicide-tolerant soybean has been submitted for regulatory approval. Embrapa is Brazil's public agricultural research. The package includes herbicide tolerant genes supplied by BASF, which Embrapa's scientists inserted into soybean. The cooperation dates back to 1997.

Insight:

- View 1 suggests that the major barrier to PPP succeeding is the inefficient management of resources
- View 2 suggests that success is blocked only by regulatory (and hence social concerns) grounds
- How do we decide which risk to focus on? Is the consideration whether an innovation is GM or not, an oversimplification?

Value Chain perspective: some insights

(Agricultural PPPs mainly in 2000-2010)



Insight:

- 41% of the projects do not mention plans for how products will be developed. 59% do, 5% are actually about the full chain, but only 8 % have actually succeeded to bring products to market
- Do we mitigate sufficiently against the risks of not reaching the farmer?

The challenges for PPPs

- Public and private partners are challenged by fundamentally **different incentives**.
- Public and private partners do not adequately account for and minimize the direct and hidden **costs** of a collaborative research investment.
- Public and private partners are hindered by persistent **negative perceptions** of each other.
- Public and private partners are constrained by the **lack of creative organizational mechanisms** to reduce intersectoral competition for key assets and resources.
- Public and private partners are impeded by the **limited availability of information** on successful working models of partnership.

Spielmann & Grebmer, 2004



Conflict of interest issues in PPPs. Since partnerships between public (by which we mean non profit) and private (by which we mean for profit) organizations will invariably raise issues of COI, the recognition and management of these COIs is critical to the existence of these partnerships. Omobowale *et al.* 2010

Success factors: comparing AG (philanthropy?) and HEALTH (business case?)

Agriculture PPP views

- clear agreed objective
- both parties contribute something other than money
- clear definition of who does what
- single project plan with milestones
- clear governance mechanism (inclu. for conflict resolution)

Braun and Ferroni, 2008

- Combine explicit knowledge exchanges with experiential learning
- Relevant partners, incentive compatibility, mutual objectives, clear roles and responsibilities
- Risk management and mitigation
- Analyse impact pathways which improve marginalized social groups

Spielmann, Hartwich, Grebmer, 2004

Health PPP views

PPPs are set up to address specific R&D gaps for diseases of the poor.

- high quality knowledgeable management with strong commercial experience
- scientific committee and board representation must be on expertise rather than representativeness ...of region or politics
- a number of indicators need to be developed to measure performance
- PPPs must pursue an aggressive IP strategy designed to maximise the social value of product and process patents
- combination of PPP investment and push/pull incentives (e.g. a Global Purchase Fund, Tax credits) are needed for success .WHO Macroeconomic Commission on Health, 2001

Success factors: some lessons from Health

The public policy challenge is to construct incentives to engage public and private researchers so that they invest aggressively in R&D to **develop products for the neglected diseases of the poor**. The discussions about what to do have put forward two alternative models for R&D.

- (i) The first model – the commercial approach - strives to make neglected diseases as attractive as other, non-neglected, diseases to private companies looking to make investment decisions. By improving their expected profitability, these policies would incentivise more R&D into these diseases.
- (ii) In the second model, public -private partnerships (PPPs) are set up to address disease specific R&D gaps. The issues around the likely effectiveness of these PPPs ...

The two models are not mutually exclusive. An important conclusion of this study is that public private partnerships' success depends on there being credible pull mechanisms in place that enhance the expected size of the market and thereby incentivise major pharmaceutical companies to participate.

WHO Macroeconomic Commission on Health, 2001

Insight:

- Developing products for the neglected diseases of the poor is parallel to the challenge in AG to seek support for improving orphan crops
- Are these models relevant to AG PPP?

Key risks

- coordinating diverse interests/mandates
- exchanging proprietary knowledge assets
- no risk management to mitigate against worst case scenarios
- no planning to resolve conflicts as they rise
- no adequate legal, financial, communication strategies to manage external threats

Spielman, Hartwich & Grebmer, 2004

Key gaps

- Do we have the right mix: feed the world and feed the poor?
- Projects pay insufficient attention...
 - to getting the product to market; go-to-market strategy
 - to managing resources; project management
- No consistent platform to share knowledge, and little cross project collaboration
- Limited risk management to mitigate against problem scenarios or planning for conflict resolution
- Insufficient legal, financial, communication strategies to address external challenges



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