Partnerships in Agricultural R&D: Myths, Facts and the Way Forward

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● Myth: Public sector R&D is pro-poor
● Fact: We don’t know

● Products fail to reach the farmer
● Public sector innovation culture and funding focuses on ‘R’
● ‘D’ delivers products to the market
The innovation process

Numerous, partially developed ideas

External Technology

BLUE SKY

OPPORTUNITY IDENTIFICATION

Stage 1

Portfolio Management

Decision

Handover

OPTIMISATION

Stage 2

DEVELOPMENT

Stage 3

Source: Syngenta/M. Bushell
Agricultural R&D

Public mindset

Research stage:
• Public good goals, funding- and publications-driven, donor preferences
• Knowledge generation (as opposed to exploitation)

Development stage:
• Not well developed
• Incentives and mindset don’t lend themselves to ‘development’; better to enter partnerships

Private mindset

Research stage:
• Targets and priorities gleaned from market
• Multidisciplinary project teams eyeing development and commercial functions

Development stage:
• Shift into different mode; change project leader at this stage
• Partnerships throughout: in-sourcing, out-sourcing, delivery

The goals, however, are the same: food security, sustainability, and ‘growing more with less’
- Myth: Public or private R&D alone will deliver MDG1

- Fact: Cooperation is essential to leverage relative assets

- Research cooperation: Phenotyping, genotyping

- Development cooperation: To overcome the public sector’s limited ability to market research outputs and the private sector’s limited ability to operate where there is no market => Not-for-profits have a role!
Commercial exploitation
Route to farmers

Spectrum of positions

Public sector

- All public breeding
- All crops
- All countries

Segmentation options

Option 1
- By country
  Developed vs. developing

Option 2
- By crop
  Major vs. orphan crops

Option 3
- By farmer segment
  Farm size or profitability

Private sector

- Full global use rights
- Exclusivity
- All farmer segments
- No time limit
### PPPs beneficiaries

<table>
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<tr>
<th>Public sector</th>
<th>Private sector</th>
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<tr>
<td>- Greater research scale, scope and funding</td>
<td>- Access to:</td>
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<tr>
<td>- Freedom to operate</td>
<td>- public germplasm for product development</td>
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<tr>
<td>- Access to:</td>
<td>- cutting edge genomic research</td>
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<td>- private sector proprietary technology</td>
<td>- novel research in crops that are not commercial targets but contain unique characteristics</td>
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<tr>
<td>- knowledge and know-how</td>
<td>- New market creation – access and knowledge to key contacts and seed systems</td>
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<tr>
<td>- equipment and facilities</td>
<td>- Social/corporate responsibility - technology or expertise donation</td>
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<td>- Broadening development reach and seed distribution</td>
<td>- Modern improved crops</td>
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<td>- delivery of outputs to farmers</td>
<td>- Access to seeds, CP, fertilizer</td>
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**Farmers**

- Modern improved crops
- Access to seeds, CP, fertilizer
• Myth: IP prevents innovation from reaching poor farmers

• Fact: No ownership, no innovation; IP can be negotiated

• IP is not a limitation in poor countries; no patents there; with GM crops, the real issue is stewardship

• In plant breeding, IP commons and royalty-free licensing for developing countries hold promise
The miracle of maize, feeding the world

Hybrids and appropriable traits; return on investment

Source: Adapted from Vivek, CIMMYT
The wheat rust Ug99 technology partnership and IP

CIMMYT / SYNGENTA

- Identify, characterize and map QTLs to stem rust
- Identify markers for use in marker assisted trait selection
- Characterize the known gene complexes and determine how this interacts with other important genes in wheat
- Pre-breeding information in the public domain
- Breeding products proprietary

Brokered by the Syngenta Foundation
Myth: The relevant professional community understands the value of R&D partnerships

Fact: Not at all (except for some mavericks)

‘PPPs are not being leveraged to promote innovation – nor for enhancing the value of CG Centres’ work’

‘Few PPPs are based on clear analyses of their impact pathway’ (Source: Spielman et al./IFPRI, 2007)
Barriers for PPPs (1/2)

Looking for win-win

- Overlapping geographies
  - Growth markets for pvt sector
- Delivering value
  - Reducing poverty = increasing wealth
- Environmental stewardship
- Return on investment
  = “impact”
  = profits for all the actors
- Short / medium term focus
- “Donors” = Investors?
- Publication
  - Journals or Patents?
- Integrators
  - “puzzles” = open innovation
  - service providers
- Output focused milestones
Barriers for PPPs (2/2)

Differences?

- Orphan crops vs global food crops?
  - Market size

- Research skills vs development skills
  - Business plan

- Deployment plan vs “make available” or “hand over”
  - Stewardship vs ... (especially for GM)
  - Development of regulatory process
  - Enabling rather than risking trade

- Sustainable increased production vs intensification at all costs
  - Sustainable practices ... for environment and markets
Breaking down the barriers

- Intellectual property / Licensing
  - Considering exclusivity, costs, management
  - Liability risks

- Market segmentation

- New models of financing
  - Overcoming competition for core funds
  - Retaining business rationale

- Paying for development costs
  - “Not for Profit” vs “Not for Loss”
    - International development funds, National governments, Foundations
    - Guaranteed purchase schemes & predictability in business planning
  - Investment in future customers
  - Short term pain for long term gain
Our challenge

● How to create “mutual benefit”?
● How to effectively deliver?
● How to share risks and create re-investable capital?
● As partners, how to present a unified vision of enhanced productivity?
● As partners, how to align to achieve strategic goals in innovation as opposed to just seeking tactical advantage?
● Messages to the public and the private sector:
  ● Chart out common ground
  ● Deepen understanding of relevance of cooperation in PPPs
  ● Set examples

A guidance framework to create and deliver PPPs in agricultural R&D will soon be published on the Syngenta Foundation site
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