



Access to Seeds Index
Report feasibility study

Amsterdam, March 26th 2012

BOER & CROON

Executive summary

The objective of this study is to determine whether the success of The Access to Medicine Index can be replicated in the seeds sector. Based on a four factor framework we determine whether it is feasible to adopt the Index model to the seeds sector.

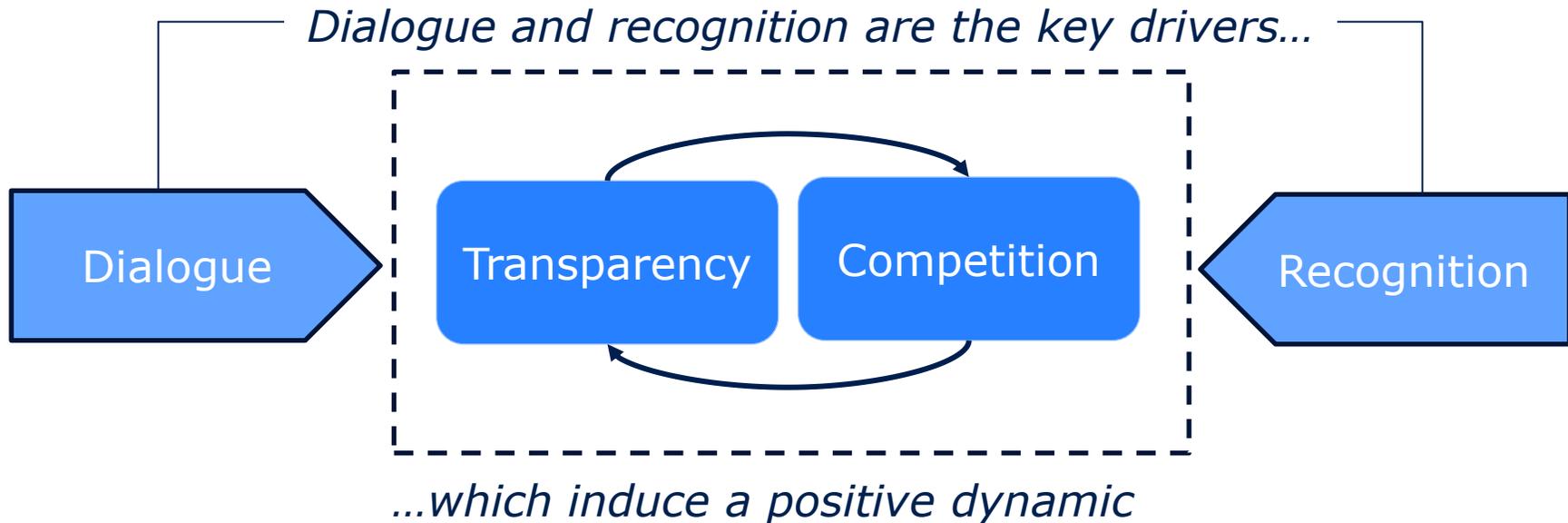
(1.) Access to Seeds as part of an integral agricultural development approach has positive impact on economic development and food (in)security and therefore is of key relevance for global sustainable development. (2) The agribusiness industry (of which the seeds sector is part) has a stake to improve their reputation and create new markets. Different visions exist about how and in which way the sector can contribute, which makes creating insight in best practices even more relevant. (3) The majority of the stakeholders is positive about the idea, but several complex issues should be bridged to ensure their engagement. Some stakeholders are critical because they expect that the Index will be used for green washing purposes. (4) Access to Seeds Index can add significant value because transparency can be improved and best practices could defined to leverage differences. Based on the transparency additional attention from investors and media can be expected, which are important incentives for the sector to participate.

Evaluating the four factors there seems to be clear added value to develop an Access to Seeds Index to contribute to a very relevant issue, create alignment about the seeds sector contribution and leverage to positive competition in the sector. Our recommendation is to go forward with arranging funding for an extended multi-stakeholder dialogue to define a common agenda. An approach has been formulated in which mitigation actions for several key risks indicated by the stakeholders are covered.

Access to Seeds Index

1.Introduction	Based on a four factor framework we determine whether the Access to Medicine Index model can be adopted in the seeds sector
2.Issue relevance	Access to Seeds as part of an integral agricultural development approach has positive impact on economic development and food security
3.Business engagement	The agribusiness industry has a stake to improve their reputation and create a new market, but the question is in which way they should contribute
4.Stakeholder engagement	The majority of the stakeholders is positive, but several complex issues should be bridged to ensure their engagement
5.Added value	Access to Seeds Index adds value because transparency can be improved and best practices can be leveraged
6.Conclusion	Evaluating the four factors there seems to be clear added value to develop an Access to Seeds Index
7.Recommendation	Our recommendation is to go forward with arranging funding for an extended multi-stakeholder dialogue to define a common agenda

The Access to Medicine Index has a unique model, in which dialogue and positive competition are key



- The Access to Medicine Index has a unique model, which differentiates itself through:
 - Focus on a specific issue
 - Stakeholder dialogue as basis for the development of the Index
 - A positive competitive dynamic through which best practices are spread and both leaders and followers are engaged

The Access to Medicine Index leveraged the contribution of the industry in the pharmaceutical sector

The Index has been successful in attracting investors en media attention and also the impact on the behavior of pharmaceutical firms is clearly seen:

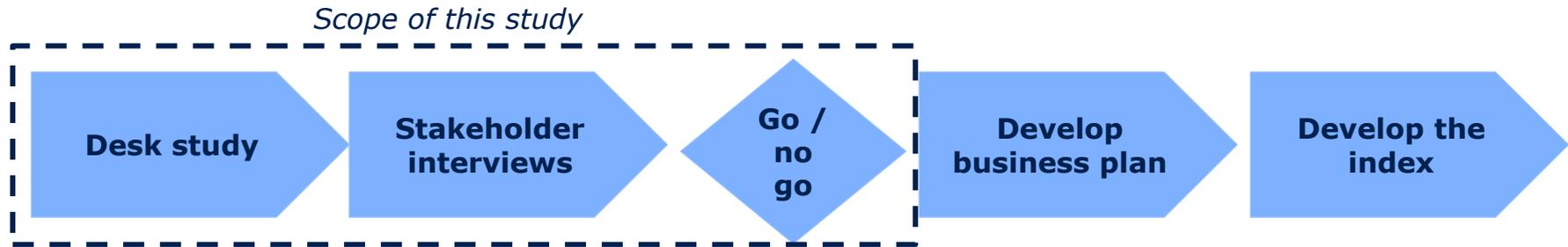
- The Lancet Infectious Diseases stated: “top pharmaceutical companies are engaging in *more initiatives to improve access to medicines* and are increasingly cooperative and transparent in sharing such information”
- To date, 27 worldwide investors have pledged their support for the Access to Medicine (ATM) Index brings the combined assets under management that have backed the Index to *\$ 3,3 trillion*
- The index has attracted *front page attention* from leading global news media, including the Financial Times, International Herald Tribune and New York Times

“The Access to Medicine Index is a very important project. What gets measured, gets done.” *Dr. Magaret Chan, Director World Health Organization*



“When I talk to executives from the pharmaceutical companies they tell me that they want to do more for neglected diseases, but they at least need to get the credit for it. The Access to Medicine index does exactly that.” *Bill Gates*

The purpose of this study is to determine the feasibility of this concept in the Seeds sector



- The Access to Seeds Foundation in cooperation with the Dutch Ministry of Economic Affairs, Agriculture & Innovation have asked Boer & Croon Consulting to perform a preliminary feasibility study into the leveraging the concept Access to Medicine to stimulate access to seeds in developing countries
- Deliverable of this project is a report which concludes on the feasibility of an index, as well as a high level view on how to implement the index
- Key elements in the agreed approach are:
 - A desk study of relevant documents from experts and the different stakeholders
 - 25 interviews with representatives of the industry and different stakeholders
 - Two workshops with the project team, when relevant supplemented with a limited number of independent experts

Our decision framework is based on four key factors to determine the feasibility and added value of an index

Decision framework: necessary factors for a positive impact of the index

1. Issue of relevance	<ul style="list-style-type: none"> a. Issue is of key relevance to global sustainable development b. Business sector contribution is needed
2. Business could be engaged	<ul style="list-style-type: none"> a. There is something at stake for business <ul style="list-style-type: none"> a. The affected business is substantial b. There are potential reputational risks b. A business contribution is thinkable <ul style="list-style-type: none"> a. An economical feasible business model is thinkable¹ b. Sector is already active
3. Other stakeholders could be aligned	<ul style="list-style-type: none"> a. Stakeholders are willingness to participate in dialogue b. Parties agree on problem definition and solution direction
4. Index would add value	<ul style="list-style-type: none"> a. Current efforts are not fully transparent b. Best practices and differences to be leveraged c. Issue attracts prime media attention d. Investors with social investment criteria interested in sector

1. Assumption is that a (semi-)commercial business model , if feasible, has most impact, however also a philanthropy / social responsibility model could have a positive impact

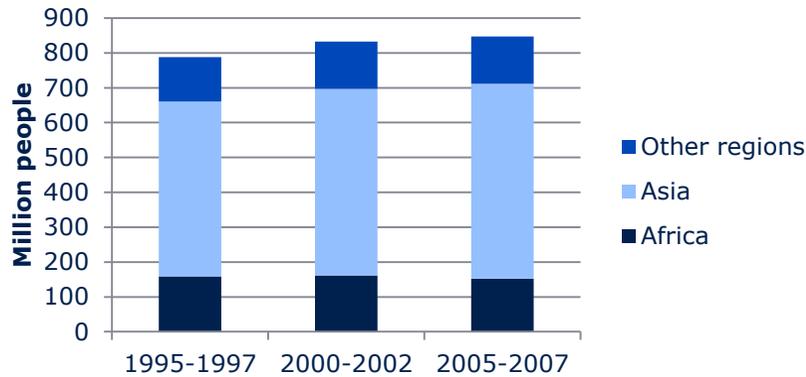
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Food insecurity is a key global issue at the moment and is expected to worsen in the near future

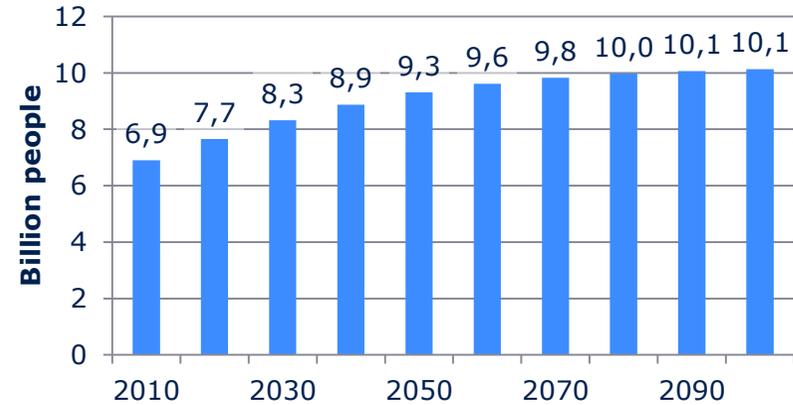
Current developments

Number undernourished people increases¹

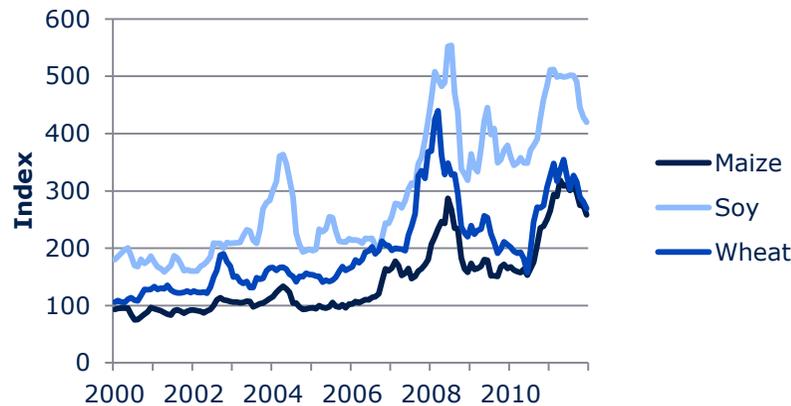


Future trends

Fast population growth induces a need³



Price volatility²



Climate change adaptation is needed

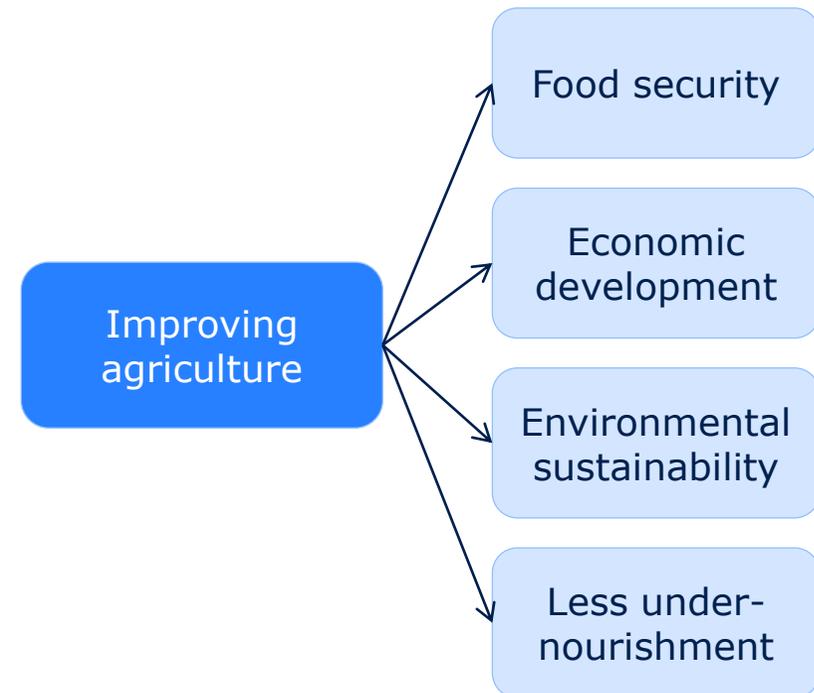


1. FAO statistics
2. Worldbank statistics
3. UN Dep. Economic and social affairs

Improving agriculture influences food security directly and on poverty alleviation

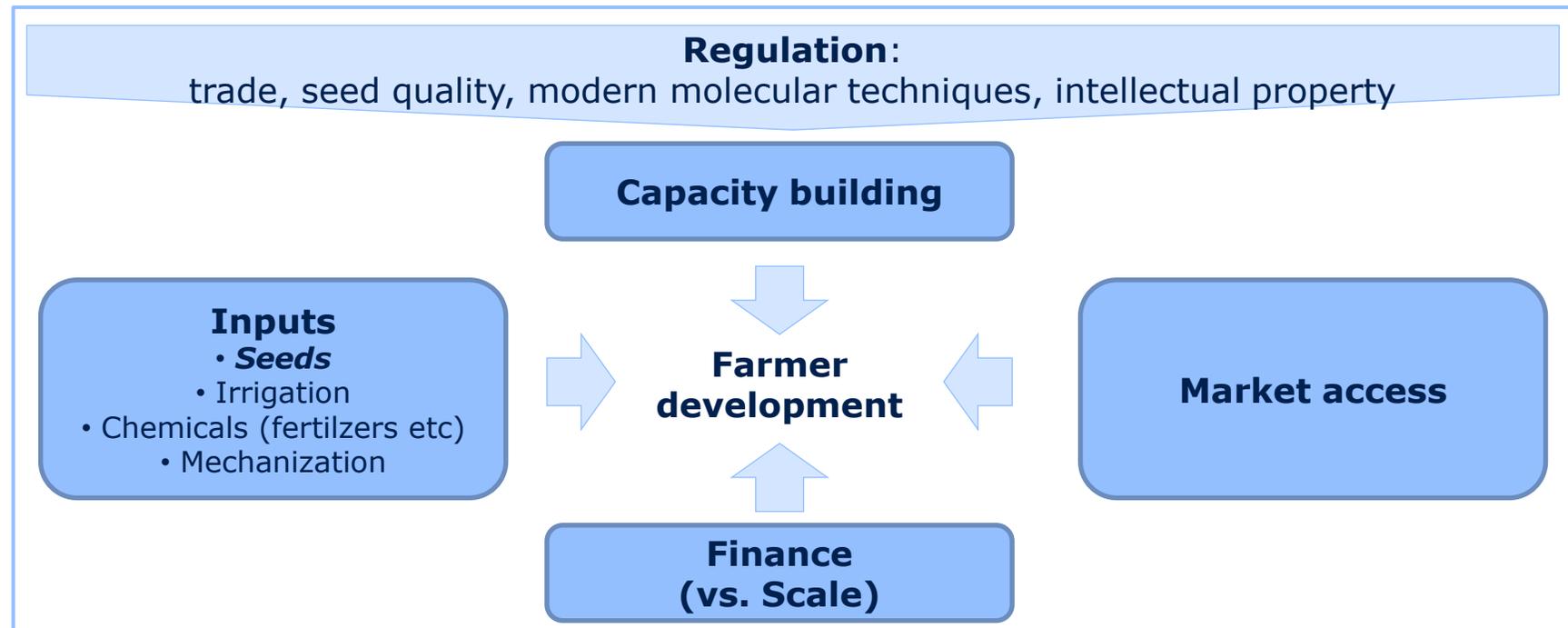
- Recent research has shown that agriculture is one of the most important drivers of development
- For example the Tracking Development research program showed that agricultural development is one of the key factors explaining the differences in development between South East Asia and Sub-Sahara Africa¹
- The recent insights have also induced a shift in development policies around the globe, which now focus more and more on agricultural development

Agriculture as catalyst of a sustainable future



Access to seeds is a key driver to develop agriculture, but needs to be part of an integral approach

- Experts agree that five factors are essential for developing the output of the current low output farmers: knowledge, market, inputs and finance
- Access to Seeds is a key part of improved inputs, however requires sufficient buying power to buy seeds upfront
- Experts differ on whether up scaling is needed to be competitive, because of potential negative side effects for the farmers who might lose their income¹



Upgrading the capabilities of smallholder farmers has the largest impact

A large difference exists between the large scale agriculture and the small commercial and smallholder farmers. More than 90% of the farmers in developing countries operate in a small scale model¹. Because of the large differences each segment in the market needs its own approach customized to the needs of the farmers.

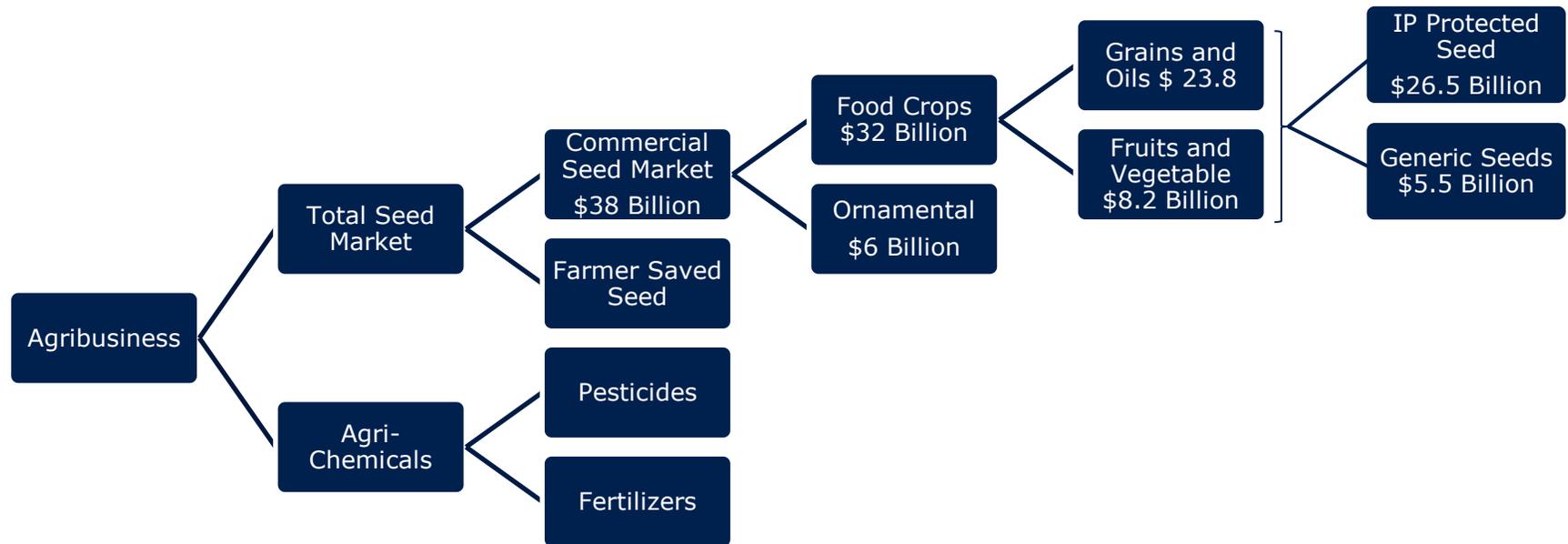
		Market access	Inputs	Financial strength	Capacity
<10% in LDCs ³	Large scale agriculture	Full export focus	Advanced inputs	High	Most advanced techniques
>90% in LDCs ³	Small commercial & emerging farmers	Partly commercial / export production	Limited application of improved inputs	Limited financial buffers	Some training / knowledge on improved practices
	Subsistence farmers	No market access	No access to improved inputs	No material savings available to spend on improved inputs	Only local / on the job training

1. Louwaars et al. in Harnessing IPR for development objectives, p. 247-257
2. FAO statistics
3. LDC = Least developed countries

Access to Seeds Index

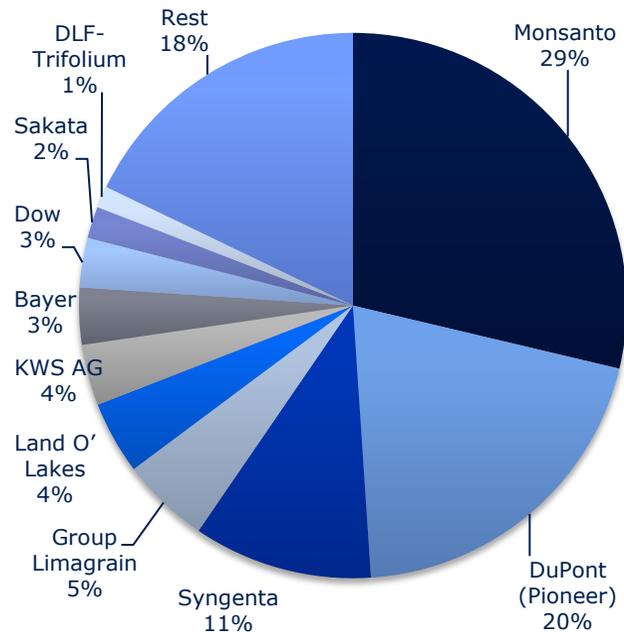
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The commercial seed market is an important part of the agribusiness market



- The commercial seed business has grown faster compared to agrichemical business in last decade
- The commercial seed market is further segmented into IP protected and generic seeds, with patented seed market taking the major market share (80%)
- Because of strategic advantage of intellectual property rights and growth opportunity, patented seed market is attractive for both the companies and investors

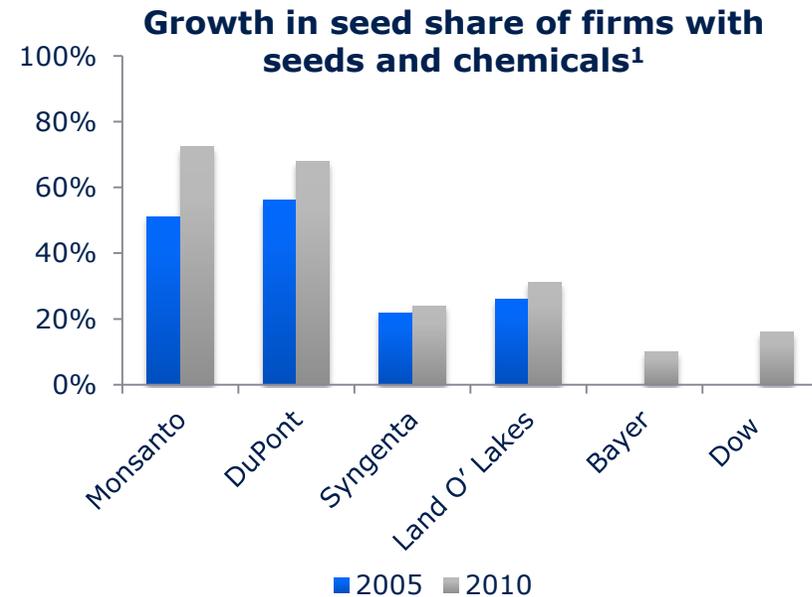
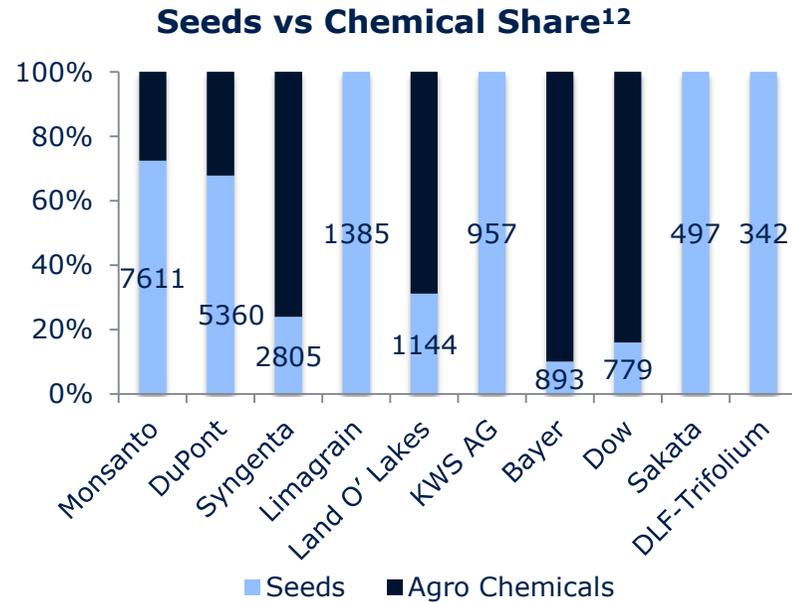
We focus on top companies as they dominate the seed market with over 80% market share



Country	Company	Seed Revenue	Market Share	Segments
	Monsanto	7611	29%	All
	DuPont (Pioneer)	5360	20%	Grains and Oil
	Syngenta	2805	11%	All
	Group Limagrain	1385	5%	All
	Land O' Lakes	1144	4%	Grains and Oil
	KWS AG	957	4%	Grains and Oil
	Bayer CropScience	893	3%	All
	Dow AgroSciences	779	3%	Grains and Oil
	Sakata	497	2%	Vegetables
	(...)			
	Rijkzwaan	293	1%	Vegetables
	Bejo Zaden	170	<1%	Vegetables
	Enza Zaden	130	<1%	Vegetables
	Rest	5068	20%	

- The seed industry is highly consolidated with top 10 firms having 80% of total proprietary seed market, with top 3 firms holding 60% market share
- The competitive dynamic is weak, especially in GMO market as 85% of the GMO seeds are from Monsanto and the companies to which it licensed¹

The seed business represents a large share of the business of the top companies and its share is growing

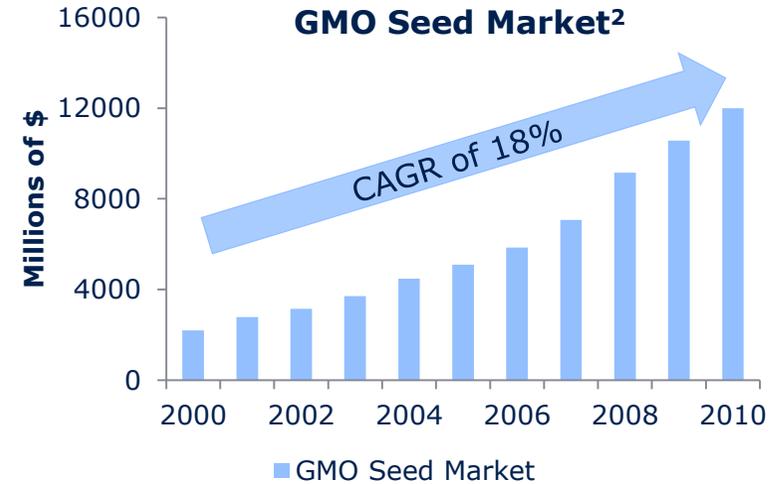
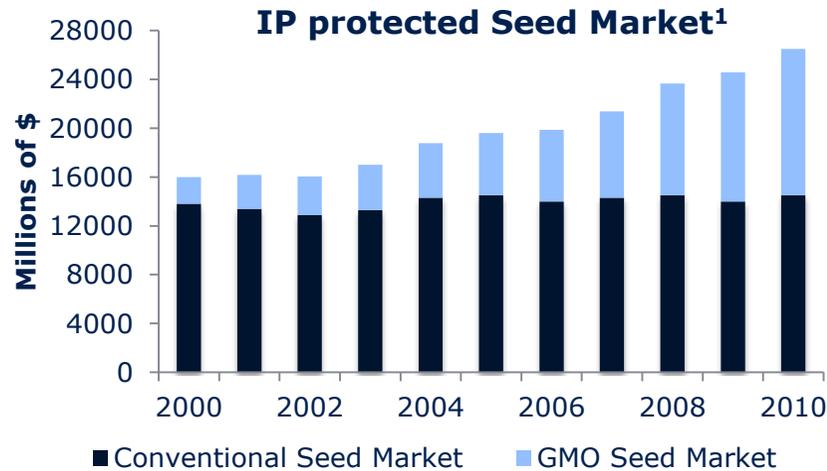


- Majority of leading companies have both seed and agrochemical business as most firms develop herbicides along with plant seeds that are resistant to those herbicides
- Five of the companies (in the industry Top10) have other business next to the two core segments in agribusiness (Dow / Dupont in chemicals, Bayer in pharma and Limagrain and Land O'Lakes in agriculture)
- In last few years the high growth in seed industry lead to the shift in focus of most of the firms to seed business, which is evident from increasing share of seed revenue in agribusiness

1. Annual reports from 2005 and 2010

2. Dupont, Bayer and Dow have presence in other industries as well and Agribusiness makes for 10% - 30% of total revenue

New molecular techniques and specifically GMOs are the driver for the growth of the IP protected seed market



- The IP protected seed market grew from \$16 billion in 2000 to \$26 billion in 2010, has two major segments –Conventional seeds and GMO seeds
- The Conventional seed market remained fairly constant in last 10 years at \$14 billion, while the GMO seed market grew from \$2 billion to \$12 billion in last 10 years
- This GMO seed market grew at 18% driving the growth of overall patented seed market
- It should however be noted that GMO is part of a whole array of new molecular breeding techniques for which the implications and risks differ largely per technique

1. The Global Agrochemical and Seed Markets Industry
Prospects, ETC Group

To capture this growth market, there seems to be a need to improve the reputation of the sector

"Seeds of change; Africa seeks to engineer an agricultural revolution"
FT June 3rd 2008

In Nepal, Farmers Struggle as City Dwellers Fight Monsanto
NY Times Blogs - Dec 6th 2011

"Biotech groups see modified crop boost"
March 7th 2008

Free trade leaves world food in grip of global giants
Guardian, January 27th 2005

Monsanto prospers on GM seed demand
FT January 5th 2006

GM food may spell the death of bio-diversity
New Strait Times, October 2nd 2011

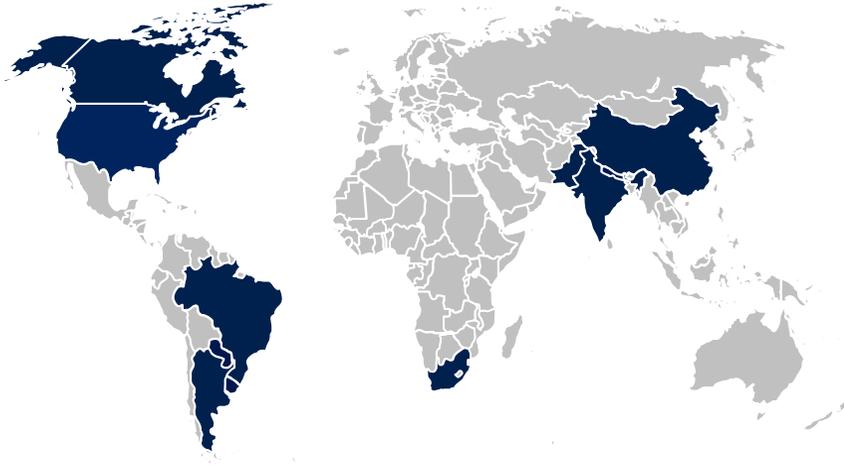
A Green Revolution for Africa?
NY Times, October 12th 2008

Report casts new doubt on 'miracle' of GM crops
Guardian, October 20th 2011

Monsanto - the black stain on the biotech industry
Guardian, August 11th 2011

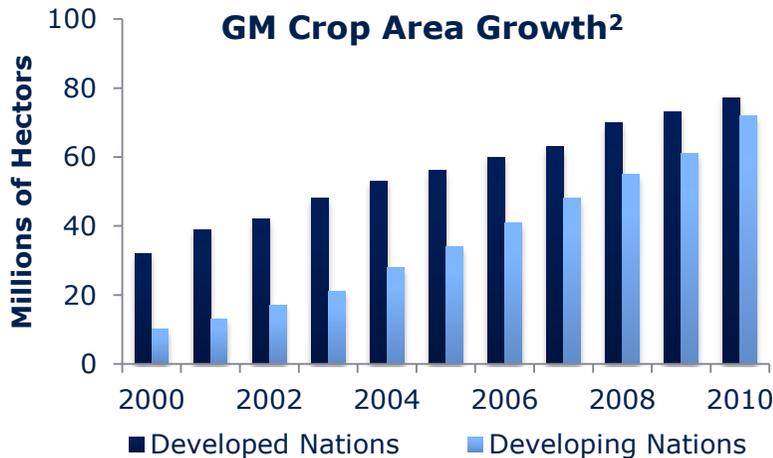
While South America and Asia are key growth drivers, Africa is still disconnected from this trend

Map of leading nations with GMO Crops



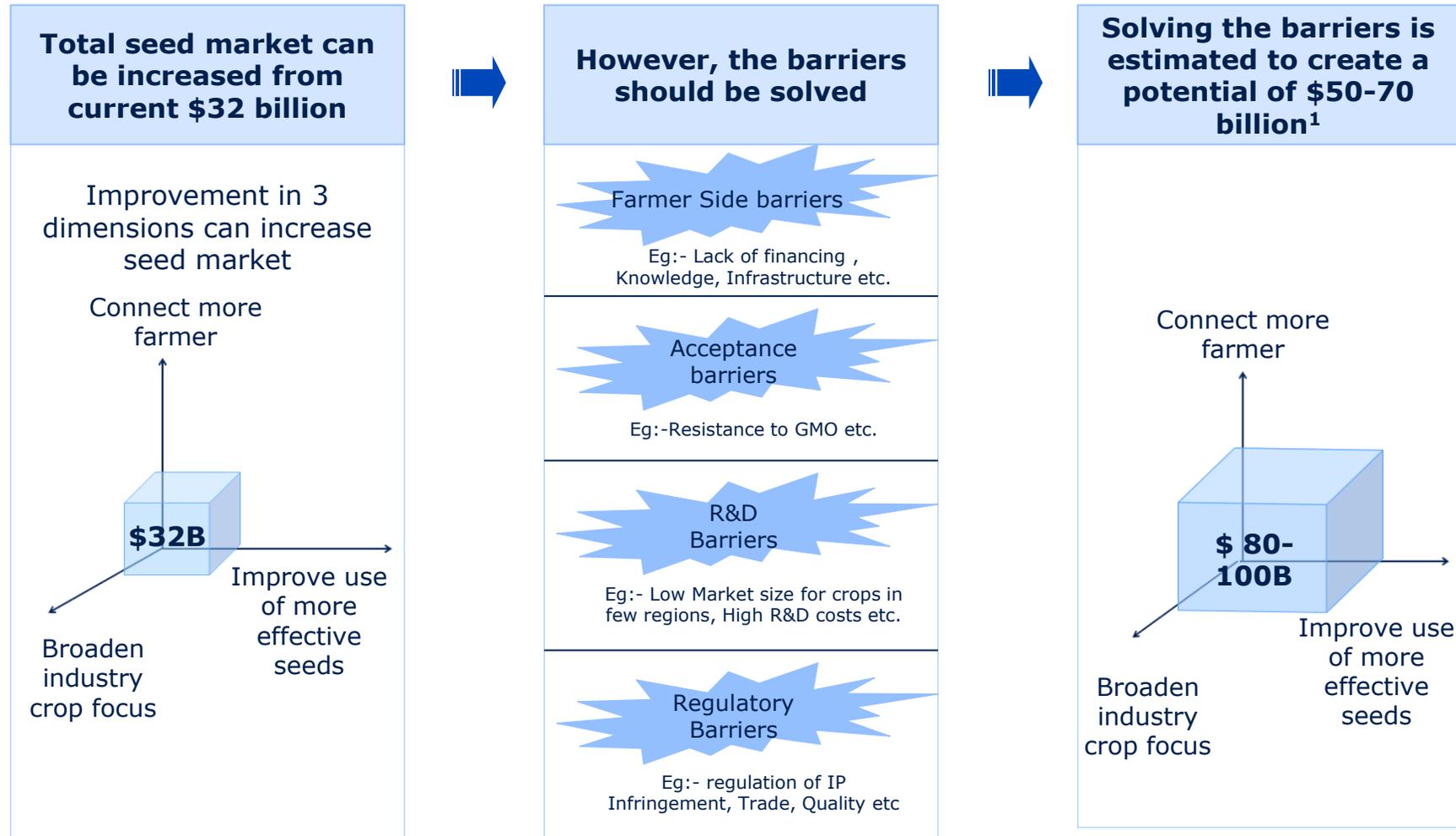
Country	GMO crops in Millions of Hectors ¹
USA	66.8
Brazil	25.4
Argentina	22.9
India	9.4
China	3.5
Paraguay	2.6
Pakistan	2.4
Uruguay	1.1

*Only the countries with over 1 Mil hectors of GMO and South Africa are shown in map



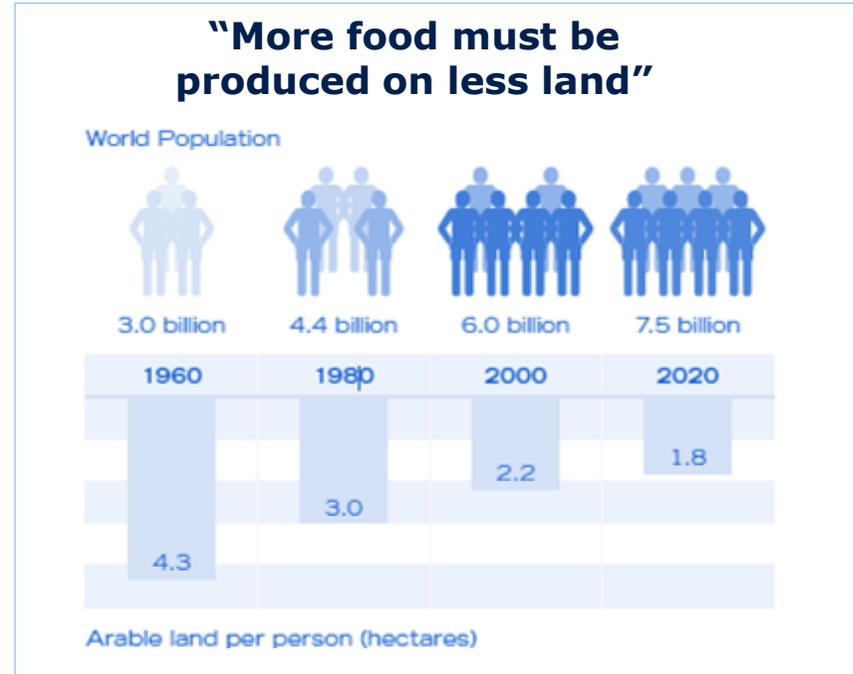
- In last 10 years, the growth of GMO crops in Asia and South America has grown faster than in developed nations
- Still no country in Africa has more than 1 Million hectares of GMO crop area, although in South Africa there is already a substantial market

From a long term perspective a large potential exists if the barriers could be solved



The top 10 in the industry frames R&D and rolling out the GM crops as the solution to food insecurity

- The industry, as is illustrated in their CSR reports and in the statements of representational bodies, clearly acknowledges the challenge to meet future food needs
- In these statements the yield improvement achieved in the past decades and the future potential of GMO is heralded as solution towards the large challenges*



Croplife, data from FAOstat

“Innovations are needed to meet the challenges of climate and human demand, such as biotech crops, innovative farming and management techniques, and improved crop protection products.”
(Croplife International¹)

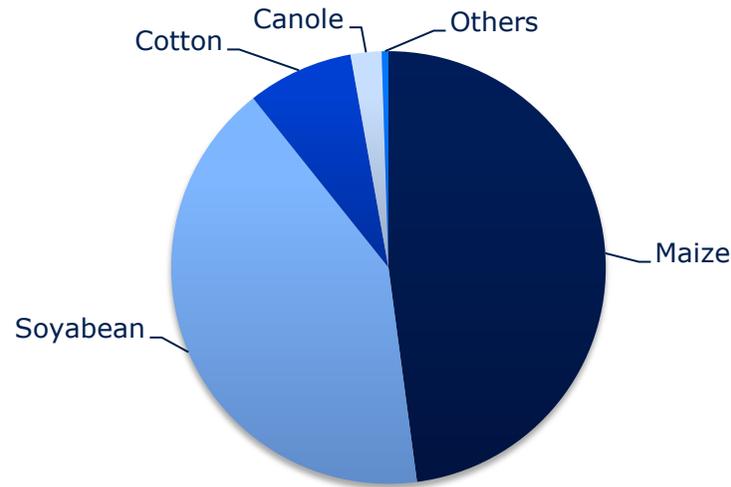
“To meet the demands of the future, farmers need to get more from every acre. And to help them, we’re working to double crop yields of corn, soybeans, cotton and spring-planted canola by 2030.”
(Monsanto)

1. Croplife International is the representational body for the leaders in Agribusiness

* This is the position of the large multinationals, refer to the next chapter for a critical view on this position from NGOs. Also note that GMO is part of an array of new techniques for the implications and risks differ largely per technique

R&D is not focused on most of the major African crops

% split of various GMO crops



Major African Crops based on area	Area in Mha ²
Maize	30.8
Sorghum	24.7
Millet	21
Beans	14
Cassava	11.8
Cowpeas	10.3

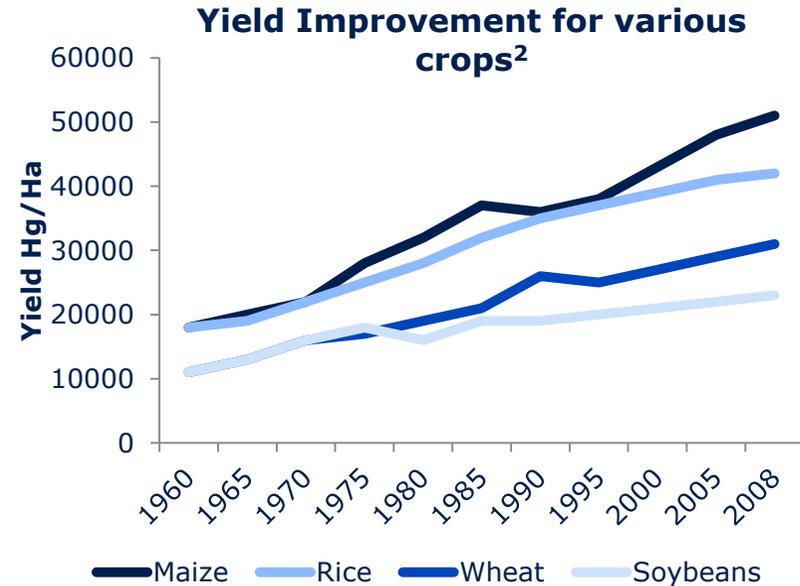
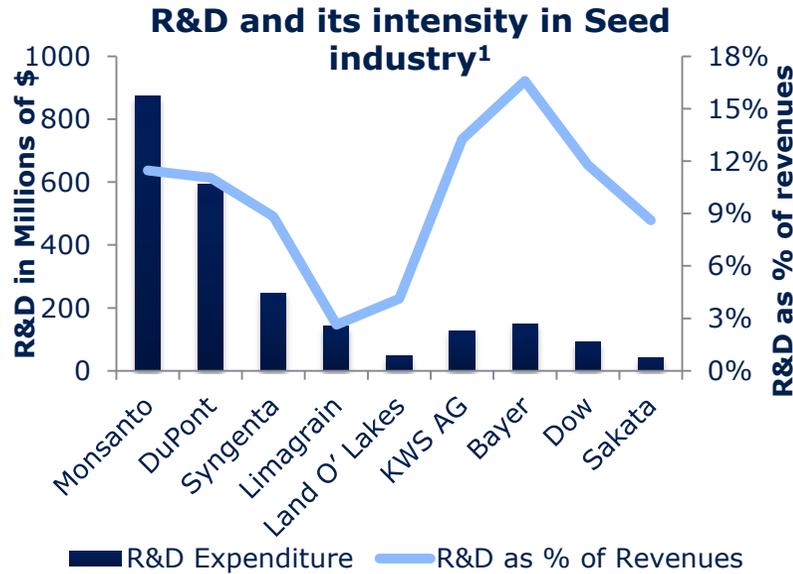
- Considering the current focus on the industry in terms of GMO crops , we can see that the focus is majorly on only 4 crops*
- African market which has other crops has not been the focus of the commercial activities of the industry leaders yet
- Recently an orphan crops consortium has been launched partly by industry leaders to increase to focus on this matter, this is however still in early stages and mainly considered philanthropy

1. Facts and figures – The status of global agriculture

2. [FAOSTAT](#) for 2010

3. GM Crops and traits at different stages of development in various African countries

Earning back the investment might be a barrier to broadening the crop focus in R&D



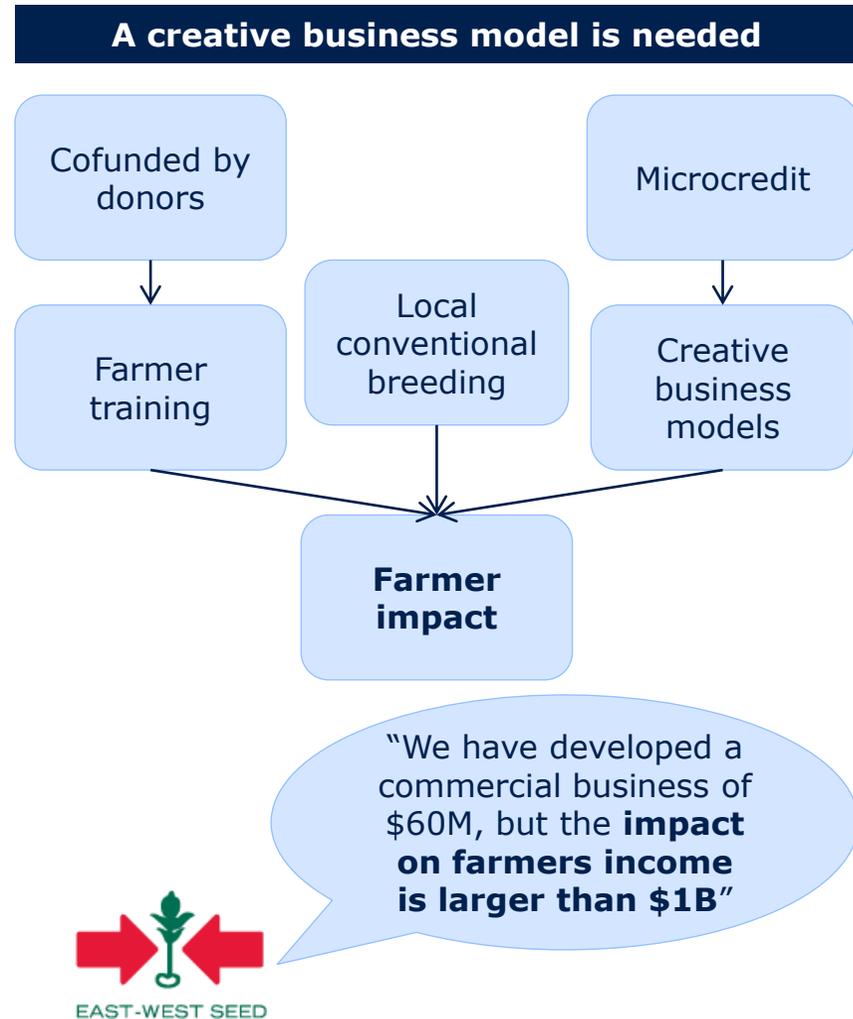
Subsector	R&D as % of sales ³
Biotechnology	21.2
Semiconductor	16.8
Pharmaceuticals	15.4
Software	14.6
Telecommunication	12.7
Seed Industry	11

- Seed industry is R&D intensive (like to other innovative industries). A new seed on average takes 10-15 year to bring to market and costs ranging from \$10-150M
- This could act as entry barrier for firms to expand research to other crops in Africa. Other new molecular techniques and advancement of research might however decrease the barriers in the future

1. Annual reports
 2. Facts and figures – The status of global agriculture
 3. The 2010 EU Industrial R&D Investment Scoreboard
 4. Study by Phillips McDougall commissioned by Croplife Int.

Horticulture seed companies show it is possible to build commercial ventures based on conventional breeding

- Especially in horticulture in South East Asia it has been shown that a conventional breeding approach could also be successful to address the needs of smallholder farmers with a commercial approach
- Reasons for this difference between horticulture and the top staple crops:
 - Market is too small for more complex and expensive GMO research
 - Most smallholders plant horticultural crops
 - There is a local market for crops
- Focus on horticulture would also be relevant because:
 - Horticulture has potential to create a balanced diet
 - Downstream market is less dominated by large commodity traders



Next to own R&D activities the sector also participates in development projects, public research and philanthropy

Next to their own core business leaders in the sector are typically engaged in *three types of other CSR activities**:



Participate and setup development projects

- *Example:* the Small Farmer Syngenta (PAS) Program has provided training on seeds and chemicals use to 270.000 farmers (*Syngenta*)
- *Example:* help a total of 65,000 farmers grow vegetables on an area of 50,000 hectares in 125 individual projects by the end of 2011. For the farmers, this means higher yields, better quality, larger-scale sales opportunities and an improved income (*Bayer*)



Participate in and donate knowledge to public research projects

- *Example:* DuPont is partnering with Africa Harvest Biotech B23Foundation International to develop a more nutritious sorghum to help feed the 300 million people in rural Africa that rely on it for daily nourishment.
- *Example:* has donated rights to a gene-altered corn variety designed to resist drought so that it can be adapted for Africa (*Monsanto*)



General philanthropy activities

- *Example:* offered corn and vegetable seeds, valued at over \$4 million, to Haiti's Ministry of Agriculture free of charge for planting by Haitian farmers (*Monsanto*)
- *Example:* KWS: will provide €750k next five years to preserve genetic resources in Peru (*KWS*)

Source: Based on CSR report analysis of the top 10 leading companies in the sector

* Materiality of these activities is questioned, however due to lack of transparency we cannot value these arguments

There seems to be a stake for the agribusiness firms, but there is discussion about how and when

- In general sense there seems to be a stake for the agribusiness firms to address the needs of smallholder farmers in low income countries, because:
 - Seeds is an important part of their business
 - Current growth is limited by reputational matters
 - There seems to be a large market from a the long term perspective
- Whether this should be a philanthropic or a commercial approach on short term is matter of discussion. Also whether it is happening now or in ten years also divides the participants. There are however people who see commercial perspective even in many markets already now

"We are on a commercial strategy to develop markets in Africa. On the long run we expect a new green revolution"

Industry representative¹

"Africa is not our priority, because there is still so much growth potential in the developed and emerging markets"

Industry representative¹

"Eventually these farmers become our customers"

Industry representative¹

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Agricultural development is clearly a theme for government, NGOs and science



Eradicate extreme hunger and poverty

Millennium Development Goals, UNDP

- Agricultural development is on the agenda for government, NGOs and science:
 - It is a key part of the millennium goals
 - Donor countries and governments in developing countries are spending massive amounts on agriculture. In Asia, quoted as example of where agriculture spend has leveraged development, in 2002 \$ 191 billion was spend on agriculture¹
 - NGOs have agricultural development and food security among the key priorities of their programs
 - A considerable amount of scientific programs are run on agricultural improvements. In 2000 the cumulative public spend \$ 23 billion²
- There are however a considerable number of controversies about the agenda and business' role in it which are discussed on the following slides

1. DFID / Worldbank, 2007

2. IFPRI, 2008

Genetically modified seeds* are controversial for many reasons and gains are contested

20 NGO's: "Genetic engineering has failed to increase the yield of any food crop but has vastly increased the use of chemicals and the growth of "superweeds"."¹

- A considerable number of controversial issues attached to genetically modified seeds
- NGOs, industry groups and scientists seem to take different position and no consensus seems to be arising

Pro*	Con*
<ul style="list-style-type: none">• Essential for provision of food security^{2,3}• Demand for food further increased by impact of climate change^{2,3}• Yield improvement^{2,3}• Less chemicals needed^{2,3}• Less water use^{2,3}• Resistance to diseases^{2,3}	<ul style="list-style-type: none">• Yield improvements are contested²• Hybrid seeds increase dependence of farmers on industry²• Power concentration with a few companies²• Environmental sustainability: induces heavy use of chemicals and depletes soil• Biodiversity: genetically variety decreases due to dominance²• Genetic pollution: genes spread themselves²• Bio piracy: foreign companies are patenting local heritage²• Health risks remain controversial²

1. Guardian October 20th 2011, based on report of 20 NGO's

2. Based on media reporting by Guardian, New York Times, Financial Times & New Straight Times in 2011

3. CSR reports of industry leaders, CropLife publications

* It should be noted that GMO techniques are part of a whole array of techniques for which the implications differ per technique

There is a controversy on Intellectual Property Rights and its impact on development

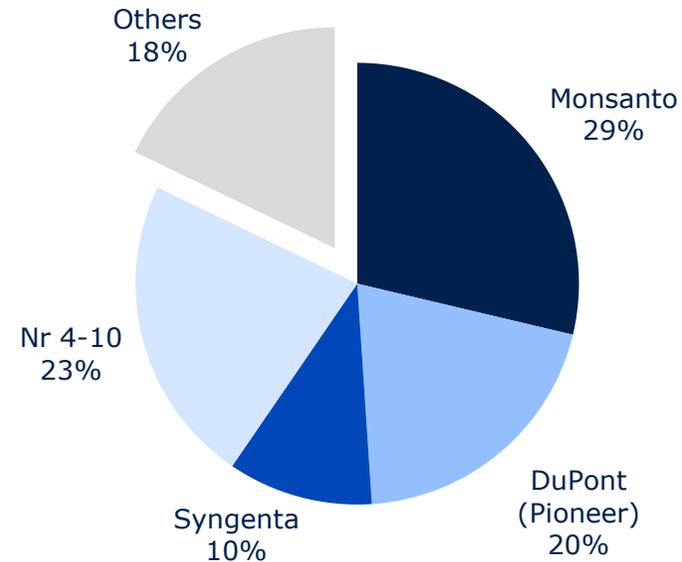
- There is a controversy on how to protect the interest of commercial firms breeding and developing new seeds
- The position of the industry is not always evident and transparent, but most of the larger firms support the patent protection system

	Breeders rights	Patent protection
Characteristics	<ul style="list-style-type: none">• Protects end product• Farmers privilege: restricted free saving of seeds• Breeders exemption: seeds are freely available for further breeding	<ul style="list-style-type: none">• Both end product and seed are protected for a specified period in time• Seeds can be licensed to other parties or not
Advantages	<ul style="list-style-type: none">• Interaction between different researchers leads to more variety• Farmers can save their own seed• Lower administration costs	<ul style="list-style-type: none">• Large investments are better protected
Disadvantages	<ul style="list-style-type: none">• Application of GMO might be limited due to difficulties with earning back investments	<ul style="list-style-type: none">• Strategic patenting blocks smaller firms and raises entry barriers

The contribution of agribusiness firms is said to make farmers rather dependent on a few global firms

- New GMO crops have a few characteristics which make farmers potentially more dependent on the agribusiness firms²:
 - Hybrid seeds are not suitable to be re-sown, inducing the need to buy new seed each harvest
 - Seeds are often designed to work most effective with the chemicals of the own company
 - Prices are higher than conventional seeds, increasing the financial risk and pre-finance burden for the farmer
- On the agribusiness side high R&D cost and complexity of patents induce high entry barriers²
 - The industry is highly consolidated with top 3 having more than 50% share of the market and top 10 more than 80% of the market¹

A few global companies dominate the industry¹



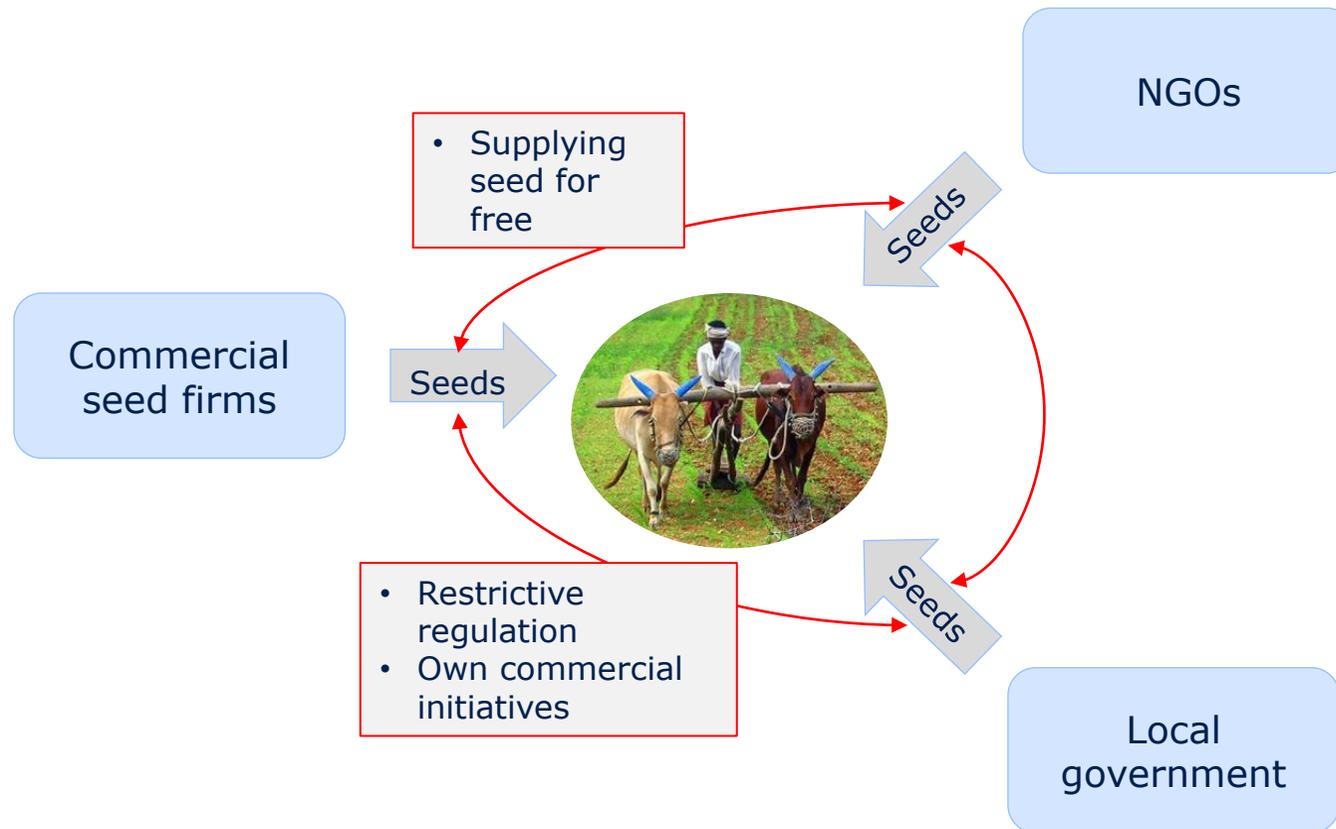
"It's a question of making poor people reliant on external inputs to succeed in feeding their families. Once farmers are on a chemical treadmill, they find it hard to get off."

Ruchi Tripathi, ActionAid, head of food rights

1. Market analysis based on annual reports
2. Based on media reporting by Guardian, New York Times, Financial Times & New Straight Times in 2011

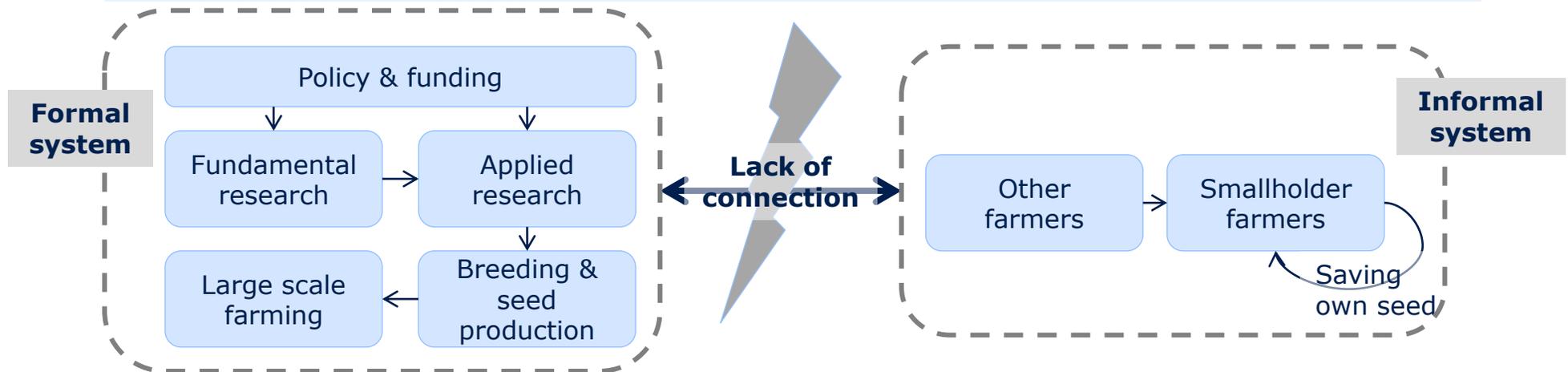
In research and distribution companies sometimes have to compete with public initiatives and NGOs

Both at research level as well as in distribution governments, NGOs and commercial ventures compete with each other¹, which makes it difficult to get the parties aligned



The current formal seed improvement system is not reaching the smallholder farmer

“In the area of seed policies, the dominant paradigm of agricultural development favors the strengthening of intellectual property rights in order to promote and reward innovation by the private sector, combined with the provision of improved seed varieties to farmers in order to help them produce higher yields. But this model may **leave out precisely those who need most to be supported**, because they are the most vulnerable, living in the most difficult environments.”²

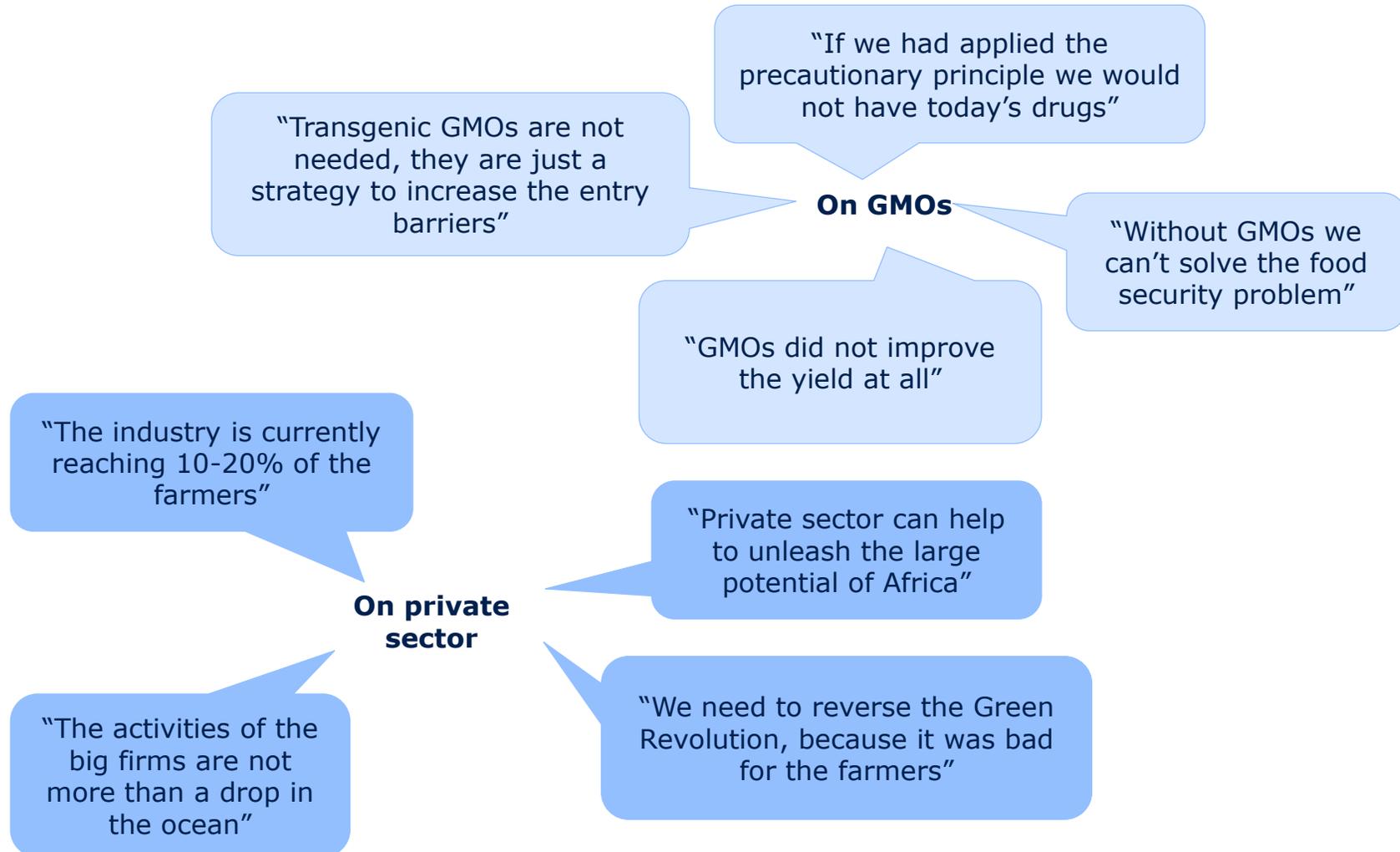


- Large parts of the agricultural market in developing countries are not reached by the improvements of industry. This could be a reason to doubt the potential contribution of the industry.
- Other stakeholders stress that this could be approached by focusing in short term on upgrading the capabilities of small commercial farmers and facilitating the trickle down towards the subsistence farmers on a longer term horizon.

1. Louwaars et al. in Harnessing IPR for development objectives, p. 128

2. Olivier de Schutter, HRQ, May 2011

Many stakeholders with very different opinions are engaged with agricultural development



Most stakeholders are positive or constructively critical

The position of the different stakeholders with regard to an Seeds Index can be summarized in the following stereotypes*:

	Stake & approach	Willingness
Positive NGOs	<ul style="list-style-type: none">• Focus on developing value chains• New PPS models	Positive
Critical NGOs	<ul style="list-style-type: none">• Supporting participatory local for local breeding• Engaging large scale firms on open access, GMO and environmental matters	Critical - strongly critical
Donor governments	<ul style="list-style-type: none">• Food security and climate adaptation as core issues• Renewed focus on agriculture and private sector engagement	Positive
Local governments	<ul style="list-style-type: none">• Divergent attitudes and approaches• Ensuring local share of added value	Differs
Plant science	<ul style="list-style-type: none">• Strong focus on developing GMO techniques• Involvement in orphan crops research	Positive
Development science	<ul style="list-style-type: none">• Strong focus on integral approach• Innovative PPS models considered	Positive - critical

Source: interviews

* This is necessarily a stereotypical summary, however gives a good impression of the contrasts in stakes

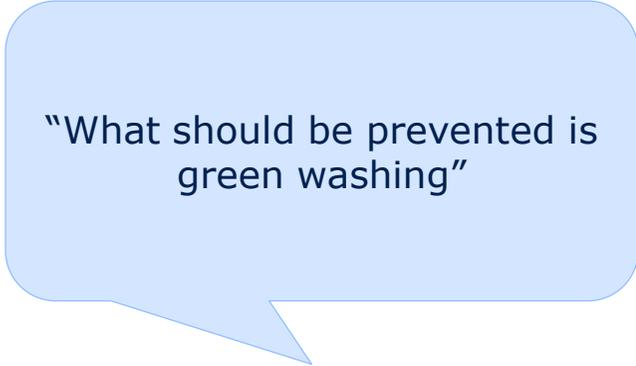
It seems possible to align a substantial part of the stakeholders, but the process might be lengthy

- A substantial part of the stakeholders is positive to constructively critical. Therefore it seems possible to start a process to align the stakeholders more
- Most interviewees indicate that one should be prepared for a lengthy dialogue considering the controversies and a long history with multiple dialogues
- Preventing that this will be a green washing initiative is critical. It should also be ensured that there is a role for the local businesses in the dynamics as well



"There is a need for a dialogue about the private sector contribution"

NGO¹



"What should be prevented is green washing"

NGO¹

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The transparency of the efforts of the sector considering Access to Seeds can be improved

Goals are most of the time **qualitative** or **long term**

Example: to help them, we're working to double crop yields of corn, soybeans, cotton and spring-planted canola by 2030. (*Monsanto*)

Example: To innovate to produce more and better sustainably (*Limagrain*)

Reporting is often on **case** based or **macro level**

Example: Filipino farmers have earned an additional \$88 million U.S. from planting biotech corn (*Monsanto*)

Initiatives are often in **foundation** and partly funded by **government**

Example: To date, our efforts have improved the quality of life for millions of people in 76 nations through more than 60 projects funded primarily by USAID and USDA. (*Land o Lakes*)

Reporting is sometimes at **aggregate level**

Example: Dow and DuPont are publishing sustainability reports at group level where there is limited attention to the food security theme

Within the sector best practices exist which seem to be not yet adopted by all firms in the sector

	Example	Best practice identified ¹
Public private research cooperation	<p>“DuPont is partnering with Africa Harvest Biotech B23Foundation International to develop a more nutritious sorghum to help feed the 300 million people in rural Africa that rely on it for daily nourishment.”</p>	
Core business approach	<p>“Our strategy is based on breeding appropriate varieties by living and working in the markets we serve. From our early work in the Philippines, we have expanded to include breeding programs in Thailand, Indonesia, Vietnam, India and China.” <i>(EastWest)</i></p>	
Integral approach to development	<p>“Through our demand-driven, value-chain approach to agricultural development, Land O’Lakes helps farmers access markets and boost productivity, thereby enhancing their incomes and improving household and community food security.”</p>	
Open source IP policy	<p>“It is our policy not to execute our patent rights where agriculture is undertaken for subsistence purposes and we do not enforce patents and applications in seeds or biotechnology in Least Developed Countries (LDCs) for private and non-commercial use.” <i>(Syngenta)</i></p>	

1. Source: CSR reports of industry leaders. **Due to lack of transparency the identified examples are not necessary complete**

Compared to the pharmaceutical sector there are aspects to which less focus is given in the seeds sector

	Positive points	Improvement points
Governance	<ul style="list-style-type: none"> • Framing the food security issue as key challenge 	<ul style="list-style-type: none"> • Quantitative mid term commitments • Quantitative reporting on development initiatives
R&D	<ul style="list-style-type: none"> • High yield and resource efficiency improvements for a few crops 	<ul style="list-style-type: none"> • Contribute to orphan crops research
Intellectual property	<ul style="list-style-type: none"> • A number of donations of IP 	<ul style="list-style-type: none"> • Solving IPR controversies • No disclosure of value of IP donation • No disclosure on licensing agreements
Distribution	<ul style="list-style-type: none"> • Involved in capability development projects 	<ul style="list-style-type: none"> • No differential pricing strategies¹ • Scale and extend unclear development activities unclear
Partnerships	<ul style="list-style-type: none"> • Participating in R&D partnerships 	<ul style="list-style-type: none"> • More cooperation with development NGOs
Philanthropy	<ul style="list-style-type: none"> • Considerable philanthropic donations 	<ul style="list-style-type: none"> • Working more together rather than individual projects. Also making the outputs more transparent and ambitious

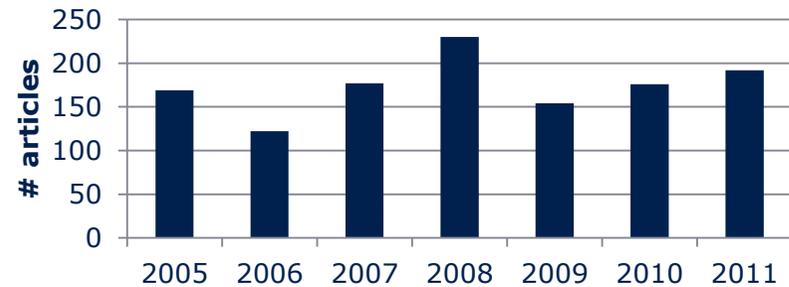
Source: CSR reports of industry leaders benchmarked on the best practices included in the Access to Medicine Index

1. Considering that there has to be R&D for local conditions, the potential will be less

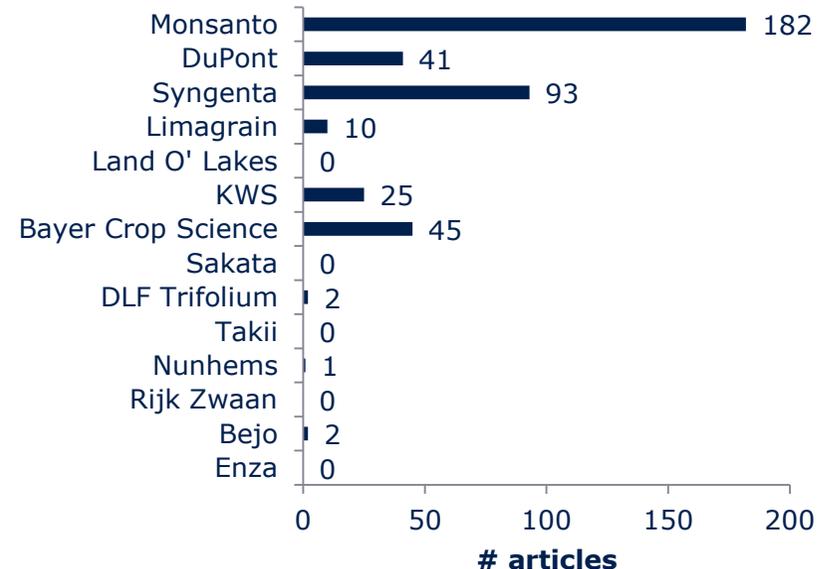
The index can attract substantial media attention, because it is clearly framed as an important theme

- In seven leading newspapers on global scale the theme of seeds and development attracts substantial attention. On average 4 to 5 articles per week are published
- Especially the three leading firms attract attention. Monsanto is mentioned explicitly in the headlines of articles and also Syngenta and DuPont (Pioneer) attract a considerable amount of attention
- Considering the framing in the media already takes place it seems likely that attention could be attracted

The theme receives substantial attention¹



Especially top3 draw attention¹



1. Number of articles, '05-'11, based on media analysis on seeds and development in The Canberra Times, The Strait Times, Wall Street Journal, Financial Times, The Washington Post, The Guardian, The New York Times

There is potential to influence the industry through investors, but the issue is not on top of the agenda yet

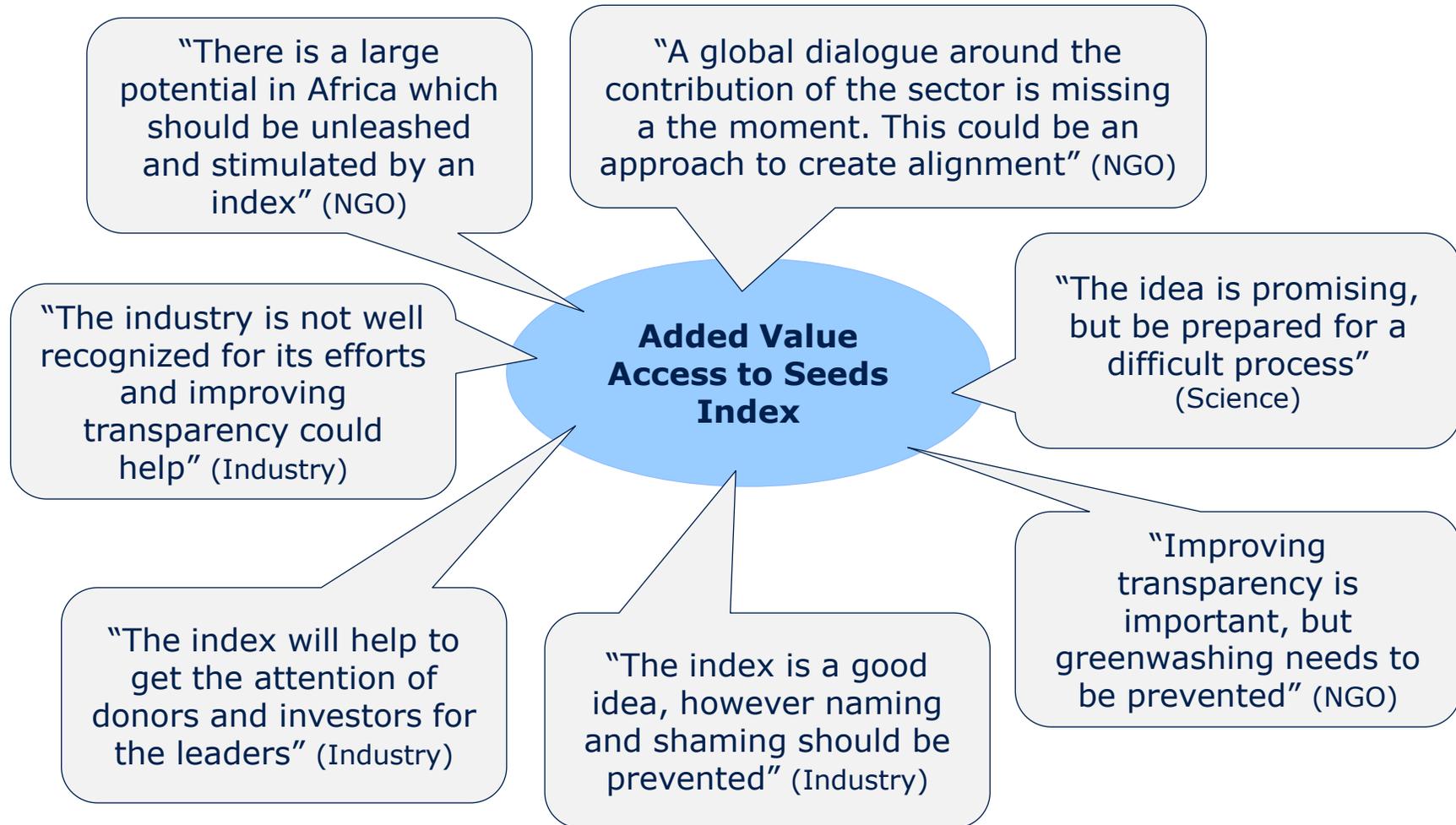
- An important target group for the index would be the investors using ESG (Environmental-Social-Governance) criteria as part of their investment strategy. For the leaders in the Agribusiness sectors we found a substantial stake owner by ESG investors
- Leading ESG investors are engaging Agribusiness on for sustainability and ethical behavior issues. The issue of Access to Seeds is at the moment not yet framed as prominent part of the agenda
- Factors which can help to leverage the investors value of an index
 - Broad issue scope
 - Link with current sustainability and reputation risks
 - Global approach
 - Media attention
 - Multiple indices from one supplier (synergy with Access to Medicine)

Seed Company	Leading Investors with ESG ¹ criteria and their share	
Monsanto	Vanguard	4.0%
	Blackrock Institutional Trust	2.4%
Syngenta	Macquarie Group Limited	1.2%
	Scout Investments Inc.	0.3%
KWS	Danske Capital	1.1%
	Deutsche Bank (China) Co	0.9%
	Fortis Investments (BE)	0.5%
Sakata	Schroder Investment	7.3%
	Dimensional Fund	0.9%
	Lombard Odier Darier	0.2%
	JPMorgan Asset Management	0.2%

* We picked top 10 investors into each of the seed companies which are public and have only agribusiness

“Access to Seeds is not on top of our agenda, but an index would certainly leverage the issue” (Investor)

The interviewees stressed the potential contribution and the need for a balanced approach



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There are a number of differences which make the process in Access to Seeds more complex

Factor	Access to Medicine	Access to Seeds
Size	\$ 400 billion	\$ 32 billion
Role of companies	Only big Pharma can develop drugs for the 2 billion people in need	Also local breeders of seeds exist. Seeds need to be adjusted to local circumstances and needs
Differences between firms	Big differences exist	Differences exist
IP	Global patent system	Two systems and not global
Abuse of power position	Low- Medium competition of generics	Varies from low – high, monopolistic for esp. GMOs
Contribution	Medicines solve 80-90% of the problem (cure the disease)	Seeds are part of an integral approach to solve the problem
Stakeholders	ATM on the radar	Not as specific issue on the radar
Priority of funders	Yes	Yes, even bigger than Medicines
Added value Index	Transparency, Accountability, LT: proxy for economic value	Transparency, Accountability, LT: proxy for economic value?

 = considerable difference

The relevance of the issue and the potential added value justify the effort needed to align the stakeholders

Factor	Aspect	Conclusion	Notes
Relevance	Societal relevance	++	Impact on Food security & development
	Business input	+	Seeds is key factor. Focus needed on small farmers.
Business	Stake	++	Reputation issue & growth market
	Feasible	+ / -	Discussion on whether this could be commercial activity at this point in time
Stakeholders	Problem definition	-	Key controversies exist to be solved in a dialogue
	Willingness	+ / -	Large differences among stakeholders positions
Added value	Transparency	++	On commitment and results level reporting can be improved
	Best practices & differences	+	Patent policies, core business, integral approach, orphan crops
	Media	++	Clearly framed in leading newspapers
	Investors	+	Index can leverage attention and impact of ESG investors

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There is a need for a new green revolution to induce food security and economic development

“The number of undernourished people increased with 20 since 2000”¹

“Demand for food is projected to rise by 70 per cent by 2050”¹

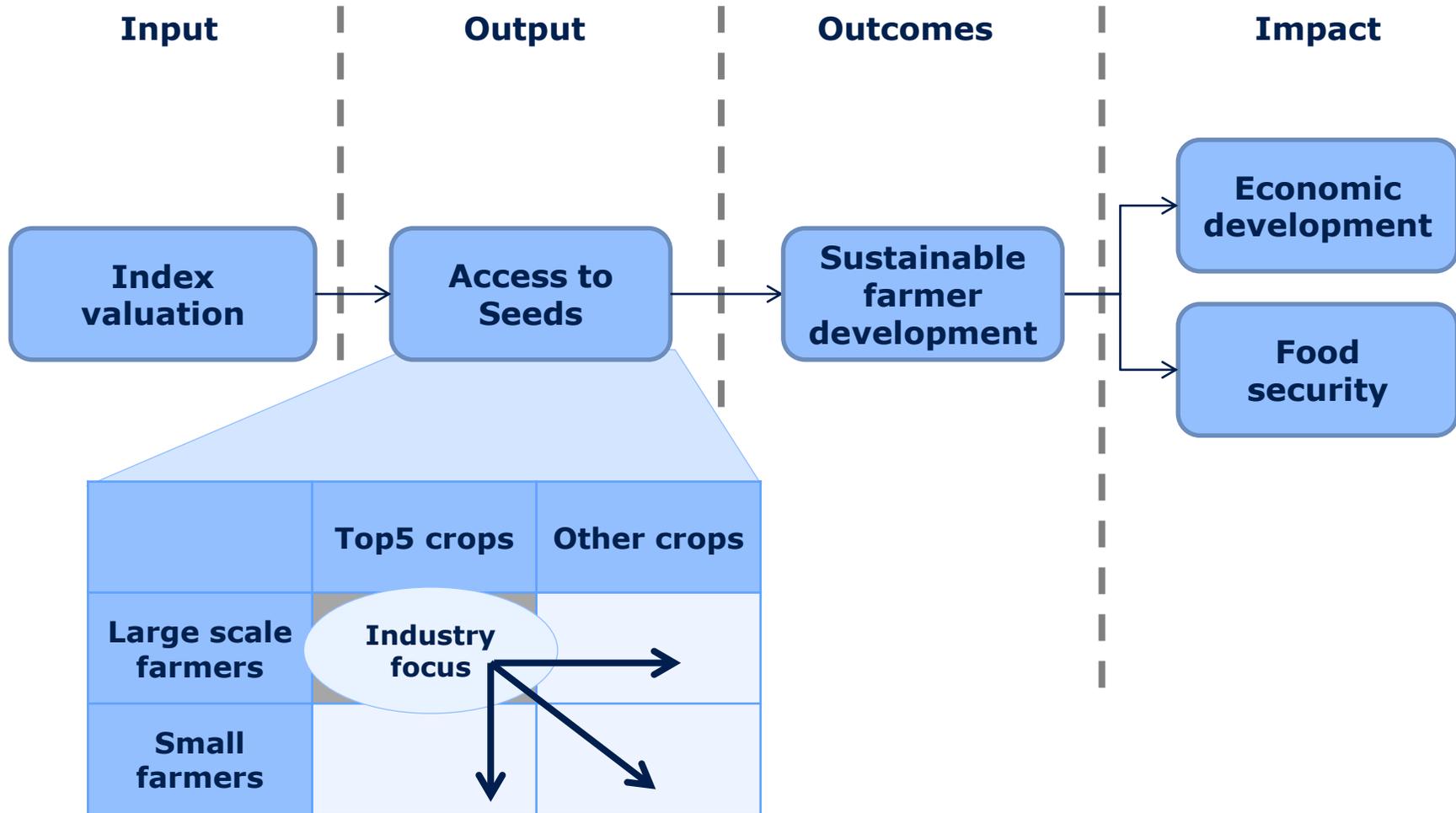
“A new Green Revolution is needed”

“Food security is the state achieved when food systems operate such that “all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life”
(FAO)

“Agriculture development has been the foundation under the development of Asia”²

1. UN SecGen’s High-level Panel on Global Sustainability, 2012
2. Tracking development research program / NRC
3. Interviews

Access to Seeds Index can help to induce a dynamic in the Agribusiness sector to support this green revolution



Best practices have been identified which can be leveraged with an index to improve the impact

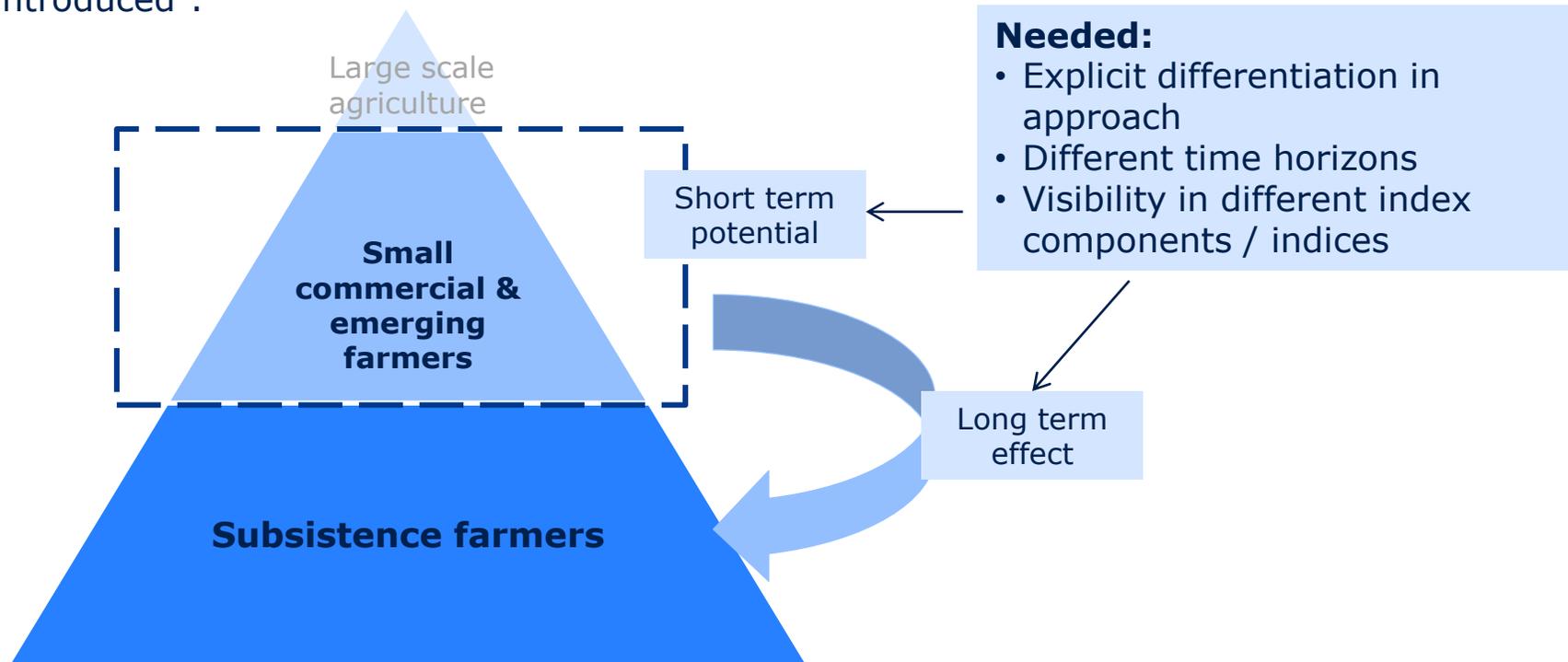
Focus is of the Index is to induce a broading dynamic towards more attention for smallholder farmers and other crops. A balanced index should however include identified best practices concerning all quadrants.

	Top5 crops	Other crops
Commercial farmers*	<ul style="list-style-type: none"> • Open Access IP • Stop strategic patenting 	<ul style="list-style-type: none"> • Local conventional breeding programs • PPS
Smallholder farmers	<ul style="list-style-type: none"> • Capacity building • Value chain leadership • PPS • New business models 	<ul style="list-style-type: none"> • Capacity building • Funding and capacity building local research • Donate IP

*: one of things which need to determined in the next phase is whether the scope of the index will be limited to low income countries or also practices in middle to high income countries will be included

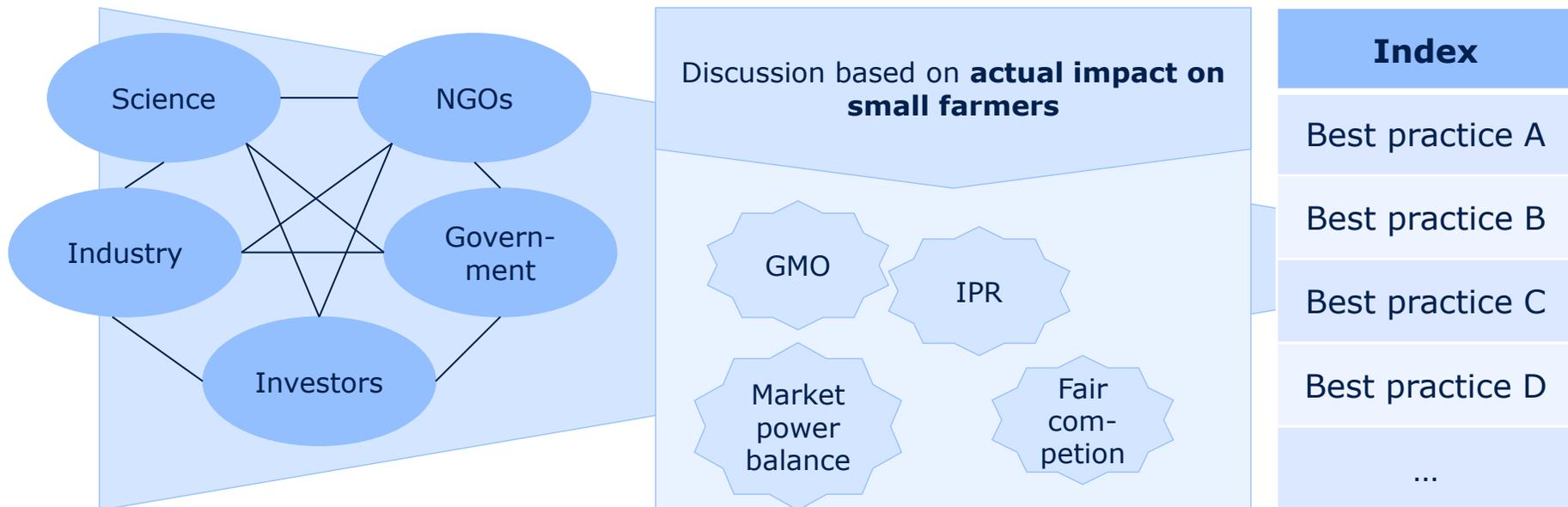
The index needs to incorporate the different needs of small commercial and subsistence farmers

During the workshop discussions it was considered crucial to incorporate the different needs of small commercial (& emerging) and subsistence farmers. The contribution of the industry on short term can be largest to the small commercial (& emerging) farmers. To ensure focus on both types of farmers and to create transparency of the different requirements different categories in the index or even different indices could be introduced*.



First need is to start the stakeholder dialogue on best practices based on the actual impact on small farmers

- A number of controversies exist between the different stakeholders. First step will be a dialogue to develop a shared vision between the stakeholders
- Overarching question will be what the industry can do to leverage sustainable development of small farmers. The objective will not be to agree on a comprehensive vision on all issues, but to determine what is the best practice in terms of actual impact on small farmers.



To capture the momentum it is important to ensure funding to start the stakeholder roundtables

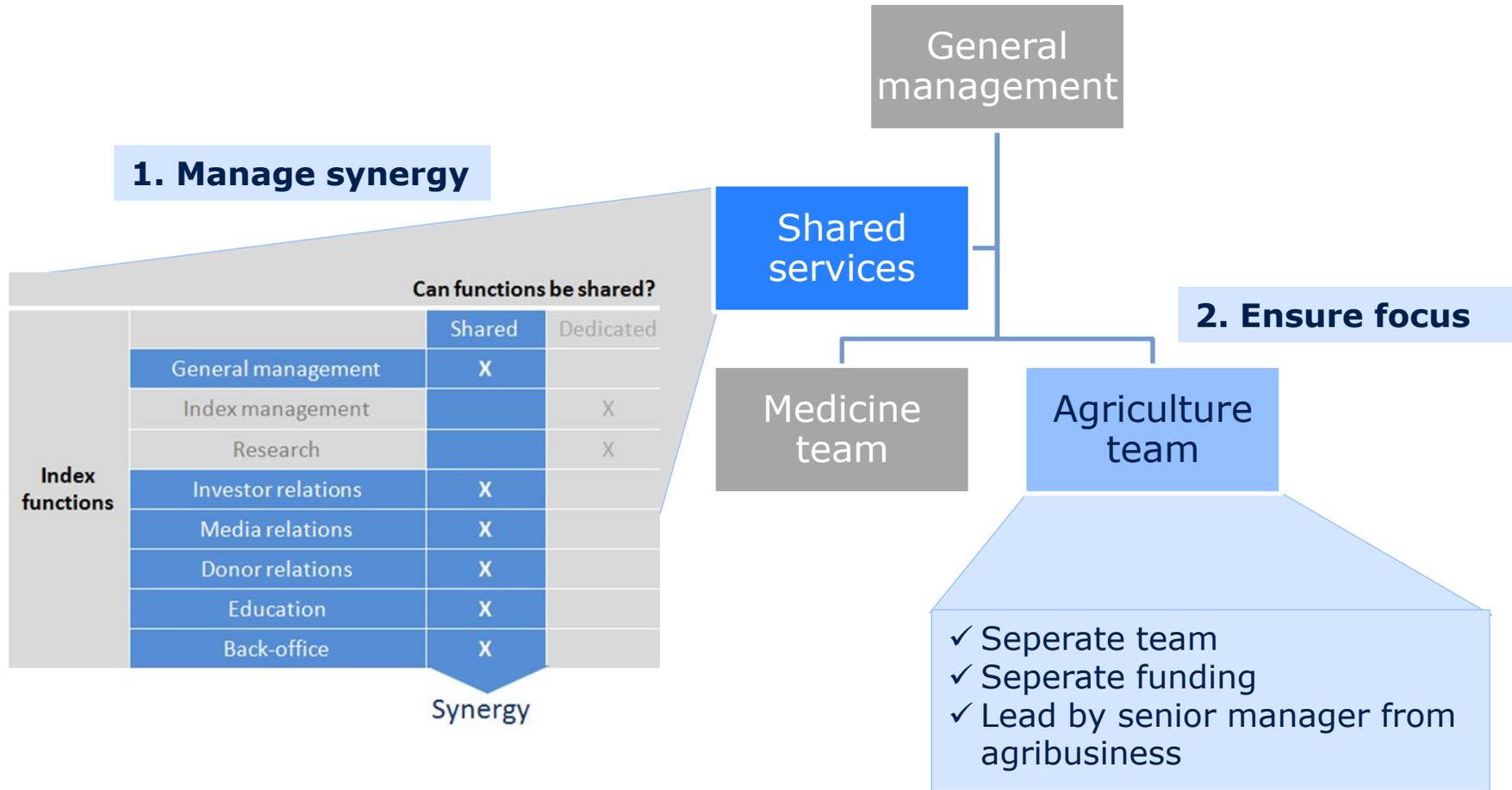


- Critical step to establish the Access to Seeds Index is to launch detailed stakeholder roundtables in which a vision on industry's contribution and the best practices is created
- Before the roundtables can be started sufficient funding for this phase needs to be arranged -> therefore a preparation phase is needed to bridge this time gap
- In this preparation phase we can capitalize on the build up contacts and momentum. It is important that the stakeholder relations are managed pro-actively and the network is extended further. Also a team with both agribusiness and stakeholder dialogue experience should be build to prepare the next phase with roundtables

For each phase objectives, activities, team and deliverables have been specified

	Preparation Phase	Multi-stakeholder roundtables
Objectives	<ul style="list-style-type: none"> • Arrange funding • Prepare the stakeholders roundtables 	Develop the Index Methodology (common agenda) based on a shared vision of business contribution
Activities	<ul style="list-style-type: none"> • Develop funding business case • Contact and discuss with potential funders • Feedback conclusions to participants feasibility study and manage contacts • Extend the network • Select potential team members 	<ul style="list-style-type: none"> • Research on stakeholder positions • Online survey among stakeholders • Search roundtable chair(s) • Stakeholder roundtables with separate groups (in country consultations) • Publish a draft vision • Discuss the vision with business community • Establish an Expert Review Committee • Develop and validate Access to Seeds Index Methodology specifications
Team	<ul style="list-style-type: none"> • Project manager • Funding expert • Analytical support • Steering Committee 	<ul style="list-style-type: none"> • Senior project manager • Agriculture expert • Roundtable chairs • Analytical support • Communication • Steering Committee
Deliverables	<ul style="list-style-type: none"> • Funding business case • Close funding • Team ready to start • Detailed plan for roundtables 	<ul style="list-style-type: none"> • Report of online survey • Reports of stakeholder roundtables • ERC in place • Index Methodology specification
Duration	3-5 months	12-16 months

A separate team and shared services are necessary to ensure both focus and synergy



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A. Appendix	Methodology and interview list

Methodology

The findings in this report are based on exploratory analysis in the form of a desk study, which was validated during interviews with all the stakeholders

Theory of change aspect	Analysis done & resource consulted
Issue relevance	<ul style="list-style-type: none"> • FAO State of Agriculture reports & FAO statistics • Media analysis • Review of two comprehensive scientific books on seeds, development & IPR • Interviews with all stakeholders
Industry	<ul style="list-style-type: none"> • Annual reports and market reports consulted for financials • Systematic analysis of CSR reports and online resources to determine CSR activities • Interviews with industry organization and leading firms
Other stakeholders	<ul style="list-style-type: none"> • Review of publications of a limited number of NGO's (Oxfam, ActionAid, AGRA, Gates Foundation and anti-GMO coalition) • Review of two comprehensive scientific books on seeds, development & IPR • Media analysis • Interviews with NGOs, scientists and government officials
Index added value	<ul style="list-style-type: none"> • Systematic analysis of CSR reports and online resources to determine CSR activities & benchmark vs AtM criteria • Systematic media analysis 7 newspapers 2005-2011 • Analysis of investors in leading companies and review of ESG criteria considering food and agriculture • Interviews with all stakeholders

Interview list

The interviewed persons were interviewed in an informal setting. It was promised not to quote them directly.

Category	Interviewees
Industry organizations	ISF, Plantum
Industry	Monsanto, Dupont / Pioneer, Syngenta, RijkZwaan, EastWest Seeds
Science	Wageningen University (2x), Royal Tropical Institute (KIT), Louis Bolk Institute
NGO	Oxfam, Greenpeace, Searice, East African Farmers Federation, Gain
Initiatives	Alliance Green Revolution in Africa (AGRA), African Orphan Crops Consortium, Fairplanet Seeds
Government (NL)	Ministry of Economic affairs, agriculture & Innovation, Ministry of Foreign Affairs
Investors	PGGM
Individuals	Two individual experts