

Trends in private sector investments in agricultural, forestry and fisheries R&D in developing countries: Implications for the CGIAR

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Analyzing the facts over the past years, one realizes, that donor countries' official development assistance efforts broke significantly away – downwards - from the long-term trend, while private flows rose appreciably (albeit concentrating mostly on a limited number of emerging countries). The resulting cuts within ODA budgets was often "Agriculture" and therein - also as a result of European criticism of "green biotechnology" - "Research". Priorities being as they are today, make me fear further stagnation of funds for CGIAR endeavours - if not of a reduction in real terms.

Regrettable as this will be in the light of the fact that the development and diffusion of new technologies is perhaps the single most important source of long-term growth in low-income agrarian societies, one will have to look for alternative resources.

1. The Factual Context

The most likely 2050 scenario - despite the turnaround in birth rates - will be a difficult one - but this may be the chance to motivate the private sector to become involved:

Even after the latest birth rate developments shown by the UN population department, most population experts expect that the world's population will grow by not much less than 50 percent—in absolute numbers: nearly 3 billion—by the year 2050. Almost all this population growth will continue to happen in the less developed regions. This is the part of the world where already today an estimated 800 million people do not have enough to eat. Urbanization will increase the pressure: The global urban population will double from the 2.6 billion people of 1995 to 5.1 billion in 2030. By then, 57 percent of the population of developing countries will be urban dwellers.¹ A high rate of urbanization will not only confront inhabitants with social, environmental, and probably political problems of unprecedented magnitude – it will also have notable consequences for food security.

What is needed is increased production achieved with increased productivity. This will also contribute to poverty alleviation, as nearly three quarters of the poor live in rural areas. As long as the number of *rural* poor is high – and for Sub-Saharan Africa's HIV/AIDS-stricken countries it is even expected to rise – food security as a general political goal cannot be achieved. Higher productivity is also of significant ecological value: If the average annual increase in per hectare productivity is just one percent, the world would have to bring more than 300 million hectares of new land into agriculture by the year 2050 to meet expected demand; in contrast, a productivity increase of 1.5 percent could double output without the need of additional cropland.²

To increase local production, however, will be difficult. There are and will be significant practical constraints to achieve higher production volumes, the most important include:

Water scarcity

- **Water**, the source of all life, is going to become increasingly scarce: more than a quarter of the world's population, or a third of the population in developing countries, lives in regions that will experience severe water scarcity. Water demand continues to

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1 UN-Population Division: World Urbanization Prospects. The 1996 Revision. New York 1998, p.2.

2 See Goklany I.M.: Meeting Global Food Needs: The Environmental Trade-offs between increasing land conversion and land productivity. In: Technology Vol.6 (1999), p.107-130:

rise much faster than water supply, and the distributional battles between industry and urban households on the one hand and agricultural irrigation on the other hand are not likely to be won by agriculture. Today, the irrigated sector accounts for close to 60 % of the food grown in all developing countries - the irrigated sector will have to provide as much as 80% of the added food to meet the demands of the additional two billion people who will be living in the developing countries by 2025.³ If, however, the availability of irrigation water stagnates or – much more likely - decreases (e.g. due to overpumping in highly productive agricultural areas e.g. in India, reallocation for industrial purposes or higher urban demand, e.g. in China), average yields are likely to fall.

Pressure on land

- There is growing concern that the developing world is facing a decline in long-term productivity of **agricultural soil resources**. In the year 1960 there were still 0.44 hectare arable land per head of world population – today (2000) this figure is about 0.22 and by 2050 it will have come down to 0.15 hectare per capita.⁴ Higher production quantities to feed a growing world population will have to come predominantly from yield increases – this necessitates research.

Unforeseeable changes in climate and through increased pollution

- Although difficult to predict, there are fears of some additional agricultural problems to be solved: On the global level, major key indicators show that the physical condition of the earth is deteriorating. Assuming dependence in agriculture remains high in the decades to come, low-income countries in low and middle latitude areas are expected to suffer adverse effects from climate change on their food security.

Conclusion 1

Population growth, urbanization, and rising incomes will increase food demand - this will necessitate increases in food production. As water and land for agricultural use are increasingly scarce resources, more food will have to be produced through higher yields per units of water and land with a declining resource base and a deteriorating global environment. This will be impossible without appropriate research investments.

The seriousness of the situation described above, could be the reason that big multinational corporations in the agricultural sector could be persuaded to do more and better. This could become an important argument in a corporate citizenship debate of an international corporation.

2. The Private Sector

If we look at the most dynamic areas of agricultural research, biotechnology, two thirds to four fifth of the research and development is currently carried out in the private sector. This strength of the private sector gives rise to public concern, as technologies needed to develop and apply agricultural biotechnology are overwhelmingly in the intellectual property domain of a small number of agri-business corporations in the North. Patented results are in all likelihood too expensive for the resource-poor farmer in a less developed country. This may be regretted—but regrets won't change much.

3 CGIAR / TAC: A Food Secure World For All: Towards a New Vision and Strategy for the CGIAR in 2010. Rome, March 2000;

4 World Resources Institute at alii: World Resources 1998-99. A Guide to the Global Environment, Oxford University Press, New York 1998, p.280;

The most likely scenario for the future contribution of the plant science industry is not different from the past:

- focus on yield protection - through control of weeds, diseases and pests;
- Crop improvement - by making it tougher, less vulnerable or better adapted to specific local conditions (e.g. drought areas, saline lands, arid areas) or adding qualitative elements (e.g. vitamins or dietary beneficial components)

A sustainable way out of this situation is more and more intensive cooperation between the private and the public sector. There is evidence that many agricultural corporations and private research institution—while focussing their research on areas where a competitive return on investment can be anticipated—are willing to provide research support for resource-poor farmers.

To be realistic, however, in view of the current stagnation of the agro business, it would be overly optimistic to expect significant financial resources to be donated to institutions such as the CGIAR. But there are other possibilities:

2.1 New Resources from the Private Sector: Focus on IPR not financial contributions

While I see little hope that the private sector will change its research priorities and little potential for substantial financial contributions (unrestricted) to the CGIAR system, I do see wide opportunities for research cooperation. Properly prepared it should be possible to get access to cutting edge research results of the private sector - if there is a guarantee that the fruits of its use are restricted to resource-poor (subsistence) farmers. While this would not add financial resources to the centers, it would substitute research expenditure and save time.

Research based partnerships of such a kind would include

- **CGIAR centers** and their research infrastructure plus human resources to guarantee high quality research;
- **NARS** to close the gap between laboratory and farmers' fields
- **the private sector**, giving access to IPR which is either exclusively used in industrial countries or industrial agriculture in developing countries or - due to the different marketing focus - not used at all. As different models with differing benefits and disadvantages are feasible, the mode of access must be discussed beforehand in each single case.

While the individual actors—government (through their NARS), CGIAR centers, and private may be very effective and efficient in achieving their specific goals, collaboration and coordination among the three actors can lead to the production of some essential collective goods and services not providable by individual actors, and a more efficient use of resources.

Experience suggests that - while such a cooperation is mutually beneficial, if properly arranged - there are practical and political obstacles to overcome. Sustainable successes must concentrate on mid-term and long-term results - hence there is, with all parties involved, is a pronounced necessity for flexibility and resilience:

Flexibility:

Partnering must be structurally flexible for successful participation. The partnership should be a network rather than a hierarchy. Networks should apply when working both externally with collaborating organizations and internally with project activities. It is important that partners feel free to opt in and out of specific initiatives within the framework of the partnership and to match involvement with actor's strengths.

Resilience:

Partnering must be operationally resilient to overcome crises. Key factors in ensuring resilient collaboration include having the right leaders, participants willing to learn, and long-term commitment of both leadership and finances. Progress will be more rapid where leaders have experience working in more than one and participants are willing to embrace multiple viewpoints. Furthermore, resilience of partnerships is dependent upon their ability to make their own rules, adapt goals, and engage new partners.

2.2. CGIAR focus on subsistence farmers in developing countries

To make best use of such partnerships CGIAR's future focus should be on subsistence farmers and marginal areas. This would minimize conflicts of interest in the use of IPR and opens doors for negotiations.

As most of the problems face by individual CGIAR centers have the common denominator of scarce funds and necessity to focus, the work of the interim Science Council could greatly benefit from the results of the strategic assessment exercise currently under way at Cimmyt.

2.3. The necessity of a comprehensive stakeholder dialogue

The success of endeavours to bring such partnerships into practice depends on the quality of the relationship between CGIAR and the private sector. In this respect - to say the least - there is room for improvement. Professional experience suggests that the following principles and procedures are useful for a dialogue between institutions like the CGIAR and research-based agro-companies with international operations:

- Acknowledgment of the fact that the social environment as a whole, and especially those sectors that are directly affected by the activities of a company, have a legitimate entitlement to have their interests taken into account. At the very least, any restrictions, impositions, or even damage should be kept to a minimum, and ideally, positive externalities should be maximized.
- Analysis of the scientific, social, political, and journalistic arguments on all aspects that are of importance in terms of the cooperative strategies between such actors to prevent "political surprises".
- Ongoing evaluation of the potential implications that this dialogue and potential cooperation may have for the CGIAR and the corporate strategy and future success of all institutions involved.
- Ongoing and as far as possible "dominance-free" communication with all relevant stakeholder groups, including NGOs. "Ongoing" is taken here to mean explicitly that communication is important not only in problematical times and during public conflicts and controversies, but at all times. a better understanding of alternative views.
- The fact that there are potential conflicts between the interests of private sector company and those of CGIAR centers (or others such as the FAO or IPGRI) must be openly addressed.

For further reference see:

http://www.syngenta.com/de/downloads/Imhof_wssd_final.pdf

<http://www.bayer.com/en/tk/cropscience.php>

http://www.monsanto.com/monsanto/layout/sci_tech/default.asp