



Brainstorming Session  
on  
**PUBLIC-PRIVATE PARTNERSHIP IN  
AGRICULTURAL BIOTECHNOLOGY**

*March 14, 2005*

**New Delhi**



**HIGHLIGHTS AND RECOMMENDATIONS**

**ASIA-PACIFIC CONSORTIUM ON AGRICULTURAL BIOTECHNOLOGY  
(APCoAB)**

C/o ICRIASAT, NASC Complex, Dev Prakash Shastri Marg, Pusa Campus  
New Delhi-110012, INDIA

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on  
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*Organized by*

**ASIA-PACIFIC CONSORTIUM ON AGRICULTURAL BIOTECHNOLOGY**  
(APCoAB)

C/o ICRISAT, NASC Complex, Dev Prakash Shastri Marg, Pusa Campus  
New Delhi-110012, INDIA

## FOREWORD

The Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB) was established during 2003 under the umbrella of Asia-Pacific Association of Agricultural Research Institutions (APAARI), a neutral, apolitical regional forum that promotes and strengthens NARS activities on agricultural research and development in partnership with FAO and several other international and regional organizations. APAARI, since its establishment, has promoted various regional networks to coordinate research and development initiatives in the Asia-Pacific region. The recent establishment of APCoAB in this context is a welcome step to harness the benefits of agricultural biotechnology for human and animal welfare through the applications of latest scientific technologies. APCoAB is operating through its secretariat hosted by ICRISAT at the National Agricultural Science Centre, Pusa Campus, New Delhi.

Research partnership between the public and private sector is essential to achieve faster progress and dissemination of technology to the end users. Thus, there is a need to know as to how best to link these two sectors to have their activities complemented in a partnership mode for better research and development endeavours. In this context a 'Brainstorming Session on Public-Private Partnership in Agricultural Biotechnology' was organized by APCoAB/APAARI on 14<sup>th</sup> March 2005 at NASC Complex, Pusa Campus, New Delhi involving selected forty research scientists, managers, policy makers representing both public and private organizations. This publication is an outcome of the discussions held in this meeting resulting in important recommendations focusing on need for public-private partnership for harnessing the benefits of agricultural biotechnology.

We are thankful to the participants for their active role in this meeting and look forward to an effective collaboration for the future R&D activities in agricultural biotechnology in the Asia-Pacific region. It is our expectation that the recommendations of the meeting, brought out in this publication, will be useful for policy makers, research managers and the private sector representatives in order to build strong public-private partnership in future.



RS Paroda

*Executive Secretary*

APAARI

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## **LIST OF ACRONYMS**

APAARI	: Asia-Pacific Association of Agricultural Research Institutions
APCoAB	: Asia-Pacific Consortium on Agricultural Biotechnology
BDC	: Business Development Cell
CG Centres	: Consultative Group Centres
CIMMYT	: International Maize and Wheat Improvement Centre
CSIR	: Council of Scientific and Industrial Research
DBT	: Department of Biotechnology
HRD	: Human Resource Development
IARI	: Indian Agricultural Research Institute
ICAR	: Indian Council of Agricultural Research
ICRISAT	: International Centre for Research in Semi-Arid Tropics
IPR	: Intellectual Property Rights
MTA	: Material Transfer Agreement
NARS	: National Agricultural Research Systems
NASC	: National Agriculture Science Centre
NGO	: Non-Governmental Organization
PPP	: Public-Private Partnership
RIS	: Research and Information System
TERI	: The Energy and Resources Institute

# PUBLIC-PRIVATE PARTNERSHIP IN AGRICULTURAL BIOTECHNOLOGY

## INTRODUCTION

Agricultural biotechnology offers innovative ways to improve both productivity and quality of the agricultural produce while ensuring better income for the resource-poor farmers through reduced cost. Presently, research in this area is being carried out both in the public and private sector organizations. Partnerships between these two is critical to let cost-efficient technologies disseminate to the end-users. Both the public and private sector organizations have their own strengths and could complement each other's efforts in taking research from lab to field.

At present, biotechnological research initiative both by the public and private sectors is indeed in an exciting stage and partnership among the two could lead to faster progress. However, there is a need to understand the intricacies and required logistics to build these partnerships to be strong and realistic. Also a neutral forum to act as facilitator is critical



*Brainstorming session in progress*

to bring key partners together to get engaged in research, development, commercialization and public awareness of agricultural biotechnology for the benefit of society.

The Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB), was established in 2003 under the umbrella of the Asia-Pacific Association of Agricultural Research Institutions (APAARI) - an initiative of Food and Agriculture Organization that has been promoting appropriate use of emerging agri-technologies and tools in the region.

### APCoAB's main thrust is:

- To serve as a neutral forum for the key partners engaged in research, development, commercialization and education/learning of agricultural biotechnology as well as environmental safety in the Asia-Pacific region.
- To facilitate and promote the process of greater public awareness and understanding relating to important issues of IPRs, *sui generis* systems, biosafety, risk assessment, harmonization of regulatory procedures, and benefit sharing in order to address various concerns relating to adoption of agricultural biotechnology.
- To facilitate human resource development for meaningful application of agricultural biotechnologies to enhance sustainable agricultural productivity, as well as product quality, for the welfare of both farmers and consumers.

APCoAB, in an attempt to bring together key partners, organized a Brainstorming session on “**Public-Private Partnership in Agricultural Biotechnology**” on March 14, 2005 at the National Agriculture Science Centre (NASC), Pusa Campus, New Delhi. It was attended by nearly forty participants including representatives from different Ministries of the Government of India, private sector, CG Centres and the NGOs. This report covers the highlights of various important issues discussed as per programme given in Annexure I. The list of participants is given in Annexure II.

### HIGHLIGHTS

In his Welcome Address, Dr RS Paroda, Executive Secretary, APAARI emphasized the importance of Public-Private Partnerships in the field of agricultural biotechnology for the ultimate benefit to the resource poor farmers. He opined that strengthening of stakeholder's partnership, improvement in dialogue with policy makers, capacity building and increase in public awareness are the four pillars that can promote agricultural biotechnology in India. Hence, this brainstorming was critical to bring key stakeholders together to discuss and devise ways and mechanisms that could accelerate the win-win partnership between Public-Private sector institutions.

Dr G Kalloo, Deputy Director General (Horticulture and Crop Sciences) ICAR, in his Inaugural Address, advocated introspection and reorientation of the research being carried out by the public sector in India and the kind of partnerships that can emerge out of it. He said that it is high time, India should demonstrate leadership in the areas of gene pyramiding, development of gene constructs, molecular markers and the regulatory



*Dr RS Paroda, Executive Secretary, APAARI delivering the Welcome Address*

*Dr G Kalloo, Deputy Director General (Horticulture and Crop Sciences), Indian Council of Agricultural Research delivering the Inaugural Address*



mechanisms. He commented that Public-Private sector relationship should be addressed in the right perspective and with an open mind.

Dr S Nagarajan, Director, IARI expressed the need for a Business Development Cell (BDC) in public institutes to take care of Intellectual Property Rights (IPR) issues, Material Transfer Agreement (MTA), benefit sharing, and development of prototypes for signing of the agreements. Along with this, he also expressed the need for human resource development such as of scientists, economists and managers who not only invent but also assign some economic value to their inventions and try to attract private firms for required negotiations.

The Brainstorming meeting was organized in three main sessions (Annexure I). These were: i) Importance of Public-Private Partnerships, ii) Commercial Release-Possible Models of Partnerships, and iii) Plenary session. A brief account of these deliberations is provided in this report.



## **SESSION-I: Importance of Public-Private Partnerships**

The session was chaired by Dr RS Paroda. The theme paper was presented by Dr RP Sharma, former Project Director, National Research Centre on Biotechnology, IARI, New Delhi. Mr RD Kapoor (National Regulatory Manager, Monsanto India limited), Dr Partha Dasgupta, (Advisor, Syngenta India Private Limited) and Dr Malathi Lakshmikumaran (Consultant, Lakshmikumaran and Sridharan) were the discussants.

Dr RP Sharma urged that Public-Private Sector interaction in research and development can be mutually beneficial, and should be encouraged for harvesting the synergies between the vast infrastructure and expertise of public sector and product delivery network of private sector. He suggested that the projects on technology development and commercialization could be executed in two phases. In the first phase, involving the development of the product, public institutions have to play a pivotal role. In the second phase, involving commercialization of the product, biosafety, agronomic evaluation, etc. private sector can take a lead role. Alternatively, he suggested that the private sector can be a partner in both technology development and its commercialization activities. Dr Sharma also suggested that different partners involved in the research programme should be identified right at the time of conceptualization and start of the project.

Mr RD Kapoor emphasized on the need of sensitizing public sector for the development of technology in time so as to make it more competent with private sector. He said that there should be clear demarcation of norms for Material Transfer Agreements (MTA) and a broader framework for it should be designed. However, he also highlighted the need for empowerment of the Directors of the public institutes for such negotiations and partnerships.

Dr Partha Dasgupta felt that it is imperative to develop Public-Private Partnerships in order to:

- a) meet the challenge of food and nutritional security;
- b) seek new discoveries and inventions;
- c) find innovative crop solutions; and
- d) eventually reach out to the masses.

He enumerated the various essential elements of an effective partnership such as realization of each other's strengths and thereby development of trust based on mutually beneficial partnerships. He stressed upon the adoption of positive national agenda on Public-Private Partnerships.

Dr Malathi Lakshmikumaran pointed out that communication gap may become one of the barriers in the establishment of such partnerships. She emphasized the need of proper plan of action in which the role of each partner is clearly defined, strengths and weaknesses realized and the share of benefits of each of the partners is clearly mentioned,

before getting into Public-Private partnership. In her opinion, the reward system, if brought in and encouraged by the public system, may solve the problem of delays, and result in timely initiatives.

During the discussion, following issues emerged:

- Public-Private Partnership is critical but an assessment and science-based policy decision on various issues like IPR, biosafety and MTAs, should be adopted well in time.
- An efficient and transparent regulatory framework on MTA, IPR and commercialization has to be put in place.
- Goal oriented areas of interaction must be identified, and operative mechanisms need to be clearly defined.
- A positive, unified national agenda on Public-Private Partnerships has to be adopted.

## **SESSION-II: Possible Models of Partnerships**

Mr Raju Barwale, Managing Director, Maharashtra Hybrid Seeds Company Limited (MAHYCO) presented the lead paper and Dr Sanjay Saxena, The Energy and Resources Institute (TERI), Dr Arvind Kapur, Nunhems Pro-Agro Seeds Pvt Ltd., Dr KR Koundal, National Research Centre on Plant Biotechnology, Indian Agricultural Research Institute and Dr Sachin Chaturvedi, Research and Information System for the Non-Aligned and other Developing Countries were among the discussants.

Mr Raju Barwale presented three models of Public-Private Partnerships, which are in existence in agricultural biotechnology, namely the one applied in commercialization of Bt cotton; second, for the development of Bt eggplant; and the third for bringing biotechnology to the farmers. He said that there is an urgent need of Public-Private Partnerships in agricultural biotechnology because of the required diversity in functions, which in turn require different skills. He pointed out that in future partnerships can evolve in the area of management of sucking pests, and especially for the development of salt and drought tolerant plants.

Dr Sanjay Saxena put forth four kinds of possible partnerships: Public-Public, Private-Private, Private-Public, Public-Private in this area. He said that while Public-Private Partnerships are absolutely essential, there is also a need to strengthen Public-Public Partnerships involving various research institutions.

Dr Arvind Kapur, explained that Public-Private Partnerships should cater to that section of the society that needs the utmost attention. He said that while private partners are driven by profits and public sector by public goods, a balance could be struck so that both the partners work harmoniously for the benefit of the society, taking care of both the objectives.

Dr KR Koundal pointed out that the progress in agricultural biotechnology cannot be achieved by private or public sector alone but only by drawing synergies between them. He also supported the view of Dr RP Sharma of two-phase execution of public-private partnerships in which the role of public sector will be the isolation of genes and development of protocol, whereas according to him the other roles like validation and commercialization can be dealt by the private sector.

Dr SR Rao called for the need of setting up a framework at macro level in order to enable Public-Private partnerships. He put forth some recommendations of CSIR Committee on Public-Private Partnership that were discussed at length later in the plenary session.

Dr SK Vasal, ex-Senior Maize Breeder, CIMMYT commented that heat and drought tolerance are the thrust areas for the future research in the context of global climate change, and this area should draw attention of both public and private sector while we build partnership in the area of agricultural biotechnology.

Dr Sachin Chaturvedi suggested for the development of national level biotechnology policy that can work towards the promotion of Public-Private Partnerships. He pointed out the model of Singapore biomedical research where the government has encouraged public institutions to come up with spin off companies that can develop linkages with the private sector.

During discussion, the following issues emerged:

- A macro-level policy change is required to make Public-Private partnership more effective.
- A change in the attitude of public sector is required so that it appreciates the need for such partnership in order to deliver results in time.
- There is a need for exploration of ways for the development of mutual trust, institutional flexibility and techno-entrepreneurship.

## **PLENARY SESSION: Adoption of the Recommendations**

The Plenary Session was chaired by Dr RS Paroda while Dr Partha Dasgupta, Mr Raju Barwale, Dr RP Sharma, Dr SR Rao, Dr Mruthyunjaya, Dr KC Bansal, Dr KV Prabhu, Dr Vibha Dhawan and Dr BS Dhillon actively participated in the discussion.

Dr Partha Dasgupta emphasized that Public-Private partnerships cannot be build-up unless and until there is clear message and directives from the top policy makers. Responding to a query related to high price of transgenic cotton seeds, Mr Raju Barwale pointed out that the farmers want quality seeds for which they are willing to pay, if they see ultimate benefit to them.

Dr Paroda felt the need to define specific models of partnership that could be considered by the policy-makers for starting negotiations and taking decisions. He

suggested that public-private partnerships have to be need based, for which they should work harmoniously to achieve the goals, which are above their individual capability. Dr SR Rao emphasized the need to have a national policy initiative in biotechnology that can remodel the face of agricultural biotechnology in India. Dr Mruthyunjaya commented that market assurance and technology back up is essential in developing Public-Private partnerships. Hence, need assessment would be a critical pre-requisite for building these partnerships. Dr KC Bansal said that specific areas must be identified where there is an urgent need of Public-Private Partnership, and pursued further with mutual trust and understanding.

The general recommendations for adoption were summarized by the Chairman. These were subsequently adopted for required follow up.

## RECOMMENDATIONS

All the participants voiced that Public-Private Partnership is the need of the hour and such partnership will strengthen percolation of biotechnologies to the poorest of the farmers. These partnerships will be beneficial to both as their strengths are complementing each other. These partnerships will reduce the time between the development of the technology and its reaching the end user — farmer.

### Policy

- The specific areas of co-operation between the Public-Private sector should be identified urgently, and thereafter the goals be set-up by developing a proper plan of action and monitored at the highest policy level on both sides.
- Simplified mechanisms need to be developed in public sector for entering into the partnership with private sector. Decision making process should be lot more quicker and decentralized.
- Need for a declared national strategy for promoting PPP in agri-sector.
- A well-understood mechanism between the Public-Private sector partners for IPR, especially in benefit sharing needs to be evolved.
- Steps will have to be taken so that there is ‘mutual trust’ building between the Public and Private sectors, especially in terms of IPR related issues, benefit sharing and public awareness, ensuring win-win situation for both sides.
- Regulatory mechanisms need to be simplified and streamlined as a single-window system for speedy testing and clearance of useful products.

### Human Resource Development (HRD)

- Public sector has to bring in corporate culture in order to reap the benefits of scientific innovations in the field of agricultural biotechnology.
- Human resource should be developed in scientific, policy and legal matters to move forward. Examples from other countries such as Korea and China may be studied.

## Capacity Building

- Statutory autonomy for institutions including agricultural universities.
- Private sector should also invest in basic research in some of the priority areas for the development of agricultural biotechnology and to have a balance between their profits and the social obligations.
- Public sector should encourage setting-up knowledge alliances with private industry either bilaterally, or in a consortium mode in the new and emerging areas of science and technology.

## Infrastructure

- Set-up incubation centres, in few selected laboratories/institutions, in specialized areas for nurturing start-up companies and encouraging early stage innovations through appropriate partnership mechanisms.

As a follow up, it was agreed to forward these recommendations to all concerned policy makers and have a second round of discussions around specificities of available models of partnerships which could further be developed and promoted for required benefit to the end-users as well as for further growth and development of Indian Agriculture.



## BRAINSTORMING SESSION ON PUBLIC-PRIVATE PARTNERSHIP IN AGRICULTURAL BIOTECHNOLOGY

Venue: National Academy of Agricultural Sciences  
NASC Complex, Dev Prakash Shastri Marg, Pusa Campus, New Delhi-110 012

### PROGRAMME

**14 March 2005**

10.00 - 11.30

**Inaugural Session**

Welcome Address : Dr RS Paroda  
Special Remarks : Dr S Nagarajan  
Inaugural Address : Dr G Kalloo  
Vote of Thanks : Dr Vibha Dhawan  
Tea and Group Photograph

11.30 - 13.00

**Session I: Importance of Public-Private Partnerships**

Theme Paper — Importance of  
Public-Private Partnerships : Dr RP Sharma

*Discussants:*

- Dr Rajan D Kapoor, Monsanto
- Dr Partha Dasgupta, Syngenta
- Dr Malathi Lakshmikumaran  
Lakshmikumaran & Sridharan

General Discussion

13.00 - 14.00

Lunch

14.00 - 15.30

**Session II: Possible Models of Partnerships**

Commercial Release —  
Possible Models of Partnerships : Mr Raju Barwale

*Discussants:*

- Dr Sanjay Saxena, TERI
- Dr Arvind Kapur, Nunhems
- Dr KR Koundal, IARI

General Discussion

15.30 - 16.00

Tea

16.00 - 17.30

**Session III: Plenary**

Panel Discussion and Recommendations

*Panelists:*

- Dr RS Paroda, APAARI
- Dr SR Rao, DBT
- Dr Sachin Chaturvedi, RIS

Concluding Remarks : Dr RS Paroda



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## **ASIA-PACIFIC CONSORTIUM ON AGRICULTURAL BIOTECHNOLOGY**

The Asia-Pacific Consortium on Agricultural Biotechnology (APCoAB), was established in 2003 under the umbrella of the Asia-Pacific Association of Agricultural Research Institutions (APAARI) — an initiative of Food and Agriculture Organization that has been promoting appropriate use of emerging agri-technologies and tools in the region.

APCoAB's mission is "To harness the benefits of agricultural biotechnology for human and animal welfare through the application of latest scientific technologies while safeguarding the environment for the advancement of society in the Asia-Pacific Region".

APCoAB's main thrust is:

- To serve as a neutral forum for the key partners engaged in research, development, commercialization and education/ learning of agricultural biotechnology as well as environmental safety in the Asia-Pacific region.
- To facilitate and promote the process of greater public awareness and understanding relating to important issues of IPR's *sui generis* systems, biosafety, risk assessment, harmonization of regulatory procedures, and benefit sharing in order to address various concerns relating to adoption of agricultural biotechnology.
- To facilitate human resources development for meaningful application of agricultural biotechnologies to enhance sustainable agricultural productivity, as well as product quality, for the welfare of both farmers and consumers.