



RE-SEARCHING AGRICULTURE IN SOUTH ASIA

The law and policy context for
agricultural research and development
and its impact on smallholder farmers

ADARSA

Alliance for Democratising
Agricultural Research in South Asia

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International Institute
for Environment
and Development

2013

Shalini Bhutani

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Research in South Asia (ADARSA)



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Shalini is a lawyer based in India working independently on the issues of trade, agriculture and biodiversity. She has worked in several national and international NGOs in the last fifteen years, including the Centre for Environmental Law at WWF-India, Navdanya and GRAIN. During the course of this work she has also been involved with several peoples' movements and farmers' groups in the Asian region. Currently, along with others in India, she is involved in the Campaign for Conservation and Community Control over Biodiversity. She is part of the Forum Against FTAs in India and is also associated with the Pesticide Action Network Asia Pacific.

E-mail: emailsbhutani@gmail.com

Text edited by: Fiona Hinchcliffe

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List of abbreviations

ABS	Access and benefit sharing
ABSP	Agricultural Biotechnology Support Project
ADARSA	Alliance for Democratising Agricultural Research in South Asia
ADB	Asian Development Bank
AIC	(Nepal's) Agricultural Inputs Corporation
APAARI	Asia-Pacific Association of Agricultural Research Institutions
APSA	Asia and Pacific Seed Association
BARC	Bangladesh Agricultural Research Council
BISA	Borlaug Institute for South Asia
BIT	Bilateral investment treaty
BMGF	Bill and Melinda Gates Foundation
CARP	(Sri Lanka) Council for Agricultural Research Policy
CBD	Convention on Biological Diversity
CGIAR	Consultative Group on International Agricultural Research
CIMMYT	International Maize and Wheat Improvement Center
CORRA	Council for Partnership on Rice Research in Asia
DARE	Department of Agricultural Research and Education
GATS	General Agreement on Trade in Services
GCARD	Global Conference on Agricultural Research for Development
FAO	Food and Agriculture Organisation of the United Nations
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
FSS	Farm-saved seed
FTA	Free Trade Agreement
GBMR	Genetic or Biological Material or Resource
GE	Genetically engineered
GoI	Government of India
GR	Green Revolution
ICAR	Indian Council of Agricultural Research
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
INGER	International Network for Genetic Evaluation of Rice

IWMI	International Water Management Institute
IP	Intellectual Property
IRRI	International Rice Research Institute
LDCs	Least developed countries
MNC	Multinational corporation
MoAD	(Nepal's) Ministry of Agriculture Development
MoU	Memorandum of understanding
NAAS	(India's) National Academy of Agricultural Sciences
NAIP	(India's) National Agricultural Innovation Project
NAPCC	(India's) National Action Plan on Climate Change
NARC	Nepal Agricultural Research Council
NARES	National Agricultural Research and Extension Systems
NARIs	National Agricultural Research Institutes
NBA	(India's) National Biodiversity Authority
NPC	(Nepal's) National Planning Commission
NRDC	(India's) National Research Development Corporation
OPVs	Open pollinated varieties
PARC	Pakistan Agricultural Research Council
PAU	Punjab Agricultural University
PPP	Public private partnership
PSSP	Pakistan Strategy Support Program
PVP	Plant variety protection
R&D	Research and development
RTI	Right to Information Act (India)
SAARC	South Asian Association for Regional Cooperation
SAU	State Agricultural Universities
SKEP	Scientific Know-How and Exchange Programme
TK	Traditional Knowledge
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UPOV	International Union for the Protection of New Varieties of Plants
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USTR	United States Trade Representative
WTO	World Trade Organisation

Contents

List of abbreviations	iii
Foreword.....	vi
Introduction.....	1
The problem: From public research to PPPs	3
What are the driving forces?.....	6
What are the implications for small-scale farmers?	20
Conclusion: Repatriating the public sector	30
References.....	33
Annex 1: Bangladesh’s Relevant laws and policies	40
Annex 2: India’s Relevant laws and policies	40
Annex 3: Nepal’s Relevant laws and policies.....	41
Annex 4: Pakistan’s Relevant laws and policies	42
Annex 5: Sri Lanka’s Relevant laws and policies	42
Annex 6: People interviewed.....	42

Foreword

South Asia has a rich agricultural history which spans more than 5,000 years. The Kandian Home Gardens in Sri Lanka, the terraced rice gardens of Nepal, the Apatani system in northeast India and the fish-rice farming system in Bangladesh are all well-known examples of this unique wealth of knowledge. Yet the knowledge and skills of the farming communities who have developed these sustainable, resilient and productive systems are being increasingly bypassed, overlooked and undermined by a new era of agricultural research that is taking hold in the region.

Drawing on a wealth of evidence and new data accessed under the Indian Right to Information Act, the author of this excellent and timely report clearly shows how an emerging web of powerful actors and processes is now redefining public research in South Asia. Shalini Bhutani has carefully analysed the forces and factors that are re-shaping and privatising public agricultural research in Bangladesh, India, Nepal, Pakistan and Sri Lanka. These factors act as ‘determinants of innovation’: social, cultural, economical and/or political factors that are now redefining the governance of public research, the development of technologies, models of agricultural production, and the dynamics of food systems in South Asia. They are all carefully scrutinised in this paper along with their functions and their mutual relationships on a national, sectoral or regional scale.

The author also shows how the governance of public sector agricultural research is undergoing rapid change in South Asia under the influence of global economic forces such as the new rules of global finance, free trade, intellectual property rights, new laws, as well as consolidations and strategic alliances in the agricultural input industry and the structural power of multinational food corporations. National and international law are key drivers of change in this context.

These different forces and factors are now important determinants of innovation in public sector agricultural research in South Asia. The evidence presented in this paper also demonstrates how the combined action of these determinants of innovation is increasingly working against the public good by putting corporations – instead of citizens – at the heart of the governance of food and agricultural research. Most notably, the resulting shift in public research priorities and funding encourages the development of standardised food systems and proprietary technologies such as hybrid seeds and genetically modified crops and livestock. If allowed to prevail, the forces and actors now increasingly controlling food and agricultural research in South Asia will impose more of the same industrial agriculture that has been so problematic at a time of rapid climate change, peak oil, biodiversity loss, water scarcity, food insecurity, and deep crisis in farming and rural livelihoods.

This paper is part of an international initiative called Democratising Food and Agricultural Research. Launched in 2007 by partners in South and West Asia, the Andean region of Latin America, West Africa, and Europe, this multi-regional initiative uses a decentralised and bottom-up process to enable small-scale farmers and other citizens to (a) decide what type of agricultural research needs to be done to ensure peoples’ right to food; and (b) influence and transform agricultural research policies and practices for food sovereignty (www.excludedvoices.org).

The South Asian component of this international initiative is known as the Alliance for Democratising Agricultural Research in South Asia (ADARSA) (www.raitateerpu.com/adarsa.html).

Its first step was to commission a study to find out who was footing the bill for university-based agricultural research (http://www.raitateerpu.com/documents/Farmer_proofing_agricultural%20research.pdf). Not surprisingly this study of six agricultural research centres revealed funding by Monsanto, Syngenta and other corporates who were entering India's lucrative agricultural market with their transgenic products. Around the same time the Indo-US India Agricultural Knowledge Initiative (AKI), dominated by industry bodies, agro-chemical corporations and pliant universities, was confirmed by US and India. It was particularly noteworthy that there were no farmers on the AKI board. This raised a huge question: why are farmers and their knowledge not leading research on food and agriculture?

ADARSA also brought together a series of juries made up of very small farmers from the indigenous populations and marginalised groups who contribute so much to agricultural knowledge and growth. Women – the backbone of agriculture in South Asia – made up half the jury. The Raita Teerpu or 'farmers' verdict' resulted in a collective demand to liberate agricultural research from the existing research organisations and hand it back to farmers (www.raitateerpu.com/farmers_verdict.html).

For the partners involved in the Democratising Food and Agricultural Research initiative, and the wider food sovereignty movement, there is no longer any doubt that technocratic governments and corporate-controlled markets have failed people and the planet on an unprecedented scale. 'Business as usual' is no longer an option for food and agriculture. This is also the main conclusion of several recent international reports on the state of food and agriculture, including the comprehensive report of the International Assessment for Agricultural Knowledge, Science and Technology for Development (IAASTD, 2008). Solving the multiple social and environmental crises that undermine food security and human well being depends on putting the citizen back at the centre of the governance and management of food systems. Local organisations of food producers and other citizens can not only offer practical solutions tailored to local needs and circumstances, they can also challenge the dominant 'development' paradigms, offering radically different definitions of the 'good life' and sustainable living.

In this regard, Shalini Bhutani's paper makes an important contribution to citizens' efforts to reclaim agricultural research for the public good in South Asia. It will help better inform the strategies and actions of citizens and food sovereignty movements by offering a clearer understanding of the wider political economy and legal landscape that shapes agricultural research: who is pushing for what changes in the governance of research; how and why; who wins and who loses; and with what likely consequences for food security, human well being, and the environment in South Asia.

The paper also implicitly invites us to think more broadly and dialectically link the local with the global, - and vice versa. For example, new developments such as International Investment Agreements (IIAs - see <http://tinyurl.com/AlternateIM>) that give large corporations the right to sue governments will no doubt reinforce many of the trends described by the author of this paper. IIAs, - with the disproportionate and unaccountable corporate power they allow -, clearly undermine peoples' right to food and sovereignty. This is a more specific example of how legal instruments are used to further corporate ends and how law itself gets privatised in a capitalist global economy.

These trends need to be resisted and stopped in South Asia and elsewhere because they will further deepen the undemocratic character and social injustice of the global food regime. Food providers and other citizens need to develop safeguards against such abuses of power and must be able to seek legal redress when their rights are violated. The newly adopted Optional Protocol of the International Covenant on Economic, Social and Cultural Rights (CESCR) may offer real opportunities to do that. The entry into force of the Optional Protocol greatly improves access to justice for victims of violations of the right to food and other rights by allowing individuals or groups to bring a complaint directly to the CESCR.

More than ever before there is an urgent need for citizen-led legal action and wider social mobilisation against global actors and processes that are transforming public sector agricultural research for private gain and corporate control. As they intervene in this global arena to reclaim research for the public good, farmer and citizen-led social movements will also need to simultaneously strengthen their decentralised strategies for change. The latter include for example: the regeneration of autonomous local food systems based on bio-cultural diversity; new forms of economic exchange based on reciprocity and solidarity that distance themselves from money-based markets; methodological and institutional innovations for deliberative and inclusive democracy; gender equitable agrarian reforms; federations and horizontal networks for coordination and democratic decision making; and more radical forms of direct action for food sovereignty in rural and urban contexts.

Dr. Michel Pimbert

Director of the Centre for Agroecology and Food Security (CAFS)
at Coventry University, UK
and
Global Coordinator of the Democratising Food and
Agricultural Research initiative

P. V. Satheesh

Director of the Deccan Development Society (DDS), India
and
Coordinator of the Alliance for
Democratising Agricultural Research in South Asia

1. Introduction

Agricultural research is changing fast. This is particularly so in South Asia: once known for its farmers' knowledge and publicly funded research, the region is increasingly focusing on private gain and capital accumulation. Not only are private corporations visibly influencing agricultural research and development (R&D), but governments and public research centres themselves seem to be moving further away from protecting public goods from private interests. Today the laboratory, law and policy all seem to be on one side, with the small farmers, livestock keepers, fisher folk, tribal communities, forest dwellers and ordinary people on the other. As the gap widens, the formal system – be it in agricultural R&D, law or policy making – needs to be called to account. The legislative and policy measures that are both the cause and consequence of these shifts need to be unearthed and better understood.

This background paper tries to capture, in a qualitative way, the changes in the legal and policy landscape which are re-defining

agricultural R&D in large parts of South Asia today. The idea for this paper emerged from discussions with the Alliance for Democratising Agricultural Research in South Asia (ADARSA; Box 1). Therefore, the geographical focus is on ADARSA's priority countries and sub-regions. ADARSA is mostly involved, through its partners, in India, Nepal and Sri Lanka; however an attempt has also been made to include some developments in Bangladesh and Pakistan.

ADARSA is working to democratise the governance of food and farm research. Therefore, their work focuses on the role of law and policy in removing or restricting this space for small farmers. ADARSA members, and especially the many small farmers they support, are increasingly confronted with unfamiliar legal drafts and unfavourable policy documents in their countries. Almost all countries in the region are seeing a proliferation of laws and policies that have a bearing on seed, food, land, on-farm activities or formal agricultural R&D.

Box 1. About ADARSA

ADARSA brings together groups working for farmer-led, farmer-oriented agriculture. It includes the Unity Service Cooperation (USC) in Nepal, the Green Movement and MONLAR in Sri Lanka, and UBINIG and Nayakrushi Andolan in Bangladesh. ADARSA is co-ordinated by the Deccan Development Society (DDS), a civil society organisation in India that has been working with *dalit* women farmers in Andhra Pradesh for the last 25 years.

Key components of ADARSA's work include commissioning research in Nepal and India on agricultural research, and setting up a similar process in Sri Lanka and Bangladesh. Furthermore, ADARSA has facilitated discussions between farmers and scientists in these countries.

In the host country, India, ADARSA has conducted farmer-scientist dialogues on the management of livestock and dryland pastures. ADARSA also conducted a citizens' jury, called a Raita Teerpu (literally 'people's verdict') in Karnataka in December 2009: see www.raitateerpu.com/adarsa.html

ADARSA is also part of an international initiative called Democratising Food and Agricultural Research. Launched in 2007 by partners in South and West Asia, the Andean region of Latin America, West Africa, and Europe, this multi-regional initiative uses a decentralised and bottom-up process to enable small-scale farmers and other citizens to (a) decide what type of agricultural research needs to be done to ensure peoples' right to food; and (b) influence and transform agricultural research policies and practices for food sovereignty (www.excludedvoices.org). This paper is one product of this initiative.

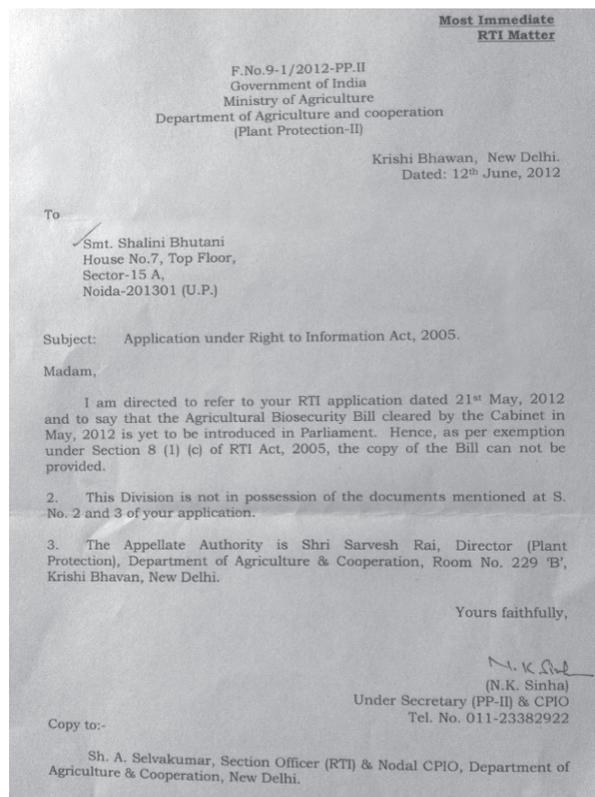
Several methods were used as part of this review, which began with a stocktaking and collection of the available legal and policy texts with the help of ADARSA members. While some of these are available in English, others are not.

The relevant policy documents and legislation from five South Asian countries have been compiled and listed in the Annexes. It is not possible to discuss each of the texts in full, for there are too many. Neither is the list exhaustive. However, the aim here is to flag the volume of activity in this area and to demonstrate how cumulatively they come to bear on people's agriculture.

The collection and compilation of legal drafts was in itself a challenge. The Right to Information (RTI) Act in India was a useful tool in part, but its use involved the hugely time-consuming process of filing RTI applications and undergoing appeal procedures.¹ However, some government departments simply stated that since a particular bill had not been finalised it could not be given out. Or they took cover under a legal provision that states it is not obligatory to disclose information, such as proposed laws, that could be considered to "cause a breach of privilege of Parliament or the State Legislature" (Figure 1).² In other South Asian countries no such RTI Act exists. Thus some texts even today remain publicly inaccessible. However the process of enquiry at least confirmed that certain proposals were under consideration or on the table.

Web sites, relevant publications and annual reports of agricultural centres across the region were also referred to. Media coverage on the

Figure 1. Sample of an RTI reply letter



issue – both print and electronic – was also scanned. But none of these tell the whole story: it had to be pieced together.

An important aspect of the research was talking to a range of people in government departments, scientific establishments, non-governmental organisations and farmers' groups. Interview formats were designed and interviews were subsequently conducted either in person or by email and Skype. ADARSA members in India, Nepal and Sri Lanka were contacted, as well as staff of the national agricultural research institutes (NARIs) in various countries in the sub-region, including Pakistan and Bangladesh (see Annex 6 for a list of people interviewed).

¹This law empowers ordinary citizens to formally request information from any public authority, which is duty bound to respond within a certain time limit. It thus gives people the means to access meeting minutes, file notings, internal decisions, etc. leading up to the drafting of a law. An order passed by the Central Information Commission in 2008 stated that even drafts needed to be made public (see www.indiatogether.org/2009/jan/env-transpenv.html).

²Section 8(1) (c) of India's Right to Information Act, 2005 states that *notwithstanding anything contained in this Act, there shall be no obligation to give any citizen, information, the disclosure of which would cause a breach of privilege of Parliament or the State Legislature.*

The problem:

2. From public research to PPPs

South Asia is home to half the world's poor, most of whom rely on agriculture for a living.³ Large numbers of these people depend on small farm agriculture. According to a survey by the UN's Food and Agriculture Organisation (FAO), in the decade 1995-2005 the average land holding in Asia was only about 1 hectare, which is amongst the smallest in the world (FAO, 2010). This has not changed much even today. And according to *The State of Food and Agriculture 2012*, South Asia is one of two regions in the world where hunger and extreme poverty are most widespread (FAO, 2012). This region has seen many crises in recent years, from food shortages, malnutrition and farmer suicides to livestock diseases, high grain prices and energy costs, a changing climate and natural disasters.

Appropriate agricultural technologies can have significant development benefits in this context. Such technologies might involve soil

improvement techniques that do not hook up small farmers to chemicals or the market, farming techniques such as biodiverse multi-cropping, or systems of sustainable rice intensification.

Research and development (R&D) is meant to solve problems and thereby improve the human condition. The focus of public agricultural R&D should be especially on local needs for food, fodder, fuel and fibre. In this way, it can be a powerful tool for development. Agricultural research for development (known as "AR4D") is a concept that may be gaining currency in official circles (Box 2). But the shift in the sector towards commercial ends means that bringing about the 'development' needed by people on the ground is a real challenge. The need for agricultural research is not questioned; however, it is the nature of that research that is critical.

The organisation of agricultural research is similar across all the South Asian countries and is located in the public sector (Table 1): that

Box 2: Agricultural Research for Development (AR4D)

The first Global Conference on Agricultural Research for Development (GCARD 1) was held in 2010. Its roadmap, finalised in 2011, highlights among other things that national AR4D policy makers and research institutions must develop bottom-up decentralised processes to engage effectively with communities and stakeholders, to better understand their needs and perspectives and to integrate these into effective and equitable partnerships (GCARD, 2010).

The second conference (GCARD 2) – held on 31 October and 1 November 2012 in Uruguay – focused on how to move forward on the GCARD roadmap and the six areas of transformative action required for reorienting AR4D systems around the world. While it emphasises "new collaborations and partnerships", the nature and quality of these will be critical. And as IIED points out, "researchers are still struggling to include smallholder farmers and non-governmental organisations in setting research objectives and in making decisions" (Adolph, 2012).

For more information see the GCARD webpage: <http://www.egfar.org/gcard-2012>

³World Bank data: <http://web.worldbank.org/WEBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/0,menuPK:158850~pagePK:146748~piPK:146812~theSitePK:223547,00.html>, accessed August 2011.

part of the state that provides a public service and works for the wider public interest. Public sector organisations are meant to be not-for-profit, supported by public funds and with no direct commercial activities. The role and rank of the public sector is indicative of the political thinking and economic system that a country is choosing to follow.

Governments in the region—either unilaterally or under external pressure—are using the many crises as justification for new agricultural technologies, with a clear focus on modern agricultural science and proprietary technology. A second Green Revolution (GR II), along with a 'Gene Revolution', is being rolled out jointly by government and the large corporate sector (Box 3; Domain-B.com, 2011).⁴ Despite the technology fatigue of GR I, policy makers are still focused on techno-fixes. The Green Revolution continues to be profiled, at least by officialdom, as a period of productivity and plenty. But even the International Food Policy Research Institute (IFPRI) admits that the “Green Revolution had many negative environ-

mental impacts that have still to be adequately redressed” (IFPRI, 2002; and see also PAN AP, 2011). And what made this 'revolution' possible at a political and practical level was not only the technology, but also the laws and policies that aided it. Therefore, the GR is also held up by policy makers in South Asia as the classic example of the right mix of research and policy in agriculture.

Agriculture for the small farmer is a story of local acts. But today, Acts of parliament and executive policies are responding to a global order that is bringing deep and far-reaching changes. In a globalised world, it is increasingly external actors – intergovernmental bodies and multinational corporations (MNCs) – who appear to be setting the rules. They are re-orienting agriculture as well as R&D. The focus is on market-driven products, processes and services. States are providing incentives to the corporate private sector to enter and operate in the agricultural sector (Box 3). Governments and public research centres are showing interest in partnering with the corporate private sector,

Table 1: National research councils in the region

<i>Country</i>	<i>National Research Council</i>	<i>Established</i>
India	Indian Council of Agricultural Research (ICAR)	1929
Bangladesh	Bangladesh Agricultural Research Council (BARC)	1973
Pakistan	Pakistan Agricultural Research Council (PARC)	1981
Sri Lanka	Council for Agricultural Research Policy (CARP)	1987
Nepal	Nepal Agricultural Research Council (NARC)	1991

Box 3: Extending the Green Revolution to eastern India identified as national priority

A recent Ministry of Agriculture press release had this to say: ‘In the approach paper to 12th Five Year Plan, Planning Commission has identified it as national priority to fully extend green revolution to all the low productivity areas of eastern region where there is good potential to harness ample natural resources in order to achieve food security and agricultural sustainability. Need has been highlighted for increased investment in infrastructure, particularly in power, logistics and marketing to supplement the efforts under the programme of “Bringing Green Revolution in Eastern India (BGREI)” started since 2010-11 as a part of on-going Rashtriya Krishi Vikas Yojana (RKVY) that aims to increase the productivity of rice based cropping system through crop husbandry’ (Ministry of Agriculture, 2012).

The private sector is also benefitting from the slew of incentives and subsidies that the government has made available to promote hybrid rice in India. For instance, the Swiss corporation Syngenta India Ltd. has launched its own project: Green Revolution in Eastern States (GRES). The corporation will benefit from funds allocated by the Indian government for promoting its hybrid rice seeds and pesticides. Syngenta’s project partners are the Gol’s Department of Agriculture and Cooperation, West Bengal’s Agriculture Department and CropLife India (The Hindu, 2012).

⁴The term Green Revolution, first used in 1968 by former director of United States Agency for International Development (USAID) William Gaud, refers to the increased agricultural production in Latin America and Asia from the 1950s through the 1970s and beyond (Gaud, 1968) driven by the introduction of high-yielding crop varieties combined with modern agricultural production techniques.

while also contemplating the commercialisation of their own products and services. For instance, last year the Government of India (GoI) announced a framework for Supporting Public Private Partnership for Integrated Agricultural Development, to cover one million farmers across India between 2012 and 2017 (GoI, 2011).

Market liberalisation has facilitated the entry of a more diverse set of players in agricultural R&D in South Asia. There are many actors other than the government and the public sector now active not only in agriculture itself, but also in agricultural R&D. For instance, since the 1980s in India step-by-step policy changes have encouraged the entry and operation of a much wider spectrum of private sector actors in the seed industry.

Non-governmental organisations, sponsored foundations, industry bodies and farmer groups have also been engaging in lobbying and advocacy work with policy makers and legislators (Deccan Herald, 2012). But the trend in the types of R&D partners chosen in the sub-region shows the failure of governments to streamline processes by which diverse players

can participate equally. In such a scenario those with the reach and resources are able to prevail over the outcomes of law and policy making. This means the balance is tipped in favour of the large private and public sector (in that order), rather than the informal sector.

All of this means that R&D is at risk of becoming far less responsive to local needs and much less enabling of local democracy. This is one of the key challenges for those seeking official support for a people's agriculture. This means having an agricultural research system not only for the people, but of the people and by the people themselves. In ADARSA's view, it is about putting local people and small farmers at the centre. The Alliance therefore works to develop deliberative processes and inclusive spaces that can help to democratise the governance of food and agricultural research. This entails reversing the model that views agricultural R&D as the domain of scientific experts, and which puts people and farmers merely at the receiving end of the research outputs and services. It is about institutionalising a model that makes the 'excluded voices' count in law and policy making.⁵

⁵See the website "Democratising agricultural research": www.excludedvoices.org/about

3. What are the driving forces?

Macroeconomic changes

The agricultural research and extension policies in the region are situated in the economic theory and political ideology pursued by the governments, at times without effective democratic systems in place for people's engagement. Changes at the macro level clearly influence how agricultural policies are changing. The privatisation of research is a phenomenon that can be attributed to several factors. The first and foremost is the political economy from which agricultural R&D too is picking up its hue. In general the emergence of private corporations—and with them, private sector R&D—is on the rise. Other more specific factors include the general decline in public research funds for agriculture, the pressure for public institutes to generate income, the advent of the intellectual property (IP) system and the commodification of genetic resources. This section discusses some of the factors influencing the changing face of agricultural research and extension in South Asia, categorised into the international, external drivers and those that are primarily domestic.

International drivers

Influential foreign governments

Diplomacy through aid and trade plays its part in agriculture in the region. The United States government is a key influence in the region due to its need for a strategic presence in this part of the world and especially in the strategically important food and farm sector (Box 4).

USAID funding in Nepal, joint agricultural R&D agreements with India, the USTR's arm twisting of Sri Lanka to accept US genetically-

Box 4: USDA's Foreign Agricultural Service (FAS) in South Asia

The US is perhaps the only country to have a foreign agricultural service (FAS) with over 100 staff in 80 countries. It has diplomatic and technical staff dedicated to taking US agricultural technologies overseas, while working to expand and maintain access to foreign markets for US agricultural products. In South Asia it has offices in Bangladesh, India, Pakistan, Sri Lanka and Afghanistan.

FAS has a unique role in the US Government. USDA Regulation 1051-001 (June 2005) defines its role as the department's lead agency in co-ordinating all agricultural matters with foreign countries. This includes co-ordinating functions involving foreign agriculture policies and programmes; acting as a liaison on matters relating to foreign agriculture with the Department of State, the United States Trade Representative (USTR), the US Agency for International Development (USAID) and foreign governments; conducting USDA functions relating to the World Trade Organisation and legislation affecting international agricultural trade; and administering and directing the USDA's programmes in international development, technical assistance and training.

The US view of the agricultural development carried out by the FAS in foreign countries is that of enhancing countries' capacity for participation in international trade, an area in which it itself plays a commanding role. The Strategic Plan of FAS for 2012-2016 includes deploying 'experts' from a wide range of USDA agencies in capacity-building programmes to help strengthen agricultural systems and markets in developing countries, and supporting trade capacity through research, development, and extension of "improved techniques and technologies" (USDA, 2012).

Sources: USDA FAS website and USDA (2012).

engineered agricultural products and so on are all part of a considered foreign policy (Lanka Business Online, 2009). The intent is to sell US technology and through that to exercise control. In India, the Ministry of Agriculture, the Indian Council for Agricultural Research (ICAR) and the United States Department of Agriculture

jointly run a US-India Knowledge Initiative on Agriculture Education, Research, Service and Commercial Linkages.⁶ A US-India Agriculture Dialogue was launched in September 2010 to intensify collaboration with India in the name of food security. Such collaborations come to bear on the policy decisions and legal regimes in India. US money is already being channelled into India to set up a Borlaug Institute for the second Green Revolution (BISA), which will not only touch Eastern India but other parts of South Asia (Times of India, 2010). BISA was launched in October 2011 by India's Minister for Agriculture, with centres in Ludhiana in Punjab, Pusa in Bihar and Jabalpur in Madhya Pradesh (ICAR, 2011).

USAID has had a presence in Nepal for over 60 years. Its Country Assistance Strategy for Nepal puts special emphasis on economic policy reforms and agricultural innovation (USAID, 2009). One of the five goals of the US Government's Assistance Priority is to put in place 'key elements of an enabling environment for inclusive, private-sector led economic growth' (USAID, 2009). In 2011 a controversy erupted when USAID attempted to get the Nepal Government to partner with the US multinational Monsanto so it could sell its hybrid maize seeds in Nepal. This was stopped by a popular campaign which insisted that the solution should come from within the country, not from abroad, and not with GE crops (Rayamajhi, 2012). Meanwhile, USAID continues to be involved in pushing new technologies in a Hill Maize Research Project (HMRP) with the Nepal Agriculture Research Council (NARC) (Sewell, 2012). Even though the HMRP claims the establishment of community-based seed production as one of its successes, it is more about 'institutional graduation' of farmers' groups to a co-operative and eventually into a private seed company, than on focusing on farmers' varieties themselves. In Pakistan USAID is recommending the development of a world-class agricultural policy research institute

to establish a unified, interactive policy research system to support agricultural development.

Another route taken by developed country governments to advance their dual economic and geo-political interests is through bilateral trade agreements. The last decade has been particularly hectic on this front. Free trade agreements (FTAs) and bilateral trade and investment agreements (BITs) further the interests of agri-business. These FTAs and BITs, like those being negotiated between the European Union and India and other countries in Asia (Table 2), require laws and policies to be pushed up a notch higher than WTO prescriptions. For example, in some of its FTAs, the EU demands its trading partners to give intellectual property protection for EU biotech products, crop varieties and agrochemicals (Bhutani, 2011a). Through BITs, foreign investors expect protection for their investment(s). The definition of "investment" usually includes intellectual property. In other words if a foreign seed company were to fund some research or set up a production unit, they could legally demand for their IP to be protected. This could undermine the seed sovereignty of South Asian smallholder farmers. Foreign investors are able to negotiate priority access over basic inputs like land and water. Moreover, without the relationship between small farmers and their seeds being adequately protected by law, providing for IP rights over seeds through domestic law and policy is an idea alien to small farming communities in South Asia.

Within Asia, Japan is emerging as a significant technology provider. Some Japanese seed companies have transnational operations, like Sakata Seed Corporation and Takii. The Japan Bioindustry Association (JBA) has interests in marketing its agricultural technology in India, for example (Bhutani, 2013). JBA has also been supporting the process of developing access and benefit sharing (ABS) regimes in countries like India to enable it to access genetic resources and traditional knowledge.⁷ A recently concluded

⁶See the GoI website: www.dare.gov.in/usa.htm.

⁷Access and benefit sharing (ABS) laws and policies allow publicly held genetic or biological material or resources from national repositories such as gene banks to be passed on to the private sector for research (see Section 4).

Table 2: Bilateral agreements that affect national laws and policies on agriculture

Relevant country	US	EU	Japan
Bangladesh	Bilateral Investment Treaty (1986)	Trade and Development Cooperation Agreement (2001)	Comprehensive Economic Partnership Agreement, under consideration
India	Bilateral Investment Agreement, under consideration	Bilateral Trade and Investment Agreement, under negotiation	Comprehensive Economic Partnership Agreement (2010)
Nepal	Trade and Investment Framework Agreement (2011)	Cooperation Agreement, covers agriculture as well (1995)	Donor assistance
Pakistan	Bilateral Investment Treaty, under consideration	–	Joint study group looking into FTA and SEZ for Japan in Pakistan
Sri Lanka	Bilateral Investment Treaty (1991)	–	Free trade agreement, under consideration

India-Japan Global Summit⁸ saw India and Japan agree on policy reforms for food and farming. In this context the two sides will also be talking about agrochemicals, seed technologies, and biotechnology. The countries in South Asia have also come together in an agreement on a South Asian Free Trade Area (SAFTA) involving Bangladesh, Bhutan, the Maldives, Nepal, Pakistan, Sri Lanka and Afghanistan. In such groupings the members with higher law and policy standards require members with weaker protection to match their standards. This is a concerted strategy by an industry or investor to enjoy the same privileges it enjoys in one jurisdiction by expecting other trading partners to replicate them and provide likewise.

The blurred lines between public and private in international agricultural research

The Consultative Group on International Agricultural Research (CGIAR) Consortium was originally intended to be the single largest public player in agricultural research in developing countries. CGIAR was set up to support the NARIs in developing countries to deal with their agricultural challenges through research. Of the 15 international agricultural research centres (IARCs) of the CGIAR set up since 1971, the following are either located in Asia or have an influence on agricultural R&D policy and practice in the region:

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), International Rice Research Institute (IRRI), International Maize and Wheat Improvement Center (CIMMYT), International Water Management Institute (IWMI), and the International Food Policy Research Institute (IFPRI).

The CGIAR has metamorphosed its working relations with the private sector over the last decade. From playing a support role in public agriculture, the group has (re)positioned itself to play a more frontal role in agricultural R&D across the globe. In doing so it has chosen to partner, rather than compete, with the corporate private sector (Box 5). After the revamp of the CGIAR system (between 2007 and 2009), a common CGIAR Fund was set up in 2010 for all the CG centres. The fund is described by the CGIAR as ‘the largest public vehicle for financing agricultural research’ (CGIAR Fund, undated). While the World Bank is the trustee of the fund, only those who make a minimum contribution of USD 500,000 are eligible for representation on the Fund Council, its decision-making body.⁹ The Bill and Melinda Gates Foundation (BMGF) is one of its largest new and non-traditional funders (Table 3). Amongst the South Asian countries only India is represented on the Council, by the head of ICAR.

⁸See the India Japan Global Partnership Summit webpage: www.indiajapansummit.org/en/index.php?page=display&key=nkZ5ciHs

⁹See the list of CGIAR Fund Donors at www.cgiarfund.org/FundDonors

Table 3: Contributions to the CGIAR Fund in 2010 (in USD million)

USA	122.9
United Kingdom	74.0
World Bank	50.0
BMGF	25.8
India	3.1
Source: CGIAR Fund Update, January 2013 newsletter	

The private sector is also fast becoming a source for CGIAR funding. Individually, the IARCs have been wooing the large corporate sector.

ICRISAT was one of the first of the CG centres to start an Agri-Science Park to host agribusinesses (in 2003).¹⁰ It also hosts the Asia-Pacific Consortium on Agricultural Biotechnology. Likewise, IRRI convenes the International Network for the Genetic Evaluation of Rice and the Council for Partnerships on Rice Research in Asia. ICRISAT also was the first to develop the Hybrid Parent Research Consortia, drawing in paid company membership and collecting rent from them for priority access to its breeding materials. Likewise, IRRI's Hybrid Rice Development Consortium is an active collaboration of over 20 large seed companies.¹¹

IWMI too collaborates with corporate bodies, for instance the IWMI-TATA Water Policy Research Program works with the corporate body Sri Ratan Tata Trust.¹²

IWMI's water policy research has been able to influence policy in Sri Lanka, Nepal and Pakistan. But its recommendations don't stray too far from World Bank dictates, and there is a history of popular resistance to World Bank policies in the region.¹³

In collaboration with the Pakistan Ministry of Food and Agriculture and others, IFPRI's research and policy dialogue have been instrumental in changing the direction of the food and agricultural policies in Pakistan, making them more mainstream and linked to the market. In July 2011, IFPRI

launched the Pakistan Strategy Support Program (PSSP) along with USAID to 'support' the Government of Pakistan on a range of economic policies affecting agricultural growth and food security in the country (IFPRI, undated). The PSSP is envisioned as the first part of a comprehensive Pakistan Policy, Science and Innovation Programme (IFPRI, 2011). Likewise, in the early 1990s IFPRI placed a small team of researchers in Bangladesh to collaborate with the Ministry of Food on a set of research activities to guide the country's market liberalisation programme. ICRISAT is also part of Working Groups of the Planning Commission of India, which make policy recommendations to the government.¹⁴

IFPRI launched its South Asia Initiative in 2002 with an eye on the emerging challenges for agriculture in the region. After setting up office in Delhi in 2006, it established the Policy Analysis and Advisory Network for South Asia (PAANSA), a network of agricultural policy makers, advisers and analysts to create more effective dialogue on policies relating to food.

By changing their own policies on an issue, the CG Centres can actually set a template for the NARIs to follow. IRRI policy on intellectual property rights was a case in point. In 2010 its senior management rewrote the institute's IP policy to accommodate the demands for IP protection from its new private sector partners. This made IRRI's NARI partners more open to IP and patenting (GRAIN, 2010; IRRI, 2011). Since then, the CGIAR reform process led to the development of a Common Operational Framework for all centres. The COF includes the CGIAR Intellectual Assets (IA) Principles that were approved in March 2012. (CGIAR, 2012). This new policy allows for "limited exclusivity", which the centres can grant for commercialisation of the respective IA they produce, provided that: a) such exclusivity is

¹⁰See www.agri-sciencepark.icrisat.org/aboutus.html

¹¹Web page of IRRI's Hybrid Rice Development Consortium <http://hrdc.irri.org>.

¹²For more details see the IWMI website: www.iwmi.cgiar.org/iwmi-tata.

¹³See the website of the Independent People's Tribunal on the World Bank Group in India: www.worldbanktribunal.org.

¹⁴For example, Dr. CLL Gowda of ICRISAT is a member of the Working Group on Agricultural Research and Education for the Twelfth Five Year Plan: 2012-2017.

necessary for the further improvement of such IA or to enhance the scale or scope of impact on target beneficiaries, in furtherance of the CGIAR Vision, and as limited as possible in duration, territory and/or field of use, b) and the Limited Exclusivity Agreements provide that the IAs remain available in all countries for non-commercial research conducted by public sector organisations in furtherance of the CGIAR Vision (“Research Exemption”), and in the event of a national or regional Food Security Emergency for the duration of the emergency (“Emergency Exemption”). This policy provides scope for commercialisation of IAs originating from publically funded research.

CGIAR has also 'streamlined' its own structure into a new business model – a joint venture consortium of all its IARCs.¹⁵ A new strategy and results framework will, for the first time, allow the IARCs to function as a unified system. One of the strategic objectives of the consortium is to ‘promote policy and institutional change that will stimulate agricultural growth...’.¹⁶ In its sleeker form it will seek funds for itself, which in the view of some farmers, should ideally go to the NARIs or – better still – to real work on the ground. More seriously, rather than remaining publicly funded, it will seek more corporate partnerships. This could have a serious impact on the international research agenda – risking a

shift of focus to higher external input solutions to local farming problems. The CGIAR 'reform' comes at a time when farmers' groups in the Asian region are questioning the very utility of the CG system to deliver to their needs. A CGIAR assessment admits that while some types of agricultural research can be targeted at marginal farmers, it would be too expensive to develop technologies that must be tailored to fit with their individual and very diverse livelihood strategies (Hazell, 2008).

Another initiative to foster innovation is the World Bank and CGIAR's Private-Sector Committees' Scientific and Know-How Exchange Program (SKEP). This aims at forging stronger ties between the CGIAR and the private sector by promoting technology and knowledge transfer between scientists working in the private sector and CGIAR centres. Bayer and Syngenta also offer scholarships to students and high school seniors, framed as part of their corporate social responsibility activities (Syngenta, undated).

There are several other regional networks that not only influence research in agricultural science and technology, but also the policies that go with it. The Asia-Pacific Association of Agricultural Research Institutions (APAARI) brings together all the ‘stakeholders’ for developing research priorities. Inter-regional and inter-institutional

Box 5. Governance of AR4D: public good by private players?

IRRI's Board of Trustees is responsible for setting IRRI's policy. The board meets twice a year to review IRRI's research priorities and resource allocation and to set the institute's scientific directions, policies and strategies. Despite its public mandate, the institute has not hesitated to invite corporate private sector representatives to be board members.

Dr Usha Barwale Zehr, the Chief Technology Officer at India's largest hybrid seed business – Maharashtra Hybrid Seed Company Limited (Mahyco); Box 10) – is one such example. She is the face of Monsanto in India, given her company's joint ventures with the US multinational and its marketing of the controversial genetically-modified Bt cotton in South Asia for over a decade. Her term on IRRI's board ran from 2007 to the end of 2012, during which time she was responsible for the use of new technologies and tools, including biotechnology.

Another current board member is Prof. Dr. h.c. Friedrich Berschauer. He is the former chairman of the Board of Management of the German multinational Bayer CropScience AG. Since July 2008, he has been chairman of the Board of Directors of CropLife International, the global federation that represents the plant science industry. His term on the BOT runs from 2011 to 2015.

IRRI's Golden Rice Network, which is pushing R&D of GE rice in South Asia, has been run by an ex-Monsanto employee, Dr Gerard Barry, since 2003.

Sources: IRRI News (2012); IRRI website, accessed 11 February 2013, http://irri.org/index.php?option=com_k2&view=item&id=9761:friedrich-berschauer&lang=en

¹⁵See <http://consortium.cgiar.org/>

¹⁶Quoted from the CGIAR webpage: <http://consortium.cgiar.org/about-us/>

co-operation on agricultural R&D happens under the auspices of APAARI.

It is also involved in the internationally organised Global Conferences on Agricultural Development (GCARD) that deal with issues specific to the Asia Pacific region (Box 2).¹⁷

Another international organisation that exercises considerable influence on law and policy-making processes in the sub-region of South Asia is ISAAA (International Service for the Acquisition of Agri-biotech Applications).¹⁸ It is a public private partnership (PPP) on R&D issues, with particular interest in developing industry-conducive biotechnology laws and policies.

International finance

Funding and finance can both play a large role in pushing law and policy changes in the recipient country. These can induce changes in research priorities and consequently choices for farmers. This is also true of South Asia and agriculture. International financial institutions like the World Bank and Asian Development Bank and bilateral donors like the UK's Department for International Development (DFID) have each played their role in how the seed, food and farm sector has panned out in these South Asian countries.

Over the years spanning the Green Revolution and today's GR II, some global development funds have been and continue to play a role in supporting mainstream agricultural R&D in the region. These include the Ford Foundation, Rockefeller Foundation, Barwale Foundation, Syngenta Foundation for Sustainable Agriculture and more recently the BMGF.

In India, under the World Bank-assisted National Agricultural Innovation Project, researchers have begun viewing agriculture as a business.¹⁹ But while agriculture as a business is what has kept India's cities fed for centuries, in this case the business idea is less about supporting rural livelihoods through ecological farming than

about linking countries to the global market, irrespective of sustainability issues. Through this project, several business development planning and development units have been set up in the ICAR institutes and agricultural universities across India to commercialise research outcomes. The project's predecessor – the National Agricultural Technology Project, completed in 2005 – was also supported by the World Bank. In Nepal – a country that relies heavily on foreign aid – a structural adjustment programme was introduced in 1987 with the assistance of the World Bank. The emphasis was on privatising public enterprises, reducing subsidies, deregulating the fertiliser trade and creating an enabling environment for the private sector in areas that included education, health and agriculture. In Bangladesh, the Bank Group's assistance programme pushed for an improved investment climate, reduced trade restrictions, reduced administrative barriers and support for private sector-friendly credit, land and markets. The support for revamping the seed sector in both Bangladesh and Pakistan led to the displacement of native crop varieties by so-called high-yielding varieties (HYVs) and also by the chemical pollution that over the years has poisoned the soils. On the ground, by promoting wheat – not a traditional crop in Bangladesh – it has converted the country into a wheat-growing nation. Today Bangladesh needs to import wheat grain every year because of an increase in demand (BARC, 2011).

Another big source of finance is foreign investment. One global trend of serious proportions is that of money moving across borders for agricultural investment in land. While India is a big player, with an outward going strategy for its agribusiness, Sri Lanka is on the receiving end of this trend (War on Want, 2011). The Sri Lankan Land Alienation Policy to Promote Development Activities welcomes investment in private agricultural production by foreign investors. However, it could come into

¹⁷For more see [t./AppData/Local/Microsoft/Windows/Temporary Internet Files/Content.Outlook/NHSMR4CS/he GCARD Blog, available at http://gcardblog.wordpress.com/2009/10/23/apf2f1/](http://www.gcardblog.wordpress.com/2009/10/23/apf2f1/), available at <http://gcardblog.wordpress.com/2009/10/23/apf2f1/>, available at <http://gcardblog.wordpress.com/2009/10/23/apf2f1/>

¹⁸<http://www.isaaa.org/>

¹⁹www.naip.icar.org.in/

conflict with Lankan agri research R&D priorities and more so with local people. Ironic, in a country which has a colonial history of its lands being converted into British plantations. The Sri Lankan 2013 budget proposes allocating fallow paddy lands to those who will cultivate short-term fruits, vegetable and floriculture on lease arrangements with the government, unless owners assert their rights to such lands and put them to productive agricultural use before 30th June 2013 (Treasury of Sri Lanka, 2013). This issue takes on a much greater scale in Pakistan, where the government has offered 6 million acres of its agricultural land to resourceful countries and MNCs for corporate farming (Farm Land Grab, 2011). This clearly undermines local control and people's agriculture, something that no amount of agricultural research planning can undo. Even in Bangladesh a high-powered committee is considering the pros and cons of undertaking contract farming in Africa (Farm Land Grab, 2011).

Domestic drivers

Shifting ideologies

Until 1990 India officially was following a very different (socialist) development path. The 1991 Industrial Policy Resolution of the Government of India, which unleashed the economic liberalisation programme for the country, has fundamentally altered the landscape. It has required the country to open up to international trade and foreign investment, deregulation in most sectors and – last but not least – initiated privatisation. Consequently agricultural policies too have gone through change. The shift has been from an inward-looking view of farming for food self-sufficiency and nutritional needs to an aggressive outward strategy for taking Indian agribusiness overseas and stepping up India's agricultural exports. Agricultural R&D has to fall in line with such a policy. But as in Bangladesh where economic 'reforms' were undertaken too, the agricultural sector is yet to be fully liberalised. And decision makers are concerned

about the decline in growth of agriculture and the decline of this sector's share in GDP and total export earnings (see below).

Nepal's Agricultural Perspective Plan (APP) states that the strategic thrust essential to achieve its objectives is a 'technology-based green revolution in agriculture which becomes the initial engine of accelerated growth' (National Planning Commission, 1995). This is premised on the belief that growth will occur through technological change brought about by investment in research and extension. Though the APP does flag the need to make the agricultural research system more responsive to the need for location-specific technologies, less attention is paid to that, or to developing locally available technologies. However, the APP approach itself is going to be phased out from 2015.

Pakistan is generally characterised as having an unstable policy environment. Its agricultural research system is also believed to have deteriorated significantly over the past decade or so. The weakest link in the context of R&D is applied research. Despite that, very mainstream drafts of plant variety protection (PVP)²⁰ and seed legislation have found their way in.

Poorly resourced public R&D

Food security is the stated objective of most agricultural R&D activities by governments in the region (see Sri Lanka's policy in Box 7). Yet governments also increasingly view agriculture from an economic activity point of view, as an 'industry' and an 'engine of growth'. Despite the policies of most countries looked at here, agriculture makes a significantly low contribution to GDP. While the GDPs of all five countries have increased since the 1970s,²¹ this does not imply that budget allocations for agricultural R&D have likewise increased (Figure 2). According to World Bank data, the share of R&D expenditure has generally remained less than 1 per cent of GDP in these South Asian countries (Box 6), hence the

²⁰Plant variety protection is a legal term, following the International Union for the Protection of New Varieties of Plants (UPOV) Convention. Recognition of a cultivated plant (a cultivar) as a "variety" in this particular sense provides its breeder with some legal protection, so-called plant breeders' rights, depending to some extent on the internal legislation of the UPOV signatory countries (Source: Wikipedia).

²¹According to the World Bank Development Indicators for 2011, <http://data.worldbank.org/indicator>.

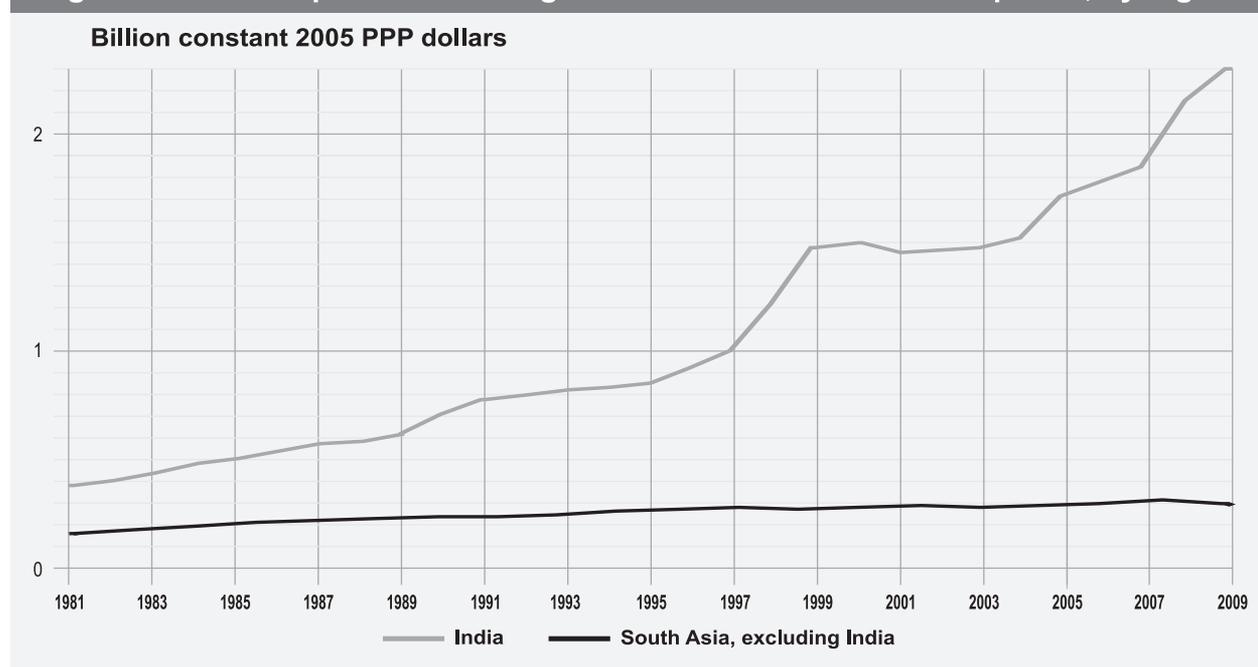
emphasis on revamping the agricultural sector to make it more profitable and productive, bringing it more in line with the market and re-orienting agricultural R&D accordingly.

Up until recently, seed, feed, (human and animal) healthcare and even agricultural education have largely, if not entirely, been

provided for by the public sector. Under the dual forces of the external environment and unilateral liberalisation, the NARIs in the sub-region are transforming themselves. The change is also propelled by a lack of public funding.

There is a perceptible shift towards embracing the private sector, proprietary technology and

Figure 2: Public expenditures on agricultural research and development, by region



(Source : FAO. 2012. *The State of Food and Agriculture 2012*. FAO, Rome. Figure 13)

Box 6: Low government spending on agriculture and research: India and Nepal

In India, the Planning Commission's Twelfth Five-Year Plan recommends that India's expenditure on agricultural R&D and education be increased from the current 0.6 per cent of GDP from agriculture to at least 1 per cent (Planning Commission, 2012).

The Nepal Agriculture Public Expenditure Review prepared by IFPRI for DFID pointed to the fact that expenditure on agricultural research and extension in the Ninth Five Year Plan (1997-2002) was ineffective (Planning Commission, 2012). The World Bank had in fact then recommended that the Ministry of Agriculture's direct role in providing research and extension services be phased out. A decade later during an IFPRI, APAARI and NARC policy dialogue, it was still clear that agricultural research has not reached Nepal's farmers. The Director for South Asia at IFPRI pointed to how low Nepal's financial commitment to agricultural R&D is compared to its South Asian neighbours. Reportedly, Nepal allocated only 0.27 per cent of its budget to NARC in 2011/12, down from 0.53 per cent between 1997 and 1998 (SciDevNet, 2012). Ten years later, the Ministry also gets just about 3.22 per cent of the national budget. This is not considered sufficient. The Government of Nepal has planned to double the spending for the sector, and 2013 has been declared as 'Agriculture Year' to move subsistence agriculture into a commercial mode. The Federation of Nepalese Chambers of Commerce and Industry has stressed that the Nepal Investment Year 2012-13 should focus on bringing more private sector investment into agriculture (Kathmandu Post, 2012).



NARC, Kathmandu, Nepal • Photo credit: Shalini Bhutani

11. Agricultural Research

- 11.1 Focus agricultural research and development on livelihood improvement and poverty alleviation, achieving food security, enhancing agro-based industries and preparing the agricultural sector to face global challenges.
- 11.2 Use cutting edge technologies such as Biotechnology, Geographical Information System (GIS) technology, pre- and post-harvest technology, nanotechnology for efficient agricultural production and environmental conservation.
- 11.3 Promote problem solving collaborative research with the involvement of the private sector, universities, farmer and producers organisations and other relevant partners.
- 11.4 Promote investment by the private sector in agricultural research and development.
- 11.5 Formulate strategies for quick dissemination of research outputs to end users and avoid technology lag.

Source: Ministry of Agriculture Development and Agrarian Services (undated).
Sri Lanka National Agriculture Strategy, available at
www.mimrd.gov.lk/upload/docs/1253183180AgPolicy4.pdf

the exclusivity principles that go with them; in other words, intellectual property. Governments feel that there is huge scope not only to privatise their research outputs, but also to harness income through private sector engagement. ICAR, for example, has a 2020 target of getting 25% of its budget from technology commercialisation and contract research with the private sector (Box 8). Whilst ICAR scientists might well benefit from working with the private sector (in terms of skill development, exposure to new ways of working and technology), there is a concern that not sufficient capacity will be available to work on research focusing on responding to the needs of smallholder farmers.

The BARC in Bangladesh, established in the 70s, is also undergoing change. The Bangladesh Parliament passed a law in March 2012 which paves the way for a new statutory authority to be set up (The News Today, 2011; The Financial Express, 2012). While the new BARC will re-prioritise R&D activities, it will also advise the government on foreign support for research. But the changes are not in response to any local farmers asking for the NARIs to be revamped. In fact some MPs have raised questions in parliament over the lack of public consultation on the proposed bill (Priyo News, 2011; The News Today, 2012).

Corporates getting involved in national research²²

The private sector, in its turn, sees the NARIs as critical partners in the dissemination of

their technology. By 'private sector' we refer to business interests and large private companies – whether national level or multinationals. They run with a different logic to the small, local and often informal private sector (comprising farmers, traders and even small and medium enterprises). Driven by the profit motive, corporations exist to make profits for their shareholders. For them technology commercialisation is a means to capture the market so they can make money from their products and/or services. Therefore, it is logical that their R&D agenda is driven by what they can sell best. It follows that the interests and priorities of the private and public sector are meant to be inherently different. Public sector research is expected to be more responsive to what small farmers actually may need, rather than what the market dictates.

However, technology commercialisation in the public research system is in a nascent stage. Today, corporate players in the private sector, both foreign and domestic, have become important actors in agricultural R&D in two ways: 1) through their own research; and 2) by penetrating the public agricultural R&D sector in various ways. One route is through the PPP – public private partnership – a working arrangement between a government agency and one or more private firms (Figure 3).²³ This might range from physical transfer of technology to the joint development of products.

²²The term 'corporates' used here is as in the popular sense in South Asia, by which reference is made to the private corporations and the business sector of a country's economy. Incorporation is a specific legal process that renders an association a definite legal identity distinct from its members. In India for instance, a company is usually incorporated by registration under the Companies Act of 1956.

²³While PPPs in other sectors in India are fairly streamlined in terms of procedures (see Ministry of Finance, 2011), there is a very obvious absence of regulation of PPPs in agricultural R&D.

Box 8: The changing face of 'ICAR Pvt. Ltd.'

The Indian Council of Agricultural Research (ICAR) is the largest and oldest agricultural research organisation in the region and has a very wide sphere of influence. This makes it an attractive partner for the private sector. But ICAR is also beginning to see private research as competition, and has developed a policy on self-generated income (ICAR, 1997).

In August 2011, the Government of India approved a proposal by the Ministry of Agriculture, Department of Agricultural Research & Education (DARE) for setting up a new company, Agrinnovate India Limited, as ICAR's commercial arm. This is a registered company under the Companies Act, fully owned by the Government of India through DARE. Its aim is to market and popularise ICAR's research outputs, as well as take up projects in PPP mode.

ICAR senior management argue that if other public sector organisations have their commercial arm, why not ICAR? This reflects a general trend in the public sector. For instance, India's Council of Scientific and Industrial Research (CSIR) has its commercial side in CSIR Tech. Likewise, India's Space Research Organisation (ISRO) has Antrix Corporation Limited as its commercial arm.

This is most visible in India (see the timeline in Table 4 and Box 10). In the words of a senior ICAR staff member in Delhi, India, 'you name any company and we are in some partnership with it!'²⁴

But the public sector in other countries is also going down that track. In Nepal, NARC's Strategic Vision for Agricultural Research (2011-2030) recognises that with the private sector becoming a more active participant in R&D, the role of the state will change to facilitator rather than implementer. Nonetheless, the re-engagement with the private sector is being pursued by states both in general and as sector specific strategies. For example, in Bangladesh the National Fisheries Policy (Ministry of Fisheries and Livestock, 1998) states that arrangements will be made to conduct research jointly by government and private organisations.

In sum, corporations today have an unprecedented influence over agricultural R&D and its operating environment. This is most visible in Bangladesh, India, Sri Lanka and Pakistan and to a lesser degree in Nepal. All the major multinational corporations in agriculture today have a presence in India, from where they extend their influence into other parts of Asia (Box 9).

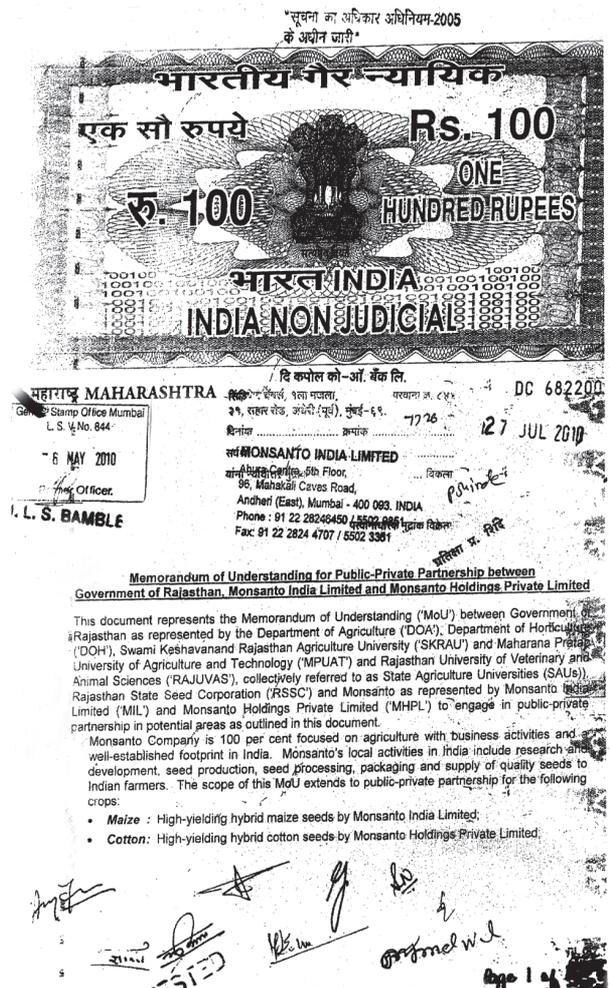


Figure 3. Monsanto India's MoU with the State of Rajasthan in India

Box 9: Who's on the board?

The US and India relationship for agricultural co-operation was re-written in 2005 under the Bush-Singh administration. In that year the Ministry of Agriculture of India and the United States Department of Agriculture (USDA) promoted a new US-India Knowledge Initiative on Agricultural Education, Research, Service and Commercial Linkages. From the US, the board members included representatives from the US MNCs, namely Walmart, Monsanto and Archer Daniels. The Joint Declaration expressly states that a key feature of this initiative will be a public-private partnership where the private sector can help identify research areas that have the potential for rapid commercialisation, with a view to developing new and commercially viable technologies for agricultural advancement in both countries.

Sources: DARE (2007); USDA (2006).

²⁴In an interview with the author in July 2011.

In 2010 in the Western Indian state of Rajasthan, the State Government signed memoranda of understanding (MoU) with seven large private companies, including the Indian avatar of the US multinational Monsanto. These PPP agreements were withdrawn following popular protests (Bhutani, 2011b).

While the US multinational Monsanto is perhaps the biggest name in India, its other avatars like Mahyco have their own research centres for GE products and plant breeding (Box 10).²⁵ In Sri Lanka, so far only one big private enterprise – CIC Agribusiness, a subsidiary of Chemical Industries (Colombo) Ltd. (CIC) – is directly conducting agricultural research in the country.

Box 10: A PPP between Monsanto Inc. and the Indian government for developing hybrid basmati rice

The Barwale Foundation (BF), the Indian Foundation Seed & Services Association (IFSSA) and Indian Agricultural Research Institute (IARI) have an MoU to promote and popularise Pusa RH-10, the first basmati rice hybrid in the country, through a private public partnership. The partnership is held out as a model PPP. IFSSA took on the maintenance breeding and parental line seed multiplication of Pusa RH-10. IFSSA produced and distributed 56.28 and 25.97 tons of Pusa-6A (female) and PRR-78 (male) respectively, resulting in royalties of Rs. 20, 26, 080 (approx. USD 37,326) for IARI.

Source: IARI (undated).

Industry associations and business councils also have a bearing on the developing landscape on this issue in South Asia. One corporate collective is the Association of Biotechnology Led Enterprises – ABLE. It has a Special Interest Group on Agrobiotechnology, which comprises all the big names in the genetic engineering industry: Advanta India, BASF India, Bayer Bio-Science, Devgen Seeds, Dow AgroSciences, JK Agri Genetics, Mahyco, Metahelix, Monsanto,

Nath Biogene, PHI Seeds and Syngenta India. Amongst its key areas of focus is creating an enabling environment for adopting biotechnology in Indian agriculture. The group is only open to agricultural technology providers: either original technology providers or holders of an exclusive license for the technology, with rights to sublicense.²⁶ Through press campaigns and also lobbying the government, the group is supporting the passage of the Biotechnology Bill in the Indian Parliament, which will allow for single window clearance of their GE products (Golikeri, 2011).

Another example is the Confederation of Indian Industry (CII), which has its own Food and Agriculture Centre for Excellence (FACE).²⁷ Along with the US-India Business Council (USIBC), it creates space for the interface of business, government and NARI officials.²⁸ USIBC companies seek a level playing field for their products and investments in India, including the acceptance of international technologies in agricultural production. These range from GE seeds to micro irrigation technologies. On policy interventions, USIBC members would like to see industry-friendly changes to IP law and seed legislation, 'reforms' in the Land Ceiling Act, a contract farming act and amendments to the agricultural produce marketing legislation to establish market-based policies (USIBC, undated). It is not unusual to see the likes of CII organise seminars on desired policy changes or actively lobby the government for a favourable legal environment for industry to market its products and services.²⁹

Likewise, in Nepal under the Federation of Nepalese Chambers of Commerce and Industries (FNCCI), an organisation called the Agro-Enterprise Centre (AEC) has been formed. Among other things it lobbies on behalf of private agribusiness and supports

²⁵<http://www.mahyco.com/research.html>

²⁶For details see www.ableindia.in/ABLE_AG.php

²⁷See <http://www.face-cii.in/face>

²⁸See the CII Bridge website: http://newsletters.cii.in/Newsletters/Cii_indian_bridge/March_2011/30_march1.asp

²⁹In this YouTube clip, CII President Adi Godrej explains the agriculture sector agenda and key reforms that will boost agriculture growth: www.youtube.com/watch?v=EN1Y31PrYCM

Table 4. External influences on India's IP law, policy and the ICAR: a timeline

1995	India became a member of the WTO and was thus bound by the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), requiring its IP laws to be changed to be in compliance.
1995	A research contract was signed between ICAR and Mahyco for hybrid rice development, which is one of the most cited examples of private funding in research in the public sector. Ever since, ICAR has been engaging in PPPs.
1997	Rules and Guidelines for Training, Consultancy Research and Contract Service in ICAR System were published, to institutionalise working with private players.
1998	IPR Section established at the Crop Science Division in ICAR and position of the Assistant Director General (Intellectual Property Rights) created.
1999	The first Patent Amendment Act was passed.
2001	ICAR Guidelines for filing patent applications published.
2001	Protection of Plant Varieties and Farmers' Rights (PPVFR) Act passed as India's TRIPs-compliant providing IP on plant varieties against popular opinion against any IPR on life forms.
2002	The second Patent Amendment Act passed, allowing patenting of micro-organisms and genetically modified plants and animals.
2003	PPVFR Rules published to commence the implementation of this IP law and ICAR plant breeders were amongst the first to begin filing applications for PVP.
2005	Society for Technology Management (STEM) was established in India for successful technology transfer processes providing assistance to inventors and corporations in matters of IP.
2005	Patent Third Amendment Act was passed, which ushered in the product patents regime that also covered agrochemicals.
2006	World Bank-supported National Agricultural Innovation Project (NAIP) started.
2006	ICAR Guidelines for IP Management and Technology Transfer/Commercialisation published.
2007	Public Funded R&D (Protection, Utilisation and Regulation of Intellectual Property) Bill proposed to institutionalise the IP culture in the public sector.
2011	New company AgrInnovate India Ltd. set up to commercialise ICAR IPR.
2013	New Science, Technology and Innovation Policy published

commodity-based organisations in areas such as tea, sericulture, floriculture and apiculture.

Agricultural education and extension

In several parts of South Asia, discussions are rife on the liberalisation of education in general. Countries that are members of the World Trade Organisation (WTO; Table 5) find themselves under pressure from dictates from the General Agreement on Tariffs and Trade (GATT) to open up this sector as well. While education in India has always had both public and private players, India has the largest public agricultural education system not only in the region but perhaps in the world.³⁰ It has 56 State Agricultural Universities (SAUs), one Central Agricultural University (CAU), five Deemed Universities (DUs) and

four general Central Universities with agriculture faculties, all of which come under the ICAR. But changes are afoot here as well. The ICAR issued a Draft Policy on Higher Agricultural Education in November 2012. Therein too it is recommending that "appropriate models of PPP" be evolved (ICAR, 2012). Given that the draft policy recommends the SAUs and Deemed Universities should set up overseas campuses, for instance in the SAARC (South Asian Association for Regional Cooperation)³¹ and ASEAN (Association of Southeast Asian Nations)³² regions, the changes could have impacts outside India as well.

Meanwhile, the Government of India has pushed a Universities for Research and Innovation Bill to create innovation centres

³⁰See the ICAR website: www.icar.org.in/en/agricultural-education.htm

³¹Comprising Afghanistan, Bangladesh, Nepal, Pakistan, India, Sri Lanka, Bhutan and The Maldives.

³²Which includes Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Burma (Myanmar), Cambodia, Laos and Vietnam.

Table 5. South Asian countries' membership of global conventions on free trade, biodiversity and access to genetic resources

Country/Convention	WTO (World Trade Organisation)	UPOV (International Union for the Protection of New Varieties of Plants)	CBD (Convention on Biological Diversity)	Plant Treaty (International Treaty on Plant Genetic Resources for Food and Agriculture)
Bangladesh	January 1, 1995	Not member	May 3, 1994	November 14, 2003
India	January 1, 1995	Not member	February 18, 1994	June 10, 2002
Nepal	April 23, 2004	Not member	November 23, 1993	October 19, 2009
Pakistan	January 1, 1995	Not member	July 26, 1994	Sept 2, 2003
Sri Lanka	January 1, 1995	Not member	March 23, 1994	Not member

that balance privately sponsored and publicly funded research. These are to be set up through PPPs using MoU stating that researchers shall have the freedom to patent the results of their research jointly with the university, without approval or validation by the university administration or by any government agency or authority, except in a certain number of limited strategic areas (Education Insight, 2009).

Though agricultural education is a subject that state legislatures can make laws on, a *Model Act for Agricultural Universities* has been proposed by ICAR in India. The revised version of the Act (2008) expressly encourages research councils in universities to 'foster and coordinate Public-Private Partnership in research'.³³ India's Agriculture Minister has been calling upon agricultural universities to adopt the model law, and India's Human Resource Development Minister also defends the general policy changes that open the education sector to private participation (FnB News, 2011; DNA, 2011).

Similarly, in 2009 in the state of Tamil Nadu (South India), the government attempted to pass the Tamil Nadu State Agricultural Council Act to 'regulate agricultural practice' and to provide for the establishment of the Agricultural Council (Govt of Tamil Nadu, 2009). The effect of the proposed legislation would have been to literally outlaw anyone without an

agricultural degree from providing advisory services to farmers, registering only those with professional agricultural qualifications as 'agricultural practitioners'. In other words, those without a formal degree would not be permitted to farm; there was no safeguard for the millions of formally illiterate farmers. In its zeal to regulate farming, the government proposed a slew of measures. There were real concerns that these would adversely affect traditional farming activities across the state. Following protests by both farmer associations and political parties, the bill was withdrawn. Even though this may be an isolated example, it gives an insight into the government's thinking on who should be doing agriculture and how it should be done (i.e. in a formal way). This is reflected also in recent plans by the Tamil Nadu Agricultural University to revamp its syllabus (The New Indian Express, 2013). According to the ICAR's Draft Policy on Higher Agricultural Education (2012) to be applied across India, the course curriculum should give emphasis to the skills required for private sector employment, particularly in the areas of value addition, packaging, biotechnology, agro and social forestry, horticulture, animal husbandry and fisheries, scientific storage and transportation of perishables and global marketing.³⁴

In Nepal, the FNCCI also favours PPPs for agricultural education (Tamrakar, 2008).

³³Section 15 of ICAR's Model Act for Agricultural Universities in India (as revised in September 2008), available at www.ndri.res.in/ndri/Design/Revised%20Model%20Act%20.%2013rd%20Sept.,%202008.pdf

³⁴ICAR's Draft Policy on Higher Agricultural Education www.icar.org.in/files/Draft-Policy-21-11-2012%20.pdf

In the past decade, several countries in the region have witnessed the entry of private players – both non-profit and for-profit – into extension work. This is a means to encourage the sale and use of their own products and services. Many companies have their own foundations which engage in direct training and 'capacity building' of local communities. For example, Reliance Industries Limited (RIL) is India's second largest private corporation, also listed at 99th position in the Fortune Global 500 in 2012.³⁵ The Reliance Foundation is its philanthropic face. Apart from petrochemicals and textiles, it has also made major forays into agriculture. It has an agrochemicals business and RIL's subsidiary – Reliance Life Sciences – is into plant biotechnology. It also has a retail chain, Reliance Fresh. In fact its mango exports to the UK's luxury store Harrods from its mango plantation, which is reportedly the largest in Asia, earn the company more profit than do its petroleum products (Agriculture and Industry Survey, 2006). On agricultural education, the foundation trains young professionals under its Dhirubhai Ambani Rural Entrepreneurship programme. The foundation has also embarked upon an initiative called Reliance Knowledge for Sustainable Development (RK4SD).³⁶

Likewise, Rallis India, a fertiliser and pesticides company from the Tata Group, has recently inaugurated the first Tata Rallis Agri Input Training Scheme in Odisha State along with the Institute of Management of Agricultural Extension, Bhubaneswar and the state Directorate

of Agriculture (TATA, 2012). This is a means to introduce participants to the companies' range of products. In the same vein, USAID's Agricultural Innovations Partnership (AIP) is a five-year project led by Cornell University in the United States, comprising a consortium of Indian state agriculture universities, US land-grant universities and private sector partners. The MNC DuPont Pioneer has entered into a joint collaboration (laid out in MoU) with state governments in India (such as Odisha, Gujarat, Rajasthan and Uttarakhand) to 'educate' farmers in what it considers 'best farming practices', while promoting use of its hybrid seeds.³⁷

In 1998, a government-appointed commission in Pakistan recommended that the private sector be included in an overhaul of agricultural extension. The multinational Syngenta, for example, set up its own advisory services as part of its marketing strategy to promote its pesticides and its vegetable seeds. In Sri Lanka, the agricultural extension service, provided solely by the government as a free service and funded by the Asian Development Bank (ADB), was liberalised in 1999. A fee-based private extension service was initiated as a pilot project during that year.

Such approaches can limit the delivery of public services by the NARIs. The Government of India, for example, realises that its public extension role would change to one of arbitrating conflicts and insisting on accountability of all service providers to farmers (Govt. of India, 2000).

³⁵The Reliance Group <http://www.ril.com/html/aboutus/aboutus.html>

³⁶See <http://reliancefoundation.org/>

³⁷See the Dupont webpage: 'Improving Agriculture and Farmers' Futures in India' at www2.dupont.com/inclusive-innovations/en-us/gss/global-challenges/food/farmers-india.html

4. What are the implications for small-scale farmers?

Despite the rise of the private sector in the provision of agro-services, such extension will gravitate towards selected regions, crops and sectors where gains are to be appropriated. Pure public goods, economically backward regions, small, marginal farmers and landless labourers will not attract the for-profit private sector.

(Govt. of India, 2000: - Paragraph 3.3.1.3)

Policy making is the process by which governments translate their political vision into programmes for action. Arriving at a policy decision or document can be a complex exercise. It entails the balancing of different interests. Policy makers are struggling to balance market liberalism and state activism in agriculture more than in any other sector. In this balancing act the third sector – the local communities, which will be at the receiving end of these policies – are often sidelined and have little say in the policies being created.

Neo-liberal policies and the new generation of laws – which mark a huge departure in their values, attitudes and objectives from the previous generation laws and policies – are both the cause and effect of the change to a restrictive R&D environment with narrow economic interests.

Governments in the sub-region have been pushed to liberalise their agriculture sector and so far they have responded only selectively. Yet if and when the list of demands is fully met, the 'reforms' in the post-GR era appear to be even more far-reaching than the technologic reforms of that time. While the GR had the public sector at the helm, now the NARIs expressly welcome the entry and operation of the private sector. Yet it is important to note

that the private companies chose to be in areas of high return and high value. For instance, crop improvement research is in hybrids and not open pollinated varieties, as well in sectors such as horticulture, floriculture, dairy and fisheries.

Whether the law and policy facilitate public or private R&D, each can have an equally adverse impact by shifting power out of the hands of people because they encourage technologies that can turn farmers into end-users and consumers. They also generate a growing gap in terms of power and disconnect in the vision for the way forward between formal agricultural 'scientists' and small, informal innovators. The immense wealth of local know-how across the region – be it on crop diversity, soil systems, plant protection, livestock keeping or weather patterns – is yet to be given legal recognition or policy support.

Unsustainable seed systems

Take for example, the public seed systems, where the entry of the for-profit private sector is perhaps the most visible. At the informal level, farm-saved seed (FSS) is the source of farmers' seed throughout the region. Beyond this, they have also relied on the public sector for their seeds from the time of the Green Revolution. But now these government enterprises are becoming less reliable, both in terms of quality and quantity, as a major source of seeds for farmers. For instance, the State Seed Corporation in the southern India State of Karnataka had no cotton seed to sell to farmers. This created a supply gap, only to be filled by private seed companies selling genetically

engineered (GE) cotton hybrids. Small farmers, along with local activists, were driven to file a "writ of mandamus"³⁸ in the High Court of Karnataka in 2011 to compel the Karnataka Agriculture Department and Seed Corporation of Karnataka to supply quality non-GE cotton seeds in time to farmers in part of Mysore District, which is a major cotton growing area (SAGE, 2011).

In Bangladesh there have often been instances when the state has been unable to supply seeds to farmers because it has not paid its dues to contracted seed growers. Farmers ought not be made dependent on external supply of seeds for their farming. Yet FSS is not encouraged by the state. On the contrary, new laws and policies are creating an environment for the private seed companies to sell their seeds, while there is no regulatory framework for developing and expanding local seed systems for crops or varieties important to small-scale farmers. There is also no incentive for seed production of local varieties or under-utilised crops (Ministry of Agriculture, 2007).

Governments need to be supportive of informal activities for seed production – be it farmers' seed exchanges, or ensuring availability of plant materials from which to select. Guaranteeing access to and supply of inputs crucial for seed production may well be provided through subsidies. Incentives for the use and continuance of climate-resilient crops, such as millets in rainfed areas, are also important. Supporting 'alternatives' to the formal seed supply system could also be designed around respecting and organising women farmers as seed keepers. Local farmers' self-developed certification mechanisms in organic agriculture (such as participatory guarantee schemes run by the Organic Farming Association of India for seed quality) also ought to be duly recognised. Public sector initiatives – such as food distribution schemes, child nutrition programmes, schools, hospitals and government offices – can provide

readymade markets for the uptake of excess produce.

Co-operation undermined by competition

The other way the private sector has indirect influence is by setting the trend and the pace of R&D, thereby re-orienting research. This pushes public sector R&D to make a shift, be it in co-operation or competition with a private research institute or company. For in capitalism, the predominant motive for producing goods and services is to sell them for a profit, not to satisfy people's needs. Capital accumulation and profit making are the logic for such an economic model. Often inherent inefficiencies in the public sector create more space for the companies to step in.

For example, within the South Asian Association for Regional Cooperation (SAARC) region, the Indian experience sometimes dominates policy discussions that other individual countries undertake in an area. A collective SAARC Agricultural Perspective/Vision 2020 was finalised in 2009 (Box 11). But again it advocates for public-private partnership for technology dissemination to address weak 'research-extension-farmer linkages'. Amongst other things, it emphasises the need for sharing of technology and resources in research, extension and infrastructure. However, agricultural scientists we interviewed in the Nepalese NARIs lamented a decline in sharing by India.³⁹ Since every aspect of cross-border exchange, be it genetic resources or transfer of research results, is now governed by legal rules and regulations, there is a reluctance amongst scientific peers to talk freely. They speak of the spirit of competition taking over that of co-operation.

Public sector corporations have also been revamped. To be more profitable, Nepal's Agricultural Inputs Corporation (AIC) has been split into a fertiliser company (National Agricultural Inputs Company Ltd.) and a seed business (National Seed Company Ltd.). Yet

³⁸A writ of mandamus is an order issued from a court of superior jurisdiction that commands an inferior tribunal, corporation, or individual to perform, or refrain from performing, a particular act, the performance or omission of which is required by law as an obligation.

³⁹Personal communication with NARC staff scientists, July 2011 in Kathmandu, Nepal.

Box 11. SAARC's Agriculture Vision 2020: Infrastructure, Research & Development (R&D)

'While agriculture infrastructure remains weak in all the SAARC countries, priority accorded to public investments in agriculture receded considerably during the last two decades. Countries are also spending very small fraction of Agricultural GDP on R&D. Conversely, research in advanced Agricultural Science is getting increasingly expensive. However, in order to tap advantage of emerging market opportunities and technological breakthrough, SAARC countries ought to invest heavily in rural infrastructure (roads/transportation, electrification, markets, water, land), R&D.'

The vision also expresses concerns about agricultural R&D, but falls short of being a bottom-up approach. It does mention SAARC countries would have to identify policy interventions that help in achieving 'optimal results'. But again it advocates for public-private partnership for technology dissemination to address weak 'research-extension-farmer linkages'.

Source: SAARC (2009)

the profitability of these businesses suffers from lack of legal enforcement of the laws to prevent the illegal smuggling of fertilisers. While the AIC operates under a subsidy regime – both for price and transport, in chemical fertilisers by the Government of Nepal (GoN) – organic and chemical-free farming do not get as much policy support. Until the GoN deregulated fertiliser trade in the late 1990s, AIC as a public sector enterprise enjoyed a monopoly.

Opening the door to the ownership of genetic resources and traditional knowledge

Another impact of privatisation in public R&D is the assertion of rights of biological materials and associated people's knowledge. Access and benefit sharing (ABS) laws and policies allow publicly held genetic or biological material or resources (GBMR) from national repositories

such as gene banks to be passed on to the private sector for research. But it must be understood that national collections that are publicly held do not render ownership of the resource or knowledge. The state holds the genetic material on behalf of the people. The public institute cannot claim either exclusive property rights or appropriate unilateral decision making over this material, or the knowledge which led to its development (Box 12).

ABS laws in the region are paving the way for the use of people's genetic material by either private industry or the public sector. In other words, the concept of ABS legalises the change of public material into a proprietary product. India is the only country so far in the region that has an ABS regime in place, at least on paper. Bhutan has recently developed a draft ABS policy (NBC, 2012).

India is keen to show that ABS is a workable concept. Yet while it makes 'access'

Box 12: Cashing in on gene banks

The germplasm collections held in public institutes such as agricultural universities or public research institutes are from crop varieties collected over the years from farmers' fields. Brinjal (aubergine) germplasm is held in trust by the University of Agricultural Sciences in Karnataka and the Tamil Nadu Agricultural University. It was handed over to Monsanto-Mahyco's research facility for use in genetically engineering Bt brinjal without the prior informed consent of farming communities or the approval of relevant biodiversity authorities. In February 2010 the Environment Support Group, a charitable trust in Bengaluru, Karnataka informed the Karnataka Biodiversity Board that the company had accessed at least 10 brinjal varieties from the state collections without due approval of the National Biodiversity Authority or involving the state biodiversity boards, as is required under India's ABS legislation – the Biological Diversity (BD) Act, 2002. Mahyco was accused of biopiracy, or misappropriation, of local germplasm. Small farmers pointed out that they had been growing several local varieties of brinjal. After much public pressure, the National Biodiversity Authority – a statutory body set up under the BD Act – conveyed its decision to initiate legal proceedings against the company. A chargesheet has been filed in a district court in the state of Karnataka.

In another example, an article in the Wall Street Journal in May 2012 claimed that a senior ICAR scientist had invited multi-national companies to access India's crop germplasm collection housed at the National Bureau of Plant Genetic Resources (NBPGR) in return for climate-friendly technology such as new seeds. The press report drew much ire. In a reply to an RTI application on the matter, the NGPBR denied outright any such tie-up (ASHA, 2012).

the norm, there is no real case of 'benefit sharing' with local peoples. And the Expert Committee granting access to GBMR under the National Biodiversity Authority (NBA) has already been called to account by civil society for having a representative of the Swiss multinational Syngenta as one of its members (GRAIN, 2009). The activists pointed out that the very composition and functioning of this Expert Committee undermines the objective of defending people's genetic resources and knowledge.

The draft national legislation on the subject in other South Asian countries is fairly standard, requiring application to a central authority for permission to access genetic resources and associated local knowledge, prior informed consent (PIC) of the national authority and the local communities where access is to take place, and arrangements for benefit sharing with both the central authority and the local communities concerned. In an increasing number of countries, a distinction is being made between access for research and access for commercial purposes. However, there is a thin line between research and commercial use. ABS laws are trying with some difficulty to establish the borderline. Meanwhile, while access rules are being prioritised, rules and regulations for protecting traditional knowledge from 'biopiracy' remain at the discussion stage (Box 12).

Globally, the status of genetic resources has changed. Prior to the Convention on Biological Diversity (CBD) biological resources were considered the common heritage of humankind. These resources crossed borders both for research and trade without much restriction. After the CBD came into force in 1993, these resources became a matter of national sovereignty. This sovereignty principle is meant to translate into community sovereignty. However, most governments have (mis)interpreted it to acquire the biological resources for themselves. An example is agricultural research institutes claiming IPR on existing crop varieties through plant variety protection (PVP). This ignores the fact that most of the material has come

from farmers' fields (see also section below on Privatising Life).

The use of GBMR and traditional knowledge in the formal research system is a one-way street, risking people's own ability to exercise control over their local resources. Moreover, there has been a significant shift to high technology uses of genetic resources, specifically in developing modern biotechnological products for application in agriculture. This has implications for small biodiversity-based farming systems. Without the safety of GE crops and breeds being proven first by independent scientific assessment, biodiversity and human health can be put at serious risk. The promotion of GE seeds and the agrochemicals they require locks farmers into the very corporate agribusiness that many of them are resisting. Moreover, the space to maintain and use their own knowledge of seeds is undermined.

While there has been much more public awareness of environmental issues, the biodiversity policies and laws have not closed the circle on conservation. On the contrary, ABS laws have facilitated access of genetic materials for R&D without any benefit-sharing for local communities.

Food as big business

The economic transformation of states in South Asia has meant that the hitherto established role of the state in the food sector has been challenged. With food becoming a significant part of global agribusiness, and more and more private players involved in the supply chain, the regulatory regime has to catch up. But if feeding people is the real objective, then the entire food system and the running of the food industry are slated for fundamental change.

Governments in the sub-region have only slowly started moving in the direction of regulating the supply chain. The food safety and standards compliance, and the agricultural produce marketing laws undergoing amendment are the indicative steps. The most obvious shift has been towards commodity trading. This has pushed food prices up, something that South Asian governments can ill afford. And their major

economic reforms have meant lower protection levels from the vagaries of the market. The Indian Parliament has recently allowed foreign direct investment (FDI) in multi-brand retail. The Indian Government believes it will boost the growth of the food processing industries and has invited private players to invest in this sector to tap into the huge potential. Yet it will have implications for the entire supply chain, particularly the small producers at the end. In other countries too, as in Sri Lanka, every aspect from seed to plate is slowly coming under fresh regulation. From June 2012, Sri Lanka's Ministry of Cooperatives and Internal Trade began to enforce a regulation requiring the use of plastic crates to transport vegetables and fruits. As this raises transportation costs, there were violent protests when this idea was earlier introduced in 2011. Increasingly, small producers feel they are being slowly squeezed out of the system. Law and policy changes in this area also do not have popular backing (Zeebiz.com, 2013).

Impacts on the legislative process

Since the Green Revolution, the scope of agricultural law has dramatically expanded. Earlier laws relating to agricultural infrastructure, like seed, livestock, water, chemicals, etc. were merely associated with the subject of agriculture. Today, there is a whole body of laws relating to trade and commerce that is subsuming agricultural R&D issues within it. This calls us to question the forces that are behind this change. Laws and policies are becoming a means to bring about that change. It must be understood that getting legislation in their favour is a strategy by corporations to make sure that large amounts of public money directly subsidise their market positions, private gains and capital accumulation.

National legal rules can prove to be a hindrance to free trade. Global capital has responded in many ways – by shifting the locus of decision making to international fora (the WTO is one such example) and by also influencing the law makers at the domestic level. Laws are one of the main ways by which

companies are furthering their interests, aided by governments.

Laws may still be enacted in parliaments but there is a growing realisation that they are being made outside of them. PPPs and MoUs are changing the rules and filling any legal vacuums. Likewise contracts between companies and farmers can bind the latter into obligations that might not yet have been envisaged in their domestic law. This has the effect of not only pre-empting law but also of norm setting.

Almost all countries in the sub-region have seen several drafts of new laws that have a bearing on either farming or agricultural research (see Annexes). Yet the irony is that those engaged in agricultural activities at the local level are by and large kept out of the consultative process. Often draft texts of laws, for example the Biotechnology Bill in India or proposed new seed laws in Pakistan, are not even publicly accessible. This lack of public accessibility is becoming a general trend in the region.

Unconstitutional law

The constitution is the source of all laws in a state. But some recent legislative drafts go against both the letter and spirit of constitutional law. In republics like India and Sri Lanka, laws and policies have steered far away from a socialist orientation despite their constitutional mandate to pursue a socialist path of development. Pakistan's Constitution is also based on Islamic principles of social justice, but nevertheless capitalism is taking root there too.

In this way, principles meant to be fundamental in the governance of a country are being totally disregarded. Take for instance the Directive Principles of State Policy in the Constitution of India, that mandate the state to direct its policy towards 'securing that the ownership and control of material resources of the community are so distributed as best to subserve the common good...'. They also make it mandatory for the state to ensure that 'the economic system does not result in a concentration of wealth and means of production to the common

detriment.⁴⁰ If the economic system is not serving that purpose, then the possibility of constitutional challenge becomes real.

Governments also seem to be ignoring local people's powers to decide that are vested in their constitutions. For example, the 73rd Constitutional Amendment passed in India in 1992 gave formal constitutional recognition to local self-governance units: the Gram Sabha or village assembly as a deliberative body for decentralised governance. Amongst the subjects for rural local government, agriculture and agricultural extension are top of the list. The Eighteenth Amendment of the Constitution of Pakistan, which was passed by the country's National Assembly in 2010, is also meant to enhance provincial autonomy. Pakistan also has a Local Governance Ordinance (2001) in force.

In Nepal too the implementation of the Local Self-Governance Act, 1999 will depend on political commitment, rather than the state as shaped by the country's new constitution. Nepalese farmer unions have lobbied hard to get the 'right to food sovereignty' for every citizen inserted into the country's interim constitution. However, the first draft constitution could not be agreed within the Assembly deadline because of points of difference amongst various political positions. So there is still much to be done on that front.

Much of the new generation of laws disregards the federal distribution of powers between the centre and the states/provinces, particularly in India. Along with the macroeconomic reforms, there is a clear centralising tendency in law and policy making. This is in part explained by the fact that most of the legislative changes are brought about not by bottom-up processes or in response to people's demands, but in response to international treaties and inter-state agreements. With a unitary bias on this issue in most constitutions in the sub-region, the parliament at the centre gets primacy over the

subject. Governments even seem willing to sign such treaties, both the multilateral and bilateral agreements, as it also gives them a screen to hide behind when pushing unilateral 'reforms'.

Privatising life

These legislative shifts also seem to mean that private rights over even living matter (seeds, breeds, genes, micro-organisms, etc.) are slowly being made the rule. This is a particularly dangerous thing. While the idea germinated with WTO's IP agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS, see Box 13), the *sui generis* option it gave countries has not been fully used even today by governments in the sub-region.⁴¹ While appearing tentatively to grant outright patents on plants and animals, a decisive step in the direction of IP rights on plants has been taken through moves towards PVP laws. India is the only country with a law in force on PVP; drafts exist in the other four countries (Table 6). PVP laws, no matter how mild and deviant from the UPOV Convention, can curtail farmers from saving seeds freely and sharing as much as they want with other farmers. PVP can also put limits on free access to improved varieties for further research and breeding (breeders' exemption).

Box 13: TRIPS and developing countries

When the TRIPS Agreement took effect on January 1, 1995, all developed countries were given 12 months from the date of signing the agreement to implement its provisions. Developing countries and transition economies (under certain conditions) were given 5 years, until 2000. Least developed countries (LDCs) were given 11 years, until 2006, to comply. Some countries indicated that they need a longer period. The WTO TRIPS Council, through its decision IP/C/40, extended the general TRIPS compliance transition period for LDC Members for all obligations under the TRIPS Agreement, other than Articles 3, 4 and 5, until 1 July 2013. For pharmaceutical patents in these LDCs, the term for compliance has been extended to 2016.

⁴⁰Article 39 in Part IV of the Constitution of India.

⁴¹The *sui generis* option given to member countries of the WTO, as mentioned in the TRIPS texts, is meant to allow them to make their own unique and specific system for IP protection so as to be in line with local socio-economic realities. This opportunity to design non-IP ways of protection has not been genuinely explored and exercised by developing or least developed countries. This is in part due to the constant pressure on them by the 'developed' countries to comply with the WTO.

This is precisely the outcome that the plant breeding industry wants.

The country with the most live experience on this issue is India. It has amended its patent legislation three times in order to be compliant with TRIPS. The third amendment – the Patents (Amendment) Act (2005) – grants process and product patents in all fields of technology, with the goal of stimulating modern biotechnology research. It has also implemented its PVP Law (2001) to have a fully functioning national Plant Variety Authority.⁴² As of 1 September 2011, only three farmers' varieties had been registered under the India PVP law.⁴³ Meanwhile the majority of PVP applications have been made by ICAR itself and the rest by private companies. A time limit of five years has been set after which no more farmers' varieties will be registered.

Other countries in the region are taking a wait-and-see approach before raising their IP standards. Least developed countries that are members of the WTO, like Nepal and Bangladesh, have had until 1 July 2013 to implement TRIPS' substantive obligations (Box 13) by creating a PVP law, if they choose to do so. Since the extended deadline is nearing fast, NGOs concerned about the impact of IPRs on local communities in LDCs have been urging the WTO to extend the July 2013 LDC transition period further (TWN, 2012).

Asia is a big market in which to protect one's proprietary agricultural technologies and products, but IPRs are inadequate from the point of view of the industry. Nevertheless, even existing IPR instruments can still inhibit seed-saving, exchange, sale and access to proprietary materials. They can also get in the way of the independent research community in conducting analyses and long-term experimentation on the

impacts of untested yet potentially hazardous agricultural technologies.

Meanwhile, the seed companies continue to push for stronger plant breeder rights. The Asia Pacific Seed Association (APSA) favours a straightforward implementation of the International Union for the Protection of New Varieties of Plants (UPOV 1991) without additional requirements from other international treaties like the CBD, which impose on them obligations for benefit sharing and conservation.

Table 6: The status of plant variety protection legislation in South Asia

Bangladesh	DRAFT Plant Varieties Act, 1998
India	Protection of Plant Variety and Farmers' Rights Act, 2001
Nepal	DRAFT Plant Variety Protection and Farmers' Rights Law, 2005
Pakistan	Plant Breeders' Rights Ordinance, 2000
Sri Lanka	Protection of New Plant Varieties (Breeders' Rights), 2001

With this approach, most NARIs are no longer allies in the struggle against the privatisation of biological resources and people's knowledge. Governments in South Asia have more or less accepted what they view as the inevitability of IPRs. In fact they themselves are unabashedly ambitious about seeking intellectual property rights – be it patents, PVPs or geographical indications.⁴⁴

What is worse is that IPRs are being seen as a way of giving incentives to the scientific community. For instance, plant breeders can seek PVP or agricultural scientists can apply for joint patents in their name and that of their research institute. The Indian Government has proposed a law to protect and use public-funded intellectual property (this echoes

⁴²See plantaauthority.gov.in.

⁴³'Farmer's variety' has been defined in section 2(l) of the PPVFR Act to mean a variety that has been traditionally cultivated and evolved by farmers in their fields; or that is a wild relative or land race or a variety about which the farmers possess common knowledge.

⁴⁴Geographical indication (GI) is an indication of a product's geographic location in its name to highlight the particular quality and characteristics that it acquires from that place – for example, Basmati rice or Darjeeling tea. Small growers are being encouraged by governments to seek this IPR-GI to 'protect' their agricultural products and to render identity in the market. GIs are a contested issue even at the WTO TRIPS Council.

the line that the US took with its Bayh-Dole Act).⁴⁵

There is also a realisation that technologies are a significant source of income in the growing market for technology and innovation. The National Research Development Corporation (NRDC) in India helps several agricultural universities and research institutes in the assignment of IPR on technologies developed by them.

NRDC also organises interfaces with the industry for commercialisation (NRDC, 2011).

Restricting the free flow of seed

Most seed legislation insists on certification and/or registration of seeds as a prerequisite to sale in the formal market. NARIs argue that seed laws are for delivering research products, i.e. 'modern' varieties, to farmers with a guarantee of quality. Farmers' seed either does not qualify for formal registration, or is strategically 'exempted' from registration requirements to keep farm-saved seeds out of the formal seed market.⁴⁶ In all five countries surveyed, there is new legislation on seeds lined up to amend existing seed laws. Changes to the existing Seed Law of India were on the cards even before 2004, but a revised bill is pending passage in both houses of the Indian Parliament. The text of the proposed bill has not been made available. There are concerns about the kind of corporate-controlled agriculture such a law will facilitate. The new seed law will not help farmers' seeds; on the contrary it might outlaw the sale of seeds that do not meet industry standards of 'quality'. Moreover, it is said that the bill does not prohibit the registration of transgenic seeds for sale. Yet there are few provisions for liability and also the issue of seed pricing is not dealt with under this draft. Another issue of relevance is seed certification under the draft bill.

The Sri Lanka Seed and Planting Materials Bill (2011) requires the Seed Council to

establish guidelines and provide facilities for the conservation of traditional local seeds and planting materials and to establish technical facilities to confirm the genetic purity of crops/varieties cultivated by farmers. Both these can actually work in favour of the seed industry.

The Pakistan national seed association is relatively new, formed in 2012. But it is already negotiating with the government for favourable trade regulations. They expect new seed legislation by 2014 (APSA, 2012).

The issue of seed prices is undoubtedly a critical one for all farmers for it also determines the availability of seeds. Currently it is also a political hot potato. For instance, cotton seed pricing in India speaks volumes about centre-state relations and interactions between states. At the all-India level Central Government intervenes in seed price issues through the Essential Commodities Law. This law has also undergone amendments in order to keep cotton seed on the items listed in the Schedule as an 'essential commodity'. Doing so gives the Central Government the power to regulate the price of cotton seed. Some state governments have attempted to legislate on cotton seed prices, as in Gujarat, but given that it is an issue now covered under a central law the move has been struck down (Press Trust of India, undated).

Inadequate biosafety regulation

Numerous new fields of biotechnology have developed over the past decade that are being applied in plant and animal breeding research and practice. But the legal systems in South Asia are running to catch up with modern biotechnology and its application in agriculture. GE and its use in crop and livestock R&D is particularly controversial. Its safety is yet to be established by independent scientific assessment. Yet despite this, almost all countries in the region studied here have significant initiatives to promote biotechnological research in agriculture.

⁴⁵The Bayh-Dole Act or Patent and Trademark Law Amendments Act is United States legislation dealing with intellectual property arising from federal government-funded research. The key change made by Bayh-Dole was in ownership of inventions made with federal funding. Before the Bayh-Dole Act, federal research funding contracts and grants obligated inventors (where ever they worked) to assign inventions they made using federal funding to the federal government. Bayh-Dole permits a university, small business, or non-profit institution to elect to pursue ownership of an invention in preference to the government (Source: Wikipedia).

⁴⁶For more on seed laws in Asia, read GRAIN (2010).

The GE Bt cotton story in India points to the lack of biosafety facilities to guarantee safety of both human and ecological health (Box 14). Bt cotton is the only GE crop so far to be approved for commercial application in India. From India, seeds travel illegally to Nepal. But the sub-region is ill-equipped to deal with either national issues or trans-border concerns. The Bangladesh Agricultural Research Institute (BARI) has performed two cycles of confined field trails of fruit and shoot borer resistant Bt-brinjal and late blight resistant (LBR) potato at multiple locations. Bangladesh Rice Research Institute (BRRI) is now conducting greenhouse trials of imported GE Golden Rice. The BRRI research trials are under a collaborative project with IRRI and other NARIs in the Asian region.⁴⁷

Yet the biosafety concerns remain unaddressed.

The lack of independent assessment of GE crops is currently the subject of a public interest litigation in the Supreme Court of India. India's rules for GE date back to 1989 and are on the brink of being revamped through a new law. There has been much speculation about the kind of biosafety law that will be legislated. Discussions are focused on a proposed BRAI

(Biotechnology Regulatory Authority of India) Bill. The full text of the Biotechnology Regulatory Authority of India, Bill 2011 can be downloaded from www.prsindia.org/uploads/media/Biotech/Draft%20BRAI_Bill_2011.pdf.

Through this bill the GoI intends to set up a statutory 'science-based regulatory mechanism'. One of the most controversial provisions in an earlier version of that bill was one that made it a punishable offence (6 months to 1 year prison sentence with a fine up to two lakh rupees) to 'mislead(s) the public about the safety of the (GE) organisms and products'.⁵⁰ Though that section has been done away with, farmers and activists opposing GE may still find themselves on the wrong side of the law if they either provide any false or misleading information (Section 62 of the BRAI Bill 2011/2012) or if they attempt to obstruct any official discharging any function under the Act (Section 64 of the same).

The challenge is not only to have the appropriate legal systems in place, but also to have regulations that can deal with issues of contamination and accountability. The USAID's Agricultural Biotechnology Support Project II (ABSPII) has a specific component to help

Box 14: India's decade with GE cotton

GE Bt cotton was granted environmental approval for commercial application in March 2002. The cotton seed market has since been dominated by GE cotton seeds developed by private corporations and seed companies, particularly Monsanto Inc., its Indian partner Mahyco and several sub-licencee companies. The public sector – in the form of the Central Institute of Cotton Research – has not been able to either break into that space, or provide viable alternatives to either cotton hybrids or cash crop farming per se.

While this is an R&D issue, it is as much an issue of gaps in the law and policy on biosafety. From the point of import of GE material right through its development in laboratories, multi-locational field trials, the sale of seeds on the market to the planting of GE seeds there are inadequate safety protocols. A range of issues has arisen in this past decade which are not merely of legal nature. These include concerns about animal healthcare⁴⁸, misrepresentation about reduction in pesticide usage, issues of liability and redress, non-performance of seeds, the pricing of seed technologies, lack of monitoring and conflict of interests in the regulatory body. At a recent two-day national conference to assess the ten years of Bt cotton, participants remarked on the need for 'a holistic regulatory system in the country which takes into account issues that go beyond yields and production - other social, cultural and political parameters need to be incorporated' (GE Watch, 2012). The controversy over Bt cotton and GE crops in general is far from settled, as drafts of the Biotechnology Regulatory Authority of India Bill (see below) do the rounds in the very government departments that are tasked with promoting the application of biotechnology.⁴⁹

⁴⁷See Golden Rice Project www.goldenrice.org/Content1-Who/who3_collab.php

⁴⁸Cotton seed oil is used in animal feed. There was a very controversial case from India over cattle deaths due to the ill effects of Bt cotton (see www.anthra.org/programmes_research.php)

⁴⁹It was the Department of Biotechnology at the Government of India's Ministry of Science and Technology that first mooted a strategic plan and bill for regulating biotechnology: http://dbtindia.nic.in/uniquepqge.asp?id_pk=668

⁵⁰Section 63 in the earlier version of the BRAI Bill, 2009.

countries in the region develop biosafety laws. Yet the irony is that the US government, which is the biggest proponent of agri-biotechnology, is not party to the global Cartagena Protocol on Biosafety.⁵¹ This means that the US administration does not want to be bound by any international law on biosafety, as its biotech industry sees it as a trade barrier. The implication is that it continues to peddle biotechnology without taking any responsibility for it, or adhering to any liability or redress regime that is under consideration under the global protocol.

Another aspect of biosecurity that some governments are considering for possible law making is that of pandemic diseases linked to farming, such as avian influenza and swine flu, both of which have affected the region. A draft Agriculture Biosecurity Bill (2011) is being discussed in the relevant government departments in India, but it is not open to the public.

There is a clear emphasis in laws and policies on new technologies in agriculture. In fact there is much more of a technology focus than a focus on context. Laws that favour technology are not equally supportive of the end users of the technology. This can create new liabilities for small farmers. For instance, if biosafety laws do not provide for innocent infringement, farmers not opting for GM seeds may find themselves on the wrong side of the law if a proprietary transgene finds its way to their fields or farm through natural means such as wind and cross-pollination.

Technologies, and particularly those which are proprietary in nature, are not neutral. The laws and policies which allow them are supporting certain economic ideologies. The

fallout of such a legal situation is that it puts the knowledge and technology of farmers themselves at a disadvantage. If draft texts of seed laws are put in place as the seed industry would like, many small farmers' seed practices could be outlawed. The iniquitous treatment of different sciences – that of informal innovators or marginalised sections, such as women and tribals – is itself contradictory to what legal systems are meant to be.

The wave of laws also brings with it a general wave of privatisation of the inputs that go into agriculture, be they seed, water, land and even knowledge. There is thus a corresponding decline in common property resources. People's agricultures in these parts of Asia have thrived on sharing. Current-day rules and regulations on intellectual property are by far the most insidious. They are touted as rewards for innovation, while misappropriating or free-riding on the creativity of the 'barefoot inventors'.

Agro chemicals management

One of the public's key concerns is the use of pesticides and insecticides.

The Government of India is intending to get a new Pesticide Management Bill legislated. This new law is meant to replace the Insecticide Act, 1968. However, agrochemical companies are pushing for this proposed bill to provide intellectual property protection by demanding 'data exclusivity' provisions.⁵² In Sri Lanka, the rampant use of pesticides teamed up with the agrarian crisis has triggered many farmer suicides. A Presidential Committee had to develop a National Suicide Prevention Strategy (1998) to deal with the issue.

⁵¹The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003. The Nagoya–Kuala Lumpur Supplementary Protocol of 2010 provides international rules and procedures on liability and redress for damage to biodiversity resulting from LMOs. For more see https://bch.cbd.int/protocol/NKL_pressrelease.shtml

⁵²Data exclusivity refers to the issue of protecting the confidentiality of clinical test data that is required to be submitted to a state's regulatory agency to prove safety and efficacy of a new drug, thereby preventing generic drug manufacturers from relying on this data in their own applications.

Conclusion:

5. Repatriating the public sector

Instead of becoming more about what can make lives better, agricultural R&D is becoming about what can sell better. This puts serious limitations on the ability of agriculture to provide for the real needs of people. Yet innumerable law and policy measures are initiated in the name of the people or with the rhetoric of 'public interest'. If AR4D is to work for the people, what is 'public interest' and 'development' have to be defined by people themselves in their local contexts.

The public sector has to be repatriated, both at the national and international level.

Public participation in legislation and policy making

A key missing element in current and emerging laws and policies is the general public. There is also either policy inertia or a legal vacuum in areas of interest to local communities. For instance, there is an absence of a policy framework, government programmes or legal protection for traditional crop varieties and local breeds. While there are customary laws that are applicable, the formal legal system has to make sure they continue. Supporting agriculture is about supporting many diversities. This needs to be respected through legal pluralism.

The new wave of agriculture-related laws and policies clearly has no real social backing. This has been reflected in the many farmers' juries held in several locations, both in South Asia and Africa (e.g. Bryant, 2008).⁵³ In fact, people from across the world have actively organised their own tribunals against the many international fora that have failed to contain the global forces

or domestic players in this area (e.g. see PAN International, undated).

The research undertaken for this paper only reiterates that the process of decision making around agriculture agricultural law and policy is inherently distanced from the people whose lives will be affected. The lack of formal literacy and legal illiteracy in the region makes the distance even greater. The fact that some of the legal drafts are only in English does not help in a region with such linguistic diversity.

Another problem is the multitude of laws and policies (see the list in the Country Fact Sheets in the Annexes). With each new law, new institutional structures are also set up. The powers that be may need these different laws and regimes, but people on the ground neither asked for them, nor can they cope with such multiplicity.

Transparency

There are serious transparency issues in agenda-setting, legislative processes and policy making which make participation near impossible. But this is being met, as it should be, with popular resistance. There are growing demands in India, for example, for the Right to Information regime to evolve to meet these challenges. In particular, on biosafety the demand is that the proponent of the technology should be asked to disclose all test results before getting clearance to move to the next level in what ought to be a multi-layered approval process. Single-window clearance and fast-track approvals have no space in this area. In such vital areas as food and farms, the popular view is that even

⁵³And see the Raita Teerpu website: www.raitateerpu.com

legal drafts in the pre-legislative state must be made accessible.

However, what the texts of laws and proposed policies don't reveal are how private interests influence the peoples and processes by which policies are made and laws are drafted and enacted. There are clear limitations in data collection on this front. It is not easy to see the behind-the-scenes lobbying and advocacy undertaken by private interests. ADARSA members are acutely aware of the phenomena in their countries. In fact, many of them have been involved in popular actions that highlight conflicts of interest, as in the case of Syngenta officials in the Indian National Biodiversity Authority's Expert Committee or in the public interest litigations pending before many a judicial forum.

The two key venues from which the positions and posturing of the corporate sector have come out in the public domain are in ongoing legal actions (Box 15) or the presentations before Parliamentary Committees. Such an occasion arose when the Standing Committee on Agriculture of the Parliament of India sought public opinion on GE crops before it finally

gave its report in August 2012 (Ministry of Agriculture, 2012b). Even the Chair of Monsanto India Limited Ltd. gave oral evidence.

Assessing these various cases, the pattern that emerges is of a deliberate strategy by the key players to effect change in a certain direction.

While laws and policies themselves can be problematic, there are potential allies amongst law makers. A member of the Upper House of the Parliament of India pushed for a Prevention and Management of Conflict of Interest Bill, 2011 in the Upper House of Indian Parliament in April 2012. The MP, who is also president of the Indian Society of International Law (ISIL), has proposed the constitution of a Conflict of Interest Commission. A conflict of interest clearly arises when the private or commercial interest clashes with the public duty of a person or organisation. Amidst all this, the critical issue is the loss of 'publicness' in the public sector.⁵⁶

An alternative future for agricultural research and policy

Most of the laws and policies perused are based on the assumption that trade-led agricultural development is the only way forward. Yet

Box 15: Exposing conflicts of interest in food safety

A people's Alliance Against Conflict of Interest (AACI), based in India, has mobilised to highlight the growing problem of conflict of interest in the food sector. It filed a legal case in 2004 before the Supreme Court of India to point to the issue of large food companies and MNCs holding positions in scientific panels of the Food Safety and Standards Authority of India (FSSAI). This authority had been set up under a law of the same name, which asked for the panels to be reconstituted with independent experts. The public interest petition brought before the court the fact that as many as 18 members of these panels were actually employees of large food companies. The scientific panel on labelling and claims/advertisements included employees from MNCs such as Nestlé and Hindustan Unilever. In March 2011 the Supreme Court ordered the FSSAI to reconstitute seven of its eight scientific panels.⁵⁴

In November 2012, in a statement of concern the AACI condemned the Government of India's association with Nestlé. The multinational, which has a 100-year-old history in India, organised a 'Creating shared value Forum' in November 2012 in India to showcase the value Nestlé brings. The forum was part of its CSR activities and dealt with everything from 'the double burden of malnutrition' to water, energy, and food security. Ironically, these happen to be the areas where Nestlé has a stake in making products and profits. Civil society groups found it objectionable and inappropriate for government officials to be seen sharing the platform when the MNC was not adhering to public health directives.

For example, the Parliament of India, concerned about the health hazards of promoting baby foods and infant formula milk over breastfeeding, had enacted a law in 1992 to ban their promotion.⁵⁵ A Delhi Court in March 2012 found that Nestlé had violated the IMS Act and the company faces criminal proceedings.

Source: AACI (2012)

⁵⁴The text of the writ can be viewed at: <http://courtnic.nic.in/supremecourt/temp/68120043822011p.txt>

⁵⁵The Infant Milk Substitutes Feeding Bottles, and Infant Foods (Regulation of Production, Supply and Distribution) Act 1992, and Amendment Act 2003 (IMS Act).

⁵⁶The bill text can be viewed at 164.100.24.219/BillsTexts/RSBillTexts/asintroduced/conflict-E.pdf

networks like the Millet Network of India have shown that it is possible to embark on an 'alternative' R&D approach (Box 16). This can come about if people's efforts are matched with an equal measure of support from law and policy. The South Asian region has vastly heterogeneous agricultural practices and equally vast agricultural biodiversity. Amidst the human poverty there are many such riches to build on.

Pro-farmer spaces in existing law and policy have also not been explored fully. Implementing favourable laws, such as the Local Self Governance Act, 1999 in Nepal, could be helpful. The Indian experience with panchayati raj institutions has thus far been unable to devolve decision-making power to the local level bodies. If this was to occur, they could be a countervailing force to the heavy centralising trends in law and policy making in the area of agriculture. Where there are such spaces – whether legal or physical, such as the Krishi Vigyan Kendras or Farm Science Centres – NGOs like the Deccan Development Society have shown how they can be used to rejuvenate local knowledge systems (DDS, undated).

People's food sovereignty movements have mobilised against these policy measures and continue to do so. It is thanks to people's protests, for instance under the Right to Food campaign in India and food sovereignty networks in other countries, that certain welfare aspects of the state vis-a-vis food have not been done away with (yet). For instance, there are moves to dismantle the Public Distribution

of Food on the one hand and to privatise the Food Corporation of India on the other. Rather than encourage the entry of private players, supporting people themselves to take charge of their food systems could well be the way out. This has been successfully demonstrated by a group of women farmers in Andhra Pradesh who – supported by the Indian ADARSA team – have a well-functioning alternative PDS (Srinivas and Thaha, 2004).

The diversity of local agricultural systems in South Asia is itself a strength, even though the pattern of the law-making process and the laws themselves are becoming increasingly harmonised across the region. But clearly, all the different countries are at very different stages, with India offering an example of unilaterally going beyond what is warranted. Its mistakes are best avoided in other parts of the region. Nepal can perhaps lead the group of LDCs in countering or staggering some of the international trade treaty obligations. Countries like Pakistan and Sri Lanka also have to walk a tightrope in the light of their internal politics.

When law and politics mix, there are choices to be made by people. There is a need to be a lot more realistic on what law and legal systems can achieve for communities. Clearly work on the ground locally in each of the countries is the way forward. The new agenda for agricultural R&D will have to start not in the labs, but on the land with the people. That's where we need to research solutions and relocate our agricultures.

Box 16: Farmer-led, farmer-oriented support for millet in India

Millet has always been centre stage for many farming communities in India. For marginalised communities such as the Dalits and Adivasis, who comprise some of the most vulnerable groups in rainfed areas, it fulfils their food, fuel and fodder needs. The Millet Network of India (MINI) is implementing a ground-up vision for agricultural research and development centred around these millet communities. It is shaped by these small farmers and local peoples themselves. MINI aims to ensure that the voices of these communities are effectively articulated in the larger public domain to bring about policy changes. It has also brought agricultural scientists, nutritionists and farmer leaders into its membership.

MINI works to make up for the lack of institutional support to millet farmers, reflected in the absence of credit, minimum support price or other extension services that are available to other crops. MINI has urged the Government of India to include a local procurement provision in the proposed national Food Security Bill. In the words of the MINI national co-ordinator, PV Sathesh, 'only such a legal provision that enables opening of procurement centres within a radius of 10 kilometre wherever feasible and provide on-the-spot payment to farmers can ensure that the introduction of millets in the public distribution system (PDS) will stay pro-poor and benefit all farmers in the rainfed regions of India'.

For more information see: Millet Network of India, www.milletindia.org

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Annexures

Annex 1 Bangladesh: Relevant laws and policies

1. National Seed Policy 1993
2. Seed Rules 1998
3. New Agricultural Extension Policy 1996
4. National Fisheries Policy 1998
5. DRAFT Biodiversity and Community Knowledge Protection Act 1998
6. DRAFT Plant Varieties Act 1998
7. National Rural Development Policy 2001
8. National Integrated Pest Management Policy 2002
9. Livestock Policy and Action Plan 2005
10. National Food Policy 2006 (read with National Food Policy Plan of Action 2008-2015)
11. National Livestock Development Policy 2007
12. Biosafety Guidelines of Bangladesh 2008
13. Fertiliser Management (Amendment) Act 2009
14. Pesticide (Amendment) Act 2009
15. National Agriculture Award Fund Act 2009
16. National Agriculture Policy 2010
17. National Biotechnology Policy 2010
18. National Institute of Biotechnology Act 2010
19. Draft Patent Act 2011
20. Bangladesh Agricultural Research Council Act 2012

Annex 2 India: Relevant laws and policies

1. Seeds Act 1966
2. Patent Act 1970
3. New Policy on Seeds Development, 1988
4. Policy Framework for Agricultural Extension 2000
5. Protection of Plant Varieties and Farmers Right Act 2001
6. National Seeds Policy 2002
7. Biological Diversity Act 2002
8. DRAFT Seed Bill 2004
9. National Policy for Farmers 2007
10. National Biotech Development Strategy 2008
11. ICAR's Model Act for Agricultural Universities in India

12. DRAFT Pesticide Management Bill 2008
13. DRAFT Protection and Utilisation of Public Funded Intellectual Property Bill 2008
14. DRAFT Academy of Scientific and Innovative Research Bill 2010
15. DRAFT Agriculture Biosecurity Bill 2011
16. DRAFT Establishment of Regional Centre for Biotechnology Bill 2011
17. DRAFT Food Security Bill 2011
18. DRAFT Biotechnology Regulatory Authority of India Bill 2012
19. Universities for Research and Innovation Bill 2012
20. Draft Policy on Higher Agricultural Education, 2012
21. Science, Technology and Innovation Policy, 2013

Annex 3 Nepal: Relevant laws and policies

1. Patent, Design and Trademark Act 1965
2. Seed Act 1988, amended 2008
3. National Agricultural Research Council Act 1991
4. Foreign Investment and Technology Transfer Act 1992
5. Pesticides Regulation 1994
6. Agricultural Perspective Plan (1995-2015)
7. Seed Regulations 1997
8. Livestock Services and Animal Health Act of 1998
9. National Seed Policy 1999
10. Nepal Veterinary Council Act 1999
11. Fertiliser Policy 1999
12. Local Self-Governance Act 1999
13. Nepal Biodiversity Strategy 2002
14. DRAFT Access to Genetic Resources and Fair and Equitable Benefit Sharing Law 2002
15. Irrigation Policy 2003
16. Working Policy on Wild Animal Farming, Breeding and Research 2003
17. Science and Technology Policy 2004
18. National Agriculture Policy 2004
19. DRAFT Farmers Rights and Plant Variety Protection Act 2005
20. Biosafety Guidelines 2005
21. Agribusiness Promotion Policy 2006
22. National Biosafety Framework 2006
23. Poultry Policy 2007
24. Agricultural Biodiversity Policy 2007
25. NARC's Strategic Vision for Agricultural Research (2011-2030)
26. Climate Change Policy 2011
27. DRAFT Seed Vision 2025 (Seed Sector Development Strategy)
28. Agricultural Development Strategy in-the-making

Annex 4 Pakistan: Relevant laws and policies

1. Seed Act 1976
2. Plant Breeders Rights Ordinance 2000
3. Patents Ordinance 2000
4. Corporate Farming Ordinance 2001
5. Biosafety Rules 2005
6. DRAFT Biodiversity Act 2006
7. National Seed Policy 2009
8. DRAFT Seed (Amendment) Bill 2009
9. DRAFT Plant Breeders Bill 2009
10. DRAFT Punjab Seed Act 2011

Annex 5 Sri Lanka: Relevant laws and policies

1. Seed Act 1992
2. Plant Protection Act 1999
3. Fertiliser Act 1988
4. State Agricultural Corporation Act 1972
5. Promotion of Export Agriculture Act 1992
6. Freedom from Hunger Campaign Act 1973
7. Agrarian Research and Training Act 1972
8. Control of Pesticides Act 1980
9. Sri Lanka Council of Agricultural Research Policy Act 1987
10. Agrarian Development Act 2000
11. National Livestock Development Policy
12. National Agricultural Policy for Food and Export Agricultural Crops and Floriculture 2007
13. DRAFT Protection of New Plant Varieties (Plant Breeders' Rights) Bill 2001
14. Intellectual Property Act 2003
15. DRAFT Access and Benefit Sharing Law
16. DRAFT Seed and Planting Material Bill 2011
17. DRAFT National Climate Change Policy
18. Sri Lanka Council for Agricultural Research Policy, Corporate Plan 2011-2013
19. National Agricultural Research Policy in-the-making

Annex 6 People interviewed

People both interviewed and informally spoken to in India included:

- Dr. Shashank Mauria, Asstt. Director General (Intellectual Property & Technology Management), Indian Council for Agricultural Research, New Delhi
- Dr. P.L.Gautam, Chairperson, Protection of Plant Varieties and Farmers' Rights Authority, New Delhi

- Dr. R.S. Rana, Ex-Chair, NBPGR and head of the NBA's Expert Committee on Access and Benefit Sharing
- Dr. S.R. Dhua, Senior Scientist at the Central Rice Research Institute, Odisha
- Mr. P.V. Satheesh from the Deccan Development Society, Hyderabad, Andhra Pradesh, who convenes ADARSA
- Some members of the La Via Campesina, South Asia

During the research, the author also travelled to Kathmandu in Nepal. There she met and spoke with:

- Mr. Sreeram Shrestha, ex-USC Canada
- Dr. Pratap Sreshtha, USC Canada Asia and ADARSA Member
- Dr. Dinesh Pariyar, Dr. Baidya Nath Mahto, Dr. Niranjan Prasad Adhikari, Dr. Tek Bahadur Gurung and other staff members of the Nepal Agricultural Research Council (NARC)
- Mr. Kamalesh Adhikari, South Asia Watch on Trade, Economics and Environment (SAWTEE)
- Dr. Bhabha Prasad Tripathi, IRRI Representative in Nepal
- Dr. Devendra Gauchan, Senior Scientist (Agricultural Economics), NARC
- Some MoAD staff
- Mr. Prem Dangal, Representative of the All Nepal Peasants' Federation

Travel to Sri Lanka was dropped in view of the political situation. Yet the author benefited from the interactions and valuable inputs from the Lankan ADARSA member Mr. Arjuna Seneviratne.

Contact with Bangladesh was largely through e-mail communication. The author wrote to several NARIs in Bangladesh, though not many responded. However, some drafts were procured with the assistance of the ADARSA member Ms. Farida Akhtar of UBINIG.

ADARSA is part of an ongoing international initiative called *Democratising Food and Agricultural Research*, which was launched in 2007 by partners in South and West Asia, the Andean region of Latin America, West Africa, and Europe. This multi-regional initiative uses a decentralised and bottom-up process to enable small-scale farmers and other citizens to decide what type of agricultural research and development needs to be undertaken to ensure peoples' right to food; and both influence and transform agricultural research policies and practices for food sovereignty.

