

Whose varieties are they?

Clarifying questions of recognition, access, and benefit sharing related to the development of new varieties through participatory plant breeding

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(draft, project background paper, March 2005¹)

Support to farmer-led science and participatory plant breeding

Organizations and governments should formulate policies and actions to develop and promote more farmer-based and farmer-led science, including participatory plant breeding. Sustainable agriculture, including dynamic crop management, can better be achieved if farmers' own creative capacities are stimulated and strengthened (financially and technically) to partner with the more formal research and development efforts.

Crucible Recommendation 3 (Crucible group 2, 2000: 15)

1. Setting the stage

Bangkok Post, 15 February 2005

CBD LAUNCHES NEW NEGOTIATIONS

Kultida Samabuddhi

The first global negotiations to develop a new international law on access and benefit-sharing of genetic resources was launched in Bangkok yesterday.

The trade-off between access to genetic resources and the sharing of benefits from their use is a hot topic of discussion among the 188 member countries of the Convention on Biological Diversity (CBD), including Thailand. Caretaker Environment and Natural Resources Minister Suwit Khunkitti, who presided over the meeting, said he hoped the new protocol on access and benefit-sharing of genetic resources (ABS) would eliminate bio-piracy, an act in which industrialised nations seize biological resources from biodiversity-rich developing countries for commercial exploitation. "Thailand has had several such painful experiences in the past, when our herbal plants were smuggled to industrialised countries for development of expensive pharmaceutical and cosmetic products," said Mr Suwit, referring to the native herbal plant species plao noi and kwao krua.

Bio-piracy came to the forefront here after biodiversity advocates last year accused Japanese firms of patenting cosmetic applications of local Thai herbs without following appropriate requirements set by the government's Plant Varieties Protection Act. In 2001, the government also accused an American geneticist of committing a bio-piracy act by developing a new rice strain from the country's protected Khao Dok Mali 105 native rice variety.

¹This paper builds on an unpublished IDRC working paper written for the Sustainable Use of Biodiversity program initiative entitled "Biodiversity access and benefit sharing: genetic resources policy implications for developing countries" by Ronnie Vernooy and Brian Davy (2004). I thank Brian Davy for comments on this new paper; omissions and errors are solely mine.

Mr Suvit said the international law on ABS must ensure that access to genetic resources was subject to the prior consent of the provider countries. The ABS negotiations, however, may take as long as 10 years to reach some sort of agreement because it is a complex issue that involves political and economics aspects, he said. "The major problem is that the developed countries are trying to hinder the process in fear that the introduction of rules to protect the resources would only hurt their businesses,' Mr Suvit said.

Under the convention's guidelines on ABS, the benefit sharing could be in the form of sample fee, research funding, joint ownership of intellectual property rights, sharing of research and development results, or transfer of biotechnology to the resources providers.

Hamdallah Zedan, executive secretary of the convention, said a challenge to establishing the ABS regime was resolving contradictions between the CBD and the World Trade Organisation's Trade Related Intellectual Property Agreements (Trips). In its present form, Trips would certainly undermine the implementation of the access and benefit-sharing provision of the CBD, he said, because Trips allocates full control of genetic resources to the patent holders. Governments and communities will have no means of regulating access or demanding a share of benefits because they will be subject to private ownership, said Mr Zedan. Small companies may also find the access fee to genetic materials too expensive. Industries would also have trouble with the countries of origin because of bureaucratic red-tape, said Anke Van Den Hurk, of the International Seed Federation.

A delegate from The Netherlands said on behalf of the European Union that the regime's access to genetic resources for environmentally-friendly purposes should not be restricted because without access to resources, there cannot be any benefit-sharing, he said.

The meeting, to continue until Friday, is being attended by 600 senior government officials, scientists, environmentalists, and agricultural and pharmaceutical industry representatives from 180 countries.

The newspaper article above, points to the importance and complexities of access and benefit sharing (or ABS) issues and questions related to genetic resources. However, despite specific attention paid to the general principle of adding value to existing biodiversity resources including genetic resources and related (management) knowledge, *systematic* research into the design, implementation and monitoring of practical, fair and appropriate mechanisms concerning access and benefit sharing has remained underdeveloped (PR/GA 2001, Vernooy 2003). Research and policy discussions are mostly taking place among a small group of people.² In addition, and to make things more complicated, there are now many emerging political, ethical and scientific questions concerning the use, impacts and benefits of GMOs and biotechnology and their applications in the fields of agriculture, food, and health.

ABS questions, so it seems, are still relatively new in the research world, and there is little guidance at hand to help planning and implementing feasible

² IDRC in collaboration with others donor agencies supports a number of research initiatives concerning ABS questions, including the following global projects: The Genetic Resources Policy Initiative (<http://www.grpi.org>); and Protecting community rights over traditional knowledge: implications of customary laws and practices (<http://www.iied.org/blg/projects/protecting.html>). For more information and other projects, see: <http://www.idrc.ca/sub>.

mechanisms.³ Among those making a contribution to national and international ABS debates, fragmentation and confusion seem common. Disputes abound. This suggests there is scope for more opportunities to become knowledgeable about issues, to exchange experiences and share learning, and to examine what is actually working and what is not under current regulatory systems. At the same time, access to and use of biological resources and related knowledge is becoming more and more contested all around the world (Correa 2000, Crucible group-2 2000, Vernoooy 2003). Developing countries particularly are feeling frustrated that they have been allowing free access to their genetic resources (mainly to Northern based companies), but to date there has been little effective benefit sharing!

The past two decades have witnessed increasing privatization of agricultural research and development, expansion of the scope of intellectual property rights to cover biological products and processes, and liberalization of global markets. These trends have stimulated the commercial development of biotechnology products for agriculture and human health, and the concentration of economic power among a handful of giant life sciences corporations. (Crucible group 2, 2000: 6)

This project background paper aims to summarize a number of key policy, legal and research ABS issues and provide some suggestions for novel research (supported by networking) with a focus on the still relatively new field of participatory plant breeding (PPB). In particular, it suggests a number of research questions, entry points for research, as well as key policy and legal fields to consider concerning PPB approaches and methodologies, PPB outputs or products and outcomes, as well as concerning the institutional context of PPB. Although written specifically for the new research effort on the question of *Whose varieties are they?*, we expect that the paper may be of use to a wider audience. The paper draws on recent literature as well as on the challenges faced by ongoing participatory plant breeding research in a variety of countries supported by the International Development Research Centre and other donor agencies.

2. ABS and the Convention on Biological Diversity

In December 1993, the international Convention on Biological Diversity came into force aimed to conserve biological diversity, use biodiversity components sustainably, and share the benefits arising from such use fairly and equitably (Secretariat on the Convention on Biological Diversity 2001; <http://www.biodiv.org>). The CBD provides an international, legally binding framework. Although not without problems, the importance of the CBD seems widely accepted (Crucible group 2, 2000: 44). Parties to the CBD (national governments) created a series of bodies or instruments to operationalize the convention, such as the Conference of the Parties (COP), and the Subsidiary Body on Scientific, Technical and Technological Advise (SBSTTA). The Bangkok Post newspaper article refers to the most recent SBSTTA meeting.

³ An interesting study of applying ABS issues to the Indian context is Ghose (2004).

Article 15 of the CBD, “Access to genetic resources” and Decisions IV/8 “Access and benefit sharing” and V/26 “Access to genetic resources” (CBD 2001: 11, 487-489, 653-659) spell out the general guidelines concerning ABS. Of crucial relevance is also Article 8 (j) “In-situ conservation” that spells out (the need for equitable) ABS mechanisms related to indigenous and local communities knowledge, innovations and practices (ibid: 8). An Ad-hoc open-ended inter-sessional working group on article 8 (j) and related provisions of the Convention on Biological Diversity has been providing inputs into the design of a program of work to the implementation of article 8 (j), with emphasis on participatory mechanisms for indigenous and local communities (reports of this group can be found at the CBD website under UNEP/CBD/WG8J/).

During the 5th Conference of the Parties (or COP) in 2000, the CBD also established an “Ad-hoc open-ended working group on access and benefit-sharing” to develop guidelines and other approaches for access to genetic resources and benefit-sharing. To date, draft guidelines (known as the Bonn guidelines) and an “ABS” capacity building action plan have been prepared (see the CBD website under UNEP/CBD/COP/). Notwithstanding these ongoing discussions and negotiations including those taking place under the umbrella of the World Intellectual Property Organization (or WIPO, see Annex Item 1), ABS remains a high priority and a still unresolved issue on the CBD agenda as the Bangkok post article indicates (see more about this, Annex item 2). At the same time, many countries and groups of countries have started work on national ABS policies and legislation (e.g., Ghose 2004).

Apart from the CBD, there is another important international agreement impinging on plant varieties and ABS issues: the World Trade Organization’s Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) (<http://www.wto.org>): The adoption by the WTO of the TRIPS agreement has made the protection of plant varieties a requirement for developing countries, by patents or by other means under so-called effective *sui generis* options, or by a combination of both (TRIPS Article 27(3)(b)). Although this requirement has been in vigor for some time, many countries have yet to fully develop and/or implement plant variety protection. There continues to exist an uneasy and unclear relationship between the CBD and the WTO/TRIPS agreement, despite a formal review process underway to examine the coherence or incoherence between the two international legally binding frameworks. Among others, more effective protection of traditional or indigenous knowledge is warranted. Sorting out this problem remains a major challenge (Michalopoulos 2003).

Recent moves: towards a (new) International ABS Regime

COP7 (February 2004) and related meetings including the meeting in Bangkok of February 2005, have all set the stage for the negotiation of a new international regime on ABS. Present thinking suggests that developing countries, particularly

those with most of the biodiversity, the so-called Megadiverse or Like Minded group of 17 countries, seem likely to win acceptance for the finalization of a new regime. Discussions continue, however, about the advantages and disadvantages of such a regime (e.g., Garforth and Cabrera Medaglia 2004; see also text below). It is unclear when such a regime would be in place. 10 years is the timing suggested by the Thai Minister quoted in the Bangkok post article!

The advantages of an international ABS regime (according to SPDA Peru 2003, <http://www.SPDA.org.pe>).

One key issue is what exactly do we mean by an “international ABS regime”. Whatever the answer may be, it may be useful to briefly assess some of the pros (and cons) regarding undertaking the development of this regime. In terms of its advantages, an international ABS regime may:

- Determine specific commitments by countries traditionally considered users of genetic resources in terms of adopting effective measures to ensure CBD ABS objectives are realized (implementing the common but differentiated responsibilities approach).
- Promote a more practical, cost / effective policy and regulatory approach to achieve CBD ABS objectives and goals by supporting countries’ of origin national efforts (legal measures).
- Generate an incentive for countries of origin to consider more flexible and less restrictive ABS policies, laws and models, if user countries support realization of the CBD objectives through their own specific measures (this may have a bearing on reducing implementation costs in all Parties).
- Consolidate the policy interests and positions of countries traditionally considered providers of genetic resources (i.e., like the Minded Group and other biodiversity rich nations).
- Promote a more effective mechanism to ensure monetary and non-monetary benefit sharing among providers and user of genetic resources.
- Promote more collaborative (North – South, South – South) research and development activities in biodiversity.
- Facilitate consensus and agreement on the need to develop an international regime for the protection of traditional knowledge (within the CBD forum or as part of WIPO’s ongoing activities) as a closely related matter to ABS.
- Specify and clarify some of the CBD ABS principles (including Prior Informed Consent or PIC, Mutually Agreed Terms or MATs, etc.)

3. ABS and participatory plant breeding

Farmers will require crop varieties and livestock breeds capable of producing under diverse and rapidly changing conditions. Under any scenario, genetic resources for food and agriculture, the role of farming communities who nurture and develop diversity, and the vital contributions of formal sector plant breeders, all assume critical importance. (Crucible group 2, 2000: 7)

Participatory plant breeding, because of its collaborative nature, raises many new challenges in terms of the recognition and (monetary and non-monetary) value of scientific contributions, the access to knowledge and genetic resources, the

sharing of benefits from collaboration (most visibly expressed in the form of improved or new varieties), and development of enabling conditions that allow for joint innovation to bear fruit. PPB also requires considering impacts on biodiversity conservation. It is questionable whether existing policy and legal provisions and mechanisms, such as IPR systems protecting plant breeders' rights or Farmers' rights can adequately address all these issues (Crucible group 2, 2000: 11; Hardon 2003: 527). Hence, if this assessment is correct, perhaps research could contribute to finding a way out or at least, advance the thinking in terms of feasible and fair alternatives.

Participatory plant breeding demands a different, innovative way of addressing human needs that goes well beyond the aim of increasing productivity. Its goals are achieving productivity increase, diversity enhancement, and empowerment.

As we have seen, dynamic approaches that are collaborative, involve multiple stakeholders, and employ sound participatory methods do contribute to food security and improved livelihoods. However, field-level interventions alone, both on the farm and in communities, are not enough to sustain these well-tested alternatives. Long-term success requires that these efforts be backed up by supportive policies, by actions to ensure that policies are implemented, and where necessary by related legislation. ...

Participation in plant breeding also requires changes in how germplasm is selected, how experimental plots are designed, where experiments are implemented, and how assessment of the results takes place.

This method of organizing time and labour is called process management. It requires new or additional incentives and rewards that recognize promising and successful efforts. Farmers should be officially recognized as "co-authors" of new varieties or of publications that document the processes and final results. Breeders should be recognized and rewarded not only for the release of new varieties, but also for their contribution to the process leading to the final products. (Vernooy 2003: 63-66)

4. A potential research agenda

Thus, the ABS theme covers a number of related, complex issues that require new or additional research and, due to their complexity, a sufficient long-time horizon. Any coherent research agenda would require, directly or indirectly, addressing a number of research topics and major fields of legislation (see below). In particular, there seems to be a need to research these questions *from a community-based or local perspective taking into the ideas, views and interests of local farmers, herders, fishers and gatherers*. As such, this focus fills a gap in the current debate and research agenda. It also points the attention to the question of effective implementation and enforcement of ABS policies rules, regulations, and laws.

In addition, ABS needs to be seen in relation to national policymaking, administration and legislation -both in terms of being informed by policies and laws, and in terms of informing (new) policies and laws. Note that the draft Bonn guidelines referred to above, state that "Nothing in these guidelines is intended to substitute for national legislation for access and benefit sharing arrangements."

(UNEP/CBD/COP/6/6 2001: 14). Intellectual property rights, IPR legislation, and innovation policies are among the main challenges to deal with in this regard.

In terms of policies and laws, the following seven interrelated topics have been identified requiring discussion, clear definition, and decision-making (Carrizosa 2004):

- **Ownership.** When dealing with plant varieties, ownership is a very difficult issue to deal with. Most if not all varieties are the results of many years (tens, hundreds or more) of management, conservation, and improvement efforts by usually hundreds if not thousands of farmers.
- **Scope:** the range of activities that is subject to a policy/law. National laws to regulate access to biological resources are usually broad in scope. An example of a “law” with a more limited scope is the case of the Union for the Protection of New Varieties known by its French acronym UPOV (see below): the various UPOV conventions provide a model law for plant breeders’ rights.

The Union for the Protection of New Varieties (UPOV)

UPOV is a Geneva based organization established in 1961 under the World Intellectual Property Organization or WIPO (<http://www.wipo.org>). Two operational UPOV conventions exist: one dated 1978, one dated 1991. The 1978 convention allowed farmers to save and replant plant breeders’ rights protected seeds; the 1991 convention restricts this right and makes plant breeders’ rights more like patents. Countries wishing to join UPOV now require subscribing to the 1991 convention as accession to the 1978 has come to an end. Plant variety protection resembles a patent and provides exclusive monopoly over a creation for commercial purposes over a period of time. The criteria for protection are novelty, distinctiveness, uniformity and stability.

- **Prior informed consent and mutually agreed terms** (e.g., model agreements) including the settlement of disputes and remedies, and arbitration. Although there is a growing recognition of the importance of PIC, so far no *international* legal instrument has been created making it a requirement that PIC of indigenous peoples and local communities be obtained before collecting, using or exchanging genetic resources and related knowledge (Halewood 2003: 512-13), although a number of countries have formulated PIC regulations. Some of these are provisional; a few effective (Ghose 2004).
- **Access procedures, and, benefit sharing and compensation:** This includes the roles/responsibilities and participation of right-holders and stakeholders (e.g., codes of conduct) as well as the design, implementation and monitoring of access and benefit sharing

mechanisms, both formal and informal. Material Transfer Agreements are examples of such agreements.

- The role of intellectual property rights and genetic resources and related (indigenous, traditional, local) knowledge ownership questions such as the valuation or revaluation of local and indigenous knowledge and practices.

Intellectual property rights systems, in general, confer exclusive use rights to certain persons and for a defined period of time; in other words, they allow for private appropriation of a public good. IPRs relevant to agriculture include breeders' rights, patents, utility models, trade secrets, and geographic indications (Correa 2000: 245-47). There is no agreement about whether or not IPRs should be extended to indigenous/ traditional/ local knowledge held by communities, including concerning landraces, and their improvement by indigenous/traditional/local plant breeders. Perhaps surprisingly, some authors confirm that very little is known about the actual impacts of plant variety protection mechanisms in terms of effectiveness, efficiency, and equity (Louwaars et al. 2005). Correa (2000: 253-54) also highlights a number of legal issues (definition of subject matter, territorial validity of rights, availability, enforceability) that are not easily defined and resolved. Instead, he argues for the adoption of a sui generis regime, in particular for protection of IK/TK/LK through trade secrets protection (ibid: 254-58).

- In situ conservation and sustainable use of genetic resources. As an alternative to IPRs, Farmers' rights have been proposed as a means of compensating traditional farmers for their contributions to the in situ conservation and improvement of plant genetic resources. Farmers' rights are part of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA, see below), but clear definitions of content and scope have not been achieved so far (Correa 2000: 249).

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

In November 2003, the FAO adopted the ITPGRFA, a multi-lateral, legally binding system of access and benefit sharing for 35 major food crops (cereals, grains, legumes, roots and tubers).⁴ The Treaty's scope is comprehensive and calls for an approach to explore, conserve, and use sustainably plant genetic resources for food and agriculture (see for more details: <http://www.fao.org/ag/cgrfa>). It includes provisions concerning the survey, inventory and collection of plant genetic resources, and concerning in situ and ex situ conservation. The Treaty addresses Farmers' rights through a) protection of traditional knowledge relevant to plant genetic resources; b) the right to equitably

⁴ FAO and the CGIAR centers have also signed so-called Trust Agreements for the ex situ collections held by the centers. These collections were excluded from the CBD because their origin predates the coming into force of the CBD. Access to ex situ collections is by means of MTAs.

participate in benefit sharing arising from utilization of plant genetic resources, and c) the right to take part in national level decision-making on matters related to the conservation and sustainable use of plant genetic resources (Cooper 2003: 470-471). The Treaty came into force in June 2004, but many practical questions including financial matters, still need to be resolved.

- Enforcement and monitoring. Developing policies and formulating laws is already a major task. Putting policies and laws in practice is yet another challenge of daunting dimensions.

The Crucible group 2 (2000: 40-108, see also Crucible group 2, 2001: xiii) suggests that, in order to best assist national policy-makers in formulating **legislative** choices, these seven relevant issues could be best applied to three interrelated fields:

- 1) Germplasm access and exchange: with a focus on the need to ensure the most open and equitable possible flow of genetic resources between farmers, other rural people, and researchers.
- 2) Knowledge conservation and formation: with the focus on the need to protect, promote and conserve the knowledge of indigenous and local communities in ways that ensure full participation in germplasm conservation and enhancement.
- 3) Innovation management: with a focus on the need to encourage innovative genetic resources research for the benefit of current and future generations.

The Genetic Resources Policy Initiative (see footnote 2), which is facilitating ABS policy and legal efforts underway in a number of countries around the world, follows this suggestion made by the Crucible group in an attempt to develop more down-to-earth options.

General research questions

The above seems to indicate that ABS issues are increasingly becoming part of international and national policy and legal agendas and as such acquire what could be called a formalized nature. However, at the local level, many of the issues are dealt with through customary (sometimes formalized, often informal) practices, rules and regulations. This raises several questions:

- Can these two apparently opposing approaches go hand in hand?
- How do people at the local level perceive and assess access and benefit questions, in particular, in the light of national and international guidelines, model laws and other new forms of defining and regulating ABS of biodiversity resources?
- What mechanisms can support more equitable benefit sharing among local people?

- Do these local perspectives inform the national and international agreements? If so, how?
- How can potential conflicts between local level access and benefit sharing priorities and national/international interests be avoided? Existing conflicts be resolved? And conditions created to reduce the occurrence of future conflicts?
- How to build or strengthen local capacity to have a voice in the above questions and the formulation of answers to the questions?

Some examples of specific research questions are:

- Concerning Material Transfer Agreements: How can the “owners” of resources and related knowledge be properly identified? How can the recipients of the benefits be properly identified? What are adequate valuation techniques to define benefits? How can the issue of multiple owners be dealt with, many of whom have contributed over centuries?
- Concerning Prior Informed Consent: How can PIC be acquired in a practical way? How can PI protect the interests of indigenous peoples or other holders of knowledge in cases where the state appears to be the main party that provides PIC?

An ABS and PPB research agenda

When considering participatory plant breeding, a number of entry points come to mind when operationalizing the aforementioned ABS and related regulatory issues.⁵ These include first of all the research process itself (from defining general and specific objectives to evaluation) in terms of the ethics and politics of decision-making, the types and nature or functions of participation and collaboration or shortly, the quality of participation, and the responsibilities and reaping and distribution of potential benefits from and throughout the various action research stages (PR/GA 2001: 24; Sperling et al. 2001: 432, Vernooy 2003: 63-67). Research issues also include the materials used, i.e., the type of germplasm; the breeding/propagation methods used; the sites where the research is carried out; the type of end-product produced, and the means by which the product is distributed (PR/GA 2001: 25). Another important element is the real or expected monetary value of a particular crop/seed variety: whether we are dealing with export crops, crops with good commercial seed potential, or crops with limited commercial seed potential (Louwaars et al. 2005).

It is important to note that the contributions that those taking part in PPB make may or may not have implications in terms of property rights. When it comes to

⁵ This section benefits in particular from the results of a previous study supported by IDRC entitled “Participatory plant breeding and property rights” carried out under the umbrella of the CGIAR System-wide Program on Participatory Research/Gender Analysis. The study was coordinated by Louise Sperling. The final report of the study with the same title as the project was submitted to IDRC in August 2001.

intellectual property rights (and thus to the potential protection through IPRs), contributions need to be intellectual to some degree, i.e., by providing technical, social or organizational knowledge, by providing specific information, or by contributing to the skill-building of others (PR/GA 2001: 49). This is, however, not always easy to document and demonstrate.

Secondly, there are issues related to seed systems both at the local and informal level (Almekinders and Louwaars 1999: 72-79; Sperling et al. 2001: 431-2) as well as the national and formal level. The latter includes seed regulatory frameworks dealing with varietal and seed quality; variety release systems regulating the spread of varieties of proven quality to farmers; phytosanitary law and seed certification schemes that aim to control varietal identity and purity; and seed quality control mechanisms that check viability, purity and health. In addition, IPRs are included in laws of some countries to protect breeders from unfair competitors (Louwaars 2001: 105). Note that IPRs are country specific; in other words, IPRs conferred in any one country do not confer by definition to IPR protection in any other country.

The above listed regulatory framework components are embedded in broader societal institutions (defined as rules of the game), including policies affecting rural development and agricultural research more broadly, e.g., land tenure, taxation, marketing, financing of public research, provision of credit, and provision of extension services. Depending on context, research into these broader institutional questions may be highly relevant. The current trend of shrinking budgets around the world for public national agricultural research seems particularly relevant.

It is likely that NARI's focus on revenue generation, supported by the introduction of IPRs, may divert their attention from the needs of marginal farmers. This may also affect the conduct of participatory methods in breeding and variety selection. (Louwaars et al. 2005 : 5)

As of August 2001, the mentioned PR/GA study on PPB and Property Rights concluded that:

First, PPB collaborators –particularly, the less powerful partners- are little protected by existing ethical and legal frameworks. Second, as the arena of both germplasm exchange and Plant Breeding partnerships become more restrictive and more polarized (witness the acceleration of CGIAR interest in establishing its proprietary rights) the potential for PPB malpractice or abuse escalates quickly. (PR/GA 2001: 85)

This leads to the formulation of some examples of **general ABS and PPB research questions**:

- What are or will be the (differential) ownership claims that are emerging because of the PPB work with both farmer-breeders and state-sector or private sector breeders? How best are these claims dealt with, legally and non-legally? Should agreements be signed beforehand between the

- people taking part in a PPB project? If so, who should sign? Should existing laws be followed?
- Who is the breeder of a plant variety resulting from a PPB effort? Who should be the authors of a PPB publication?
 - How do these claims fit with (or not fit with) the new regulatory frameworks coming out of the international arenas such as the CBD and the WTO/TRIPS, as interpreted and shaped (implemented) at the national level?
 - How to deal with these claims within the light of PPB research work on the ground?
 - Do they require a code of conduct and if so, how should such a code be defined and by whom and how should it be implemented?⁶ How to bring the issue to the foreground? How to discuss them? How to deal with conflicting views and interests if these emerge? How to come to an agreement among various social actors or stakeholders involved?
 - In which way can local perspectives and local rights inform the national policy process?
 - What needs to be in place in terms of research policies within research organizations to facilitate this? What does it take to develop and implement such policies?
 - What to do with the PPB varieties developed during the last decade or so? How best could rights be protected?
 - How could low cost and relatively simple but appropriate PPB regulations be developed, implemented and monitored?

5. Synthesis

Although seemingly a simple question, answering *Whose varieties are they?* in the case of varieties produced through a PPB process is a far from easy task. Legal, political, ethical and scientific issues require consideration and discussion. Based on the review of these issues presented in this paper, the following main elements are suggested:

It is suggested that in order to best assist national policy-makers in formulating **legislative** choices, relevant issues could be best divided in three interrelated fields:

- Germplasm access and exchange: with a focus on the need to ensure the most open and equitable possible flow of genetic resources between farmers, other rural people, and researchers.

⁶ The study on PPB and PRs referred to in footnote 2 produced an actual Code of Conduct for participatory plant breeding practitioners (PR/GA 2001: 36-42). However, we ignore if this Code was subsequently being used or further developed. It seems a good idea to follow up on this.

- Knowledge conservation and formation: with the focus on the need to protect, promote and conserve the knowledge of indigenous and local communities in ways that ensure full participation in germplasm conservation and enhancement.
- Innovation management: with a focus on the need to encourage innovative genetic resources research for the benefit of current and future generations.

Research entry points include:

- The research process itself (from defining general and specific objectives to evaluation): the types and nature or functions of participation and collaboration or shortly, the quality of participation, and the responsibilities and reaping and distribution of potential benefits from and throughout the various action research stages.
- The materials used, i.e., the type of germplasm; the breeding/propagation used; the sites where the research is carried out; the type of end-product produced, and the means by which the product is distributed.
- The nature of the intellectual contributions made, i.e., by providing technical, social or organizational knowledge, by providing specific information, or by contributing to the skill-building of others.
- Seed systems components, both at the local and informal level as well as the national and formal level, including seed regulatory frameworks dealing with varietal and seed quality; variety release systems regulating the spread of varieties of proven quality to farmers; phytosanitary law and seed certification schemes that aim to control varietal identity and purity; and seed quality control mechanisms that check viability, purity and health.
- Broader societal institutions (defined as rules of the game), including policies affecting rural development more broadly, e.g., land tenure, taxation, marketing, provision of credit, and provision of extension services. Depending on context, research into these broader institutional questions may be highly relevant.

Potential **audiences or users** of the research results and recommendations include key decision-makers pertaining to a number of groups, networks and organizations:

- At the local level: farmer organizations and networks, CBOs and NGOs
- At the national level: relevant ministries, variety release offices, seed regulation offices, NARS and associated networks, NGOs
- At the international level: CBD, the ITPGRFA, WIPO, UPOV, WTO/TRIPS, CGIAR and associated networks and programs, regional organizations and associated networks, NGOs, donor organizations

Annexes

1) Relationship with WIPO raised in debates on ABS and Article 8(j)

One of the issues to be resolved concerning ABS questions in the CBD concerns the reference to the World Intellectual Property Organization (WIPO). This is mostly discussed in the context of measures to ensure prior informed consent (PIC) and mutually agreed terms (MATs). While acknowledging the usefulness of drawing on WIPO's expertise, some developing countries express concern over language by the CBD inviting WIPO to address the IPR issues related to access to genetic resources and disclosure requirements. Underlying these concerns are questions regarding the CBD's relationship with WIPO. These concerns date back a number of years (see, for example, BRIDGES Trade BioRes, 15 December 2003, <http://www.ictsd.org/biores/03-12-15/story2.htm>).

2) Negotiations on international ABS regime get underway

Delegates at COP-7 (2004) agreed to mandate the Ad hoc Open-ended Working Group on Access and Benefit-sharing to "elaborate and negotiate an international regime on access to genetic resources and benefit-sharing" based on the terms of reference included in the COP decision. As expected, delegates did not attempt to resolve the contentious issues of the regime's legal nature, scope and elements, opting for setting a broad framework for further talks in the Working Group. After lengthy discussions over the pace of negotiations for the international regime, delegates agreed to hold two sessions of the Group before COP-8 (2006), in Thailand (see the newspaper article in section 1 of this paper) and Spain respectively.

The ABS Working Group will carry out its work in close collaboration with the Working Group on Article 8(j) and Related Provisions, dealing in particular with indigenous issues. The article 8(j) working Group was mandated to make recommendations to ensure that the ABS regime includes sui generis systems and measures for the protection of traditional knowledge (TK). Furthermore, the Working Group will assess the role of databases and registers in the protection of TK; the potential of and conditions under which existing and new forms of intellectual property rights (IPRs) can contribute to the objectives of Article 8(j) and related provisions; and non-intellectual-property-based sui generis forms of TK protection. Several of these issues are also under discussion at WIPO's Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (see, for more information, BRIDGES Trade BioRes, 20 December 2002, <http://www.ictsd.org/biores/02-12-20/story1.htm>).

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