Exercise 8. Participatory Plant Breeding and Property Rights

('trip around the tables')

The aim of this exercise is to explain how laws can affect collaborative arrangements, to identify the needs and interests of stakeholders, and to name the issues that are crucial to successful collaborative arrangements

1. Form four groups of participants, each group elects a rapporteur. (5 minutes)

Phase 1. Group work (35 minutes)

2. Read and briefly discuss handout 4.8.5. (5 minutes)
3. Each group works on the case-study assigned to it, as follows (20 minutes)
    a. **Group A:** Case-study 1. (handout 4.8.6)
    b. **Group B:** Case-study 2. (handout 4.8.7)
    c. **Group C:** Case-study 3. (handout 4.8.8)
    d. **Group D:** Case-study 4. (handout 4.8.9)
4. The groups use the guiding questions below to summarize the results of their work.

GUIDING QUESTIONS

I. EXISTING LAWS

- In each case scenario, how would your existing national laws affect the property rights of
  a. scientists?
  b. farming communities?
- Are these laws specific enough to deal with the variability in PPB to ensure equity for each stakeholder?

II. AGREEMENTS (Contractual or informal)

In terms of guaranteeing an open collaboration, participants in a PPB programme may wish to rely on more than existing legislation to determine their mutual rights and responsibilities. Transparency at the initial stages is crucial for a successful collaboration: that is, all partners involved need to understand and agree to key elements in the process.

- Discuss the 'key elements' that might need to be discussed and negotiated between scientists and communities (and other stakeholders) to ensure that all groups understand and agree to the unfolding of the process—and its outcomes.
- Are the 'key elements' (i.e., items for clarification) the same across all cases? Why or why not?

5. The rapporteurs compile their group's inputs on handout 4.8.10. (10 minutes)

Phase 2. 'Trip around the tables' (60 minutes)

6. The rapporteurs begin their 'trip around the tables'. They have 15 minutes to visit each table. They present their group's inputs and collect contributions to improve their list of responses. (45 minutes)
7. After visiting the three other tables, the rapporteurs return to their own group to share the contributions collected during the 'trip' and decide on the best answers. (10 minutes)
8. The rapporteurs write the results on the flipchart and prepare to present their group's results. (5 minutes)

Phase 3. Reporting and discussion (50 minutes)

9. The rapporteurs present the results to the audience. About five minutes are available for each presentation. (20 minutes)
10. The trainer distributes handouts 4.8.11 and 4.8.12 (practical considerations) for exercise 9, analyzes the responses, provides feedback on the context of the presentations and facilitates a brief discussion. (25 minutes)
11. The trainer closes the session. (5 minutes)

Participatory Plant Breeding And Property Rights[1]

Participatory Plant Breeding (PPB) involves farmers and other users, such as consumers, vendors and industry, in formal breeding research. It is 'participatory' because users can have a role in all major stages of the process of plant breeding and varietal selection: they may help set priorities, make crosses, screen germplasm entries in the pre-adaptive phases of research and usually take charge of adaptive testing.

PPB has achieved recognition as a strategy for crop improvement and conservation over the last 10 years in response to the need for more sustainable impact in non-commercial crops or highly diversified, segmented markets. Centralized, researcher-driven breeding (or supply-driven research) has been extremely effective in high potential, uniform environments, and for those farmers who can afford inputs to control variable production conditions. Conventional breeding has been less effective in difficult environments, in reaching farmers with few resources, and, in general, in reaching users with specialized concerns, e.g., those with rigorous requirements for product quality.

Studies of farmers' own knowledge of varieties, and their plant breeding or seed systems, have also encouraged the development of PPB. These studies demonstrate that local expertise in germplasm management can be very precise, particularly in regions with high varietal diversity. Moreover, plant breeding is a familiar activity in farm communities: for generations, some farmers have been selecting and promoting better adapted or higher quality entries and matching cultivars to particular production niches. This farmer-based experimentation is still lively and widespread in most rural communities, whether in low-income or wealthy countries. PPB builds on farmers' unique capacity to match varietal traits with specific niches and their ability to lead the way in site-specific testing.

Today, PPB is being used in a wide range of crops and locales: for example, pearl millet in India, barley in Syria, common beans in Brazil, rice in Nepal, cassava in Colombia. About 120 cases have been inventoried worldwide, with the number of new ones increasing steadily. Despite this expansive growth of interest in the techniques of participatory plant breeding, attention to the novel legal and ethical obligations involved has remained largely unexplored, although practitioners routinely access funding using claims that 'joint' or 'participatory' work is indeed being undertaken (among scientists, farming communities, development and extension personnel, rural cooperatives and others involved in the plant breeding enterprise).

Joint collaboration should be linked to joint benefit sharing. At this point, there are no ready-made arrangements or 'best practices' to suggest for the processes and materials that emerge from PPB collaborations. Most of the PPB work to date has simply skirted the issues of property rights with two very diverse strategies: materials jointly developed by formal breeding and farming communities have been fed into the formal system for variety release

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[1] This material is built on L. Sperling, J. Ashby, E. Weltzien, M. Smith and S. McGuire. 2001. A Framework for Analyzing Participatory Breeding Projects and Results. *Euphytica* 122(3) December 2001; and D. Leskien and L. Sperling. 2001. Participatory Plant Breeding and Property Rights, Report submitted to The International Development Research Centre (IDRC) by the System-wide Program on Participatory Research and Gender Analysis (PRGA), August 2001.

and seed multiplication (completely ignoring farmers' input) or the PPB-developed materials have been 'released' ('let go' into farming communities) with no official launch of any kind.

This module aims to stimulate thinking on property rights and more general obligations evolving from PPB programmes. Insights from the arenas of farmers' rights and plant breeders' rights can only partially inform such thinking. PPB is distinct because its base is built on *explicit collaboration* between farming communities and formal scientists *(not one individual or group in isolation of the other*).

To stimulate such thinking, we present four case studies of PPB field programmes. The set shows that the content of the programmes may vary considerably according to such variables as the following:

- the goals of PPB—e.g., varietal improvement/release, enhancement of conservation and diversity, empowerment through skill building
- the roles of partners (farmers/researchers)—everything from simple consultation on preferences to actual collaboration in choosing and making crosses (analysis of stages of involvement)
- type of germplasm used—local/exotic, stable/variable
- sites in which material is stabilized—farmer controlled, researcher controlled, mixed
- type of product derived—homogeneous/variable
- means by which product is distributed—informal or formal seed channels

Let us take just the issue of roles and functions as an example of the diversity encompassed in PPB. Farmers may provide technical leadership and thus provide substantial intellectual contributions to a PPB project. On the other hand, farmers may contribute by providing land or breeding material (which itself may embody past intellectual contributions). Whatever role farmers or researchers take on, at whatever stage of a PPB project, their role may or may not have implications for property rights and non-property obligations. Much of this has to be thought through on a case-by-case basis..

Sample Cases

In the following handouts, we sketch four sample types of PPB collaborations. Each case is realistic in terms of what actually happens 'on the ground'—and each is very different. Questions for thinking about the property rights and obligations tied to the cases (separately and in their totality) appear at the end.

Case study 1

Formal researchers are given the government mandate to improve crop production in marginal areas and specifically seek out farmer breeding priorities there.

There is no prior consultation or subsequent formal agreement with the communities involved.

Researchers realize that the existing available NARS germplasm has little promising material. They initiate a crossing programme using some local germplasm and some germplasm supplied by a neighbouring NARS.

On-station, breeders conduct several cycles of screening. Interested farmers from the local target communities, some women, some men, are brought on-station for evaluation of materials, including feedback on specific desired traits.

On the basis of farmer and breeder assessments, segregating material is put with farming communities in researcher-designed but community-managed plots.

The material stabilizes on-farm.

Farmers and breeders pick the most promising finished materials.

Varieties are put through processes for formal release and multiplication.

Case study 2

Farmer communities make a decision to build on and improve the quality of their existing local germplasm. While they want higher yields, they are concerned about keeping their local varietal diversity. They highly value free exchange of materials among themselves. In fact, giving a seed gift is a true sign of friendship.

An 'outside' scientist is called in to help devise a strategy for 'strengthening' local germplasm (making it more productive). Community leaders insist that the final product will be for the local community with the right of the locals to decide on any further distribution. A local NGO has given funds to enable this programme.

The contracted scientist initiates a crossing programme to improve 'weaknesses' in local materials and collaborates with members designated by the Community Council—composed of male elders.

The Community, represented by the Community elders, approves the stabilized end products, which have been tested at farmers' homes.

The scientist is paid and thanked and the community decides its own path.

Case study 3

In the course of doing a survey, formal researchers discover an innovative farmer breeder who has developed an 'interesting population' from local materials. They ask the farmer if they can have a sample but no formal agreement is made. Scientists plant this population on-station, stabilize it, and come up with a highly productive mix.

The product is sufficiently homogenized so as to be put out through a formal release process.

Case study 4

Formal researchers and the community decide together that new genetic variation is needed. No formal collaborative agreements are signed. (The farmers' viewpoint is that the old germplasm is 'tired' and not productive enough. The viewpoint of the formal researchers is that the old material is too homogenous and declining in yields.) Dual goals of the PPB are set: production increase and enhancement of varietal diversity.

Formal researchers give the community substantial and novel (to the community) bean/rice materials (already stable lines, but not released varieties). These materials are from NARS genebanks in the region.

In this case, the 'community' refers to select farmers, male and female, who are interested in testing new germplasm and have plots of a sufficient size to take large numbers. The individual testers have not been elected by the farming community.

The only requirement by formal researchers is that 'recipient farmers' freely allow other farmers to screen their home plots and take samples of the materials they desire.

Several years later, researchers make a follow-up visit to the community. The most widely popular of the farmer-selected varieties (those grown on many plots) are subsequently put through formal release and multiplication procedures and moved to more distant communities. The other varieties (often site or criteria specific) are moved through local farmer multiplication and distribution channels.

Analysis of the farmer-selected germplasm shows that some of the materials are true to the originals and others have evolved into criolla types.

Exercise 8. Worksheet

Guiding Questions:

A. Existing Laws:

1. How would your existing national laws affect the property rights of (a) scientists and (b) farming communities in each case scenario?

2. Are these laws specific enough to deal with the variability in PPB so as to ensure equity for each stakeholder?

B. Agreements (Contractual or Informal)

In terms of guaranteeing an open collaboration, participants in a PPB programme may wish to rely on more than existing legislation to determine their mutual rights and responsibilities. Transparency at the initial stages is crucial for a successful collaboration: that is, all partners involved need to understand and agree to key elements in the process.

3. Discuss the 'key elements' that may need to be discussed and negotiated between scientists and communities (and other stakeholders) to ensure that all groups understand and agree to the unfolding of the process—and its outcomes.

4. Are the 'key elements' (i.e., items for clarification) the same across all cases? Why or why not?

Categories of Relevant Laws and a Methodology for Organizing Key Issues

(to be distributed after completion of Exercise 8)

I. Relevant Laws

- Seed legislation
- IPR (will the product produced by the PPB be accommodated within the existing system?)
- ABS
- Laws on community rights, farmers' rights
- Laws on property rights
- Marketing regulations

II. What key issues that partners may wish to consider in PPB can we draw from the hypothetical cases?

1. Goals

Can the partners define goals that are acceptable to all (including non-partners)?

2. Roles and Responsibilities

What is each partner going to do (what are the responsibilities) and when?

3. Decision Making

How will decisions be made at each stage (the mechanisms)?

4. Benefit Sharing

Are benefit sharing and access to jointly developed innovations clear? What about issues of ownership, rights of distribution, the stakes of others (non-partners) in innovations developed? The trainer can ask the participants during the plenary if the hypothetical cases enable them to answer the question: Who will have access to, use of, rights to own and to distribute what?

5. Extent of Participation

How much time, resources and responsibility can each partner give to the process?

6. Expectations

Are expectations of all partners clear? What are the implications of these expectations for non-partners?

7. Obligations

Are the obligations of each partner to the process clear to all involved?

Practical Considerations for Exercise 8

(to be distributed after the exercise has been completed)

After this exercise, participants are able to explain how laws can affect collaborative arrangements, to identify the needs and interests of stakeholders, to name the issues that are crucial to successful collaborative arrangements.

General approach:

Consider the fact that there are multiple interests at stake when PPB is taking place. Each different stakeholder (scientists and researchers, public or private institutions, conservationist farmers, extension farmers, seed distributors, etc.) may have a different vested interest in regard to ownership and property-related issues. For each of these, different policies and legislation may be in place.

Specific observations:

Workshop participants should take into account that contracts and agreements are very useful tools to determine and specify the obligations that different stakeholders may have as part of the PPB process. Contracts can be very flexible tools in relation to their essential content and can accommodate the needs of different stakeholders.

Participants should also be especially aware of the existence of the following:

- international and national frameworks that may cover the issue of access to genetic resources and seeds (especially relevant in the case of researchers)
- national seed laws and certification schemes (especially relevant in the case of seed producers and farmers)
- national laws addressing traditional knowledge and/or regulations covering technology dissemination (especially relevant in the case of farmers and researchers, too)
- IP law (including PVP and PBR legislation) (which may have an impact on researchers, access to materials, commercialization)