

Exchange of Non-plant Genetic Resources for Scientific Research at Domestic & Global Levels

ABSTRACT

Scholars have expressed concerns that the Nagoya Protocol might hinder the global exchange of genetic resources (GR) and thereby affect the ability of scientist to undertake important scientific research in fields such as agriculture, biology and medicine (Jinnah and Jungcurt 2009). This study aims to examine current patterns of exchange of GR for eight organisms in three sectors: government, industry and university. Key topics include:

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- National and International exchange patterns;
- Regulation across borders;
- Characteristics of exchange partners;
- Visibility and transparency of exchange;
- Formality of exchange agreements;
- Characteristics of the GR geographic location, genetic diversity, event.

The study seeks to improve understanding about how global policy change will affect GR flows, the use of GR, and outcomes from the use.

GENETIC RESOURCES

The term genetic resources includes living organisms, gametes, or other functional units of heredity (e.g. DNA or RNA) of actual or potential value.. Genetic resources include breeding animals (and eggs/semen), pathogen isolates-bacteria, fungi, and viruses.

ACCESS & BENEFIT SHARING (ABS)

ABS refers to the way in which genetic resources may be accessed, and how the benefits that result from their use are shared between the people or countries using the resources (users) and the people or countries that provide them (providers).

LOGIC OF THE POLICY PROBLEM

- ✓ Genetic material is increasingly being researched for knowledge and manipulated and applied by industry.
- ✓ Diversity of genetic material from the commons is important for resistance of animals and crops to disease, and for food security.
- ✓ Much genetic diversity is located on farms and in the wild around the world, or publicly available.
- ✓ Material may be sourced at low prices (often from less developed countries) and manipulated, applied, controlled and sold at high prices (often in more economically developed nations).
- ✓ STRIKING A BALANCE: It is important to develop mechanisms that provide access without over exploiting resources and countries – fair compensation for access – danger of over control.

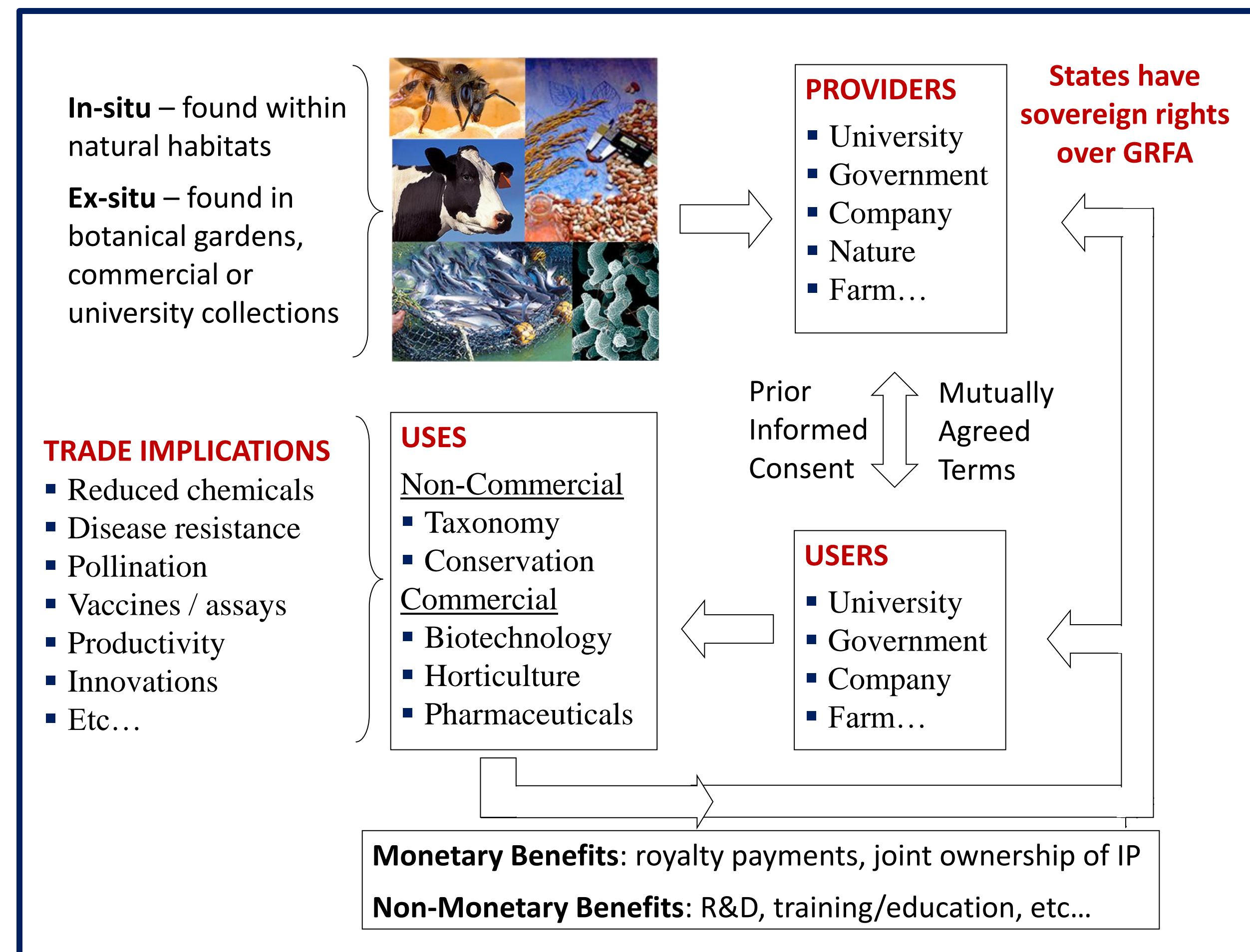
NAGOYA PROTOCOL

The Nagoya Protocol is intended to establish access and benefit sharing rules for genetic resources outlined in the Convention on Biological Diversity (CBD).

- ✓ Aims to give countries, particularly developing ones, more control over their genetic resources.
- ✓ Requires official permission process for access, plus agreement on a form of compensation for economic returns from development and use of these materials.
- ✓ Participating governments have begun establishing specific steps to manage the exchange of potentially valuable genetic material.

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Exchange and Use of Genetic Resources for Food & Agriculture



DATA

- ✓ A 2011 survey of US government/university researchers (RR: 38%) and an identical 2012 survey of US company researchers (RR:24%) . First survey reported here.
- ✓ Sample Frame: U.S. national population of researchers who use non-plant genetic resources for food and agriculture (microbes, livestock, aquatics, and insects).
- ✓ Data: 986 Project profiles reported by 389 respondents.

Proportion of researchers who exchange genetic resources

		All researchers	Basic scientists
<u>Domestic exchange</u>	Receivers	48%	53%
	Senders	32%	37%
<u>International exchange</u>	Receivers	15%	19%
	Senders	13%	16%

The exchange process is highly informal: most from close colleagues, free or at cost (89%), few Material Transfer Agreements (25%).

Proportion of respondents indicating that regulatory factors impede their ability to obtain organisms

	Foreign Sources	US Sources
Regulations in other countries	24%	-
Federal/State/Local regulations	36%	25%
University rules or procedures	16%	13%
Prior Informed Consent (PIC) or Mutually Agreed Terms (MAT)	11%	

Proportion of projects with expected /not formalized non-monetary compensation

	All projects	Projects funded by industry	Projects with international source	Projects with MTAs
Provide any non-monetary payments	68 %	66 %	74 %	80%
Storage of materials	16 %	8 %	23 %	15%
Research/technical services	24 %	24 %	34 %	30%
Information on results	59%	59 %	62 %	70%
Education or training	15 %	13 %	18 %	13%

For the product or process innovation work you do with genetic resources, please indicate whether the following statements are always (=1), sometimes (=2), or never true (=3).

	Mean	
The GR in the product or process is openly disclosed or easily known.	1.45	Usually
The GR is easily identifiable in the product or process.	1.55	Usually
The value of the product or process depends upon the distinct characteristics of the GR used.	1.66	Usually
The value of the product or process depends upon <u>open disclosure of the source</u> of the GR.	2.07	Sometimes
The GR is not part of the product or process.	2.29	Sometimes
The value of the product or process depends upon <u>intellectual property rights</u> associated with the GR.	2.44	Rarely

SUMMARY / CONCLUSIONS

- ✓ International exchange of genetic resources is substantial; much of it is informal based on collegial/friendship ties.
- ✓ National regulations and regulations in other countries are perceived to hinder access to GR.
- ✓ Mixed visibility of GR in final product or process
- ✓ Clear difficulties ahead: 1) regulatory burden may reduce exchange or lead to work arounds; 2) difficult to track use of GR due to visibility and strong informal norms; 3) high degree of non-monetary benefit sharing may be difficult to capture and account for.

