DAY ONE Session 3
Summary of Overheads

1.3.1

Session 3 : Centres of Origin, Movement and Value


Law and Policy of Relevance to the Management of Plant Genetic R esources – 1.3.1

1.3.2

Objective of Session 3

- To appraise the implications of the origin and movement of PGRFA on the development of sound policy


Law and Policy of Relevance to the Management of Plant Genetic Resources – 1.3.2

1.3.3

Introduction

- Ideally, good policy is based on good science
- In the real world, however, 'science' is not unambiguous and often yields to politics in policy and law-making processes
- However, technical and scientific considerations re-appear in the implementation phase
- If the dissonance between science and policy is too great, pressures can build and eventually lead to changes in policy


Law and Policy of Relevance to the Management of Plant Genetic Resources – 1.3.3

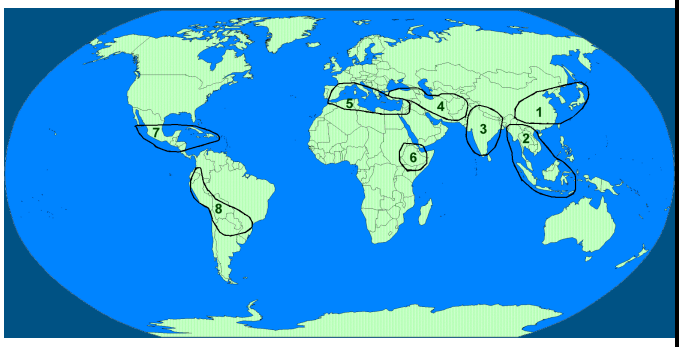
1.3.4

Origin of Plant Genetic Resources

- In the 1920s, Vavilov formulated the concept of Centres of Origin for groups of crops
- In 1971, Harlan published the first major critique of Vavilov, postulating centres and 'non-centres' of diversity
- For many crops, no discrete centre of domestication can be distinguished, domestication having taken place over a vast area

1.3.5

Vavilov's Centres of Origin



1.3.6

Impact in Negotiating Process

- The Convention on Biological Diversity relies heavily on the feasibility of identifying a 'country of origin' of a particular genetic resource
- The Vavilov legacy also influenced the negotiations on the International Treaty on Plant Genetic Resources for Food and Agriculture
- As a trade-off, Treaty negotiators 'gave up' collective benefits in exchange for benefits captured from providing bilateral access

1.3.7

Current Location of Genetic Resources

- All genetic resources originally came from *in situ* conditions
- Nowadays, much diversity can no longer be found in farmers' fields or in the wild
- Much diversity can now be accessed from genebanks far removed from a Centre of Origin
- Bennett remarked that, if Vavilov were to redraw his maps, he would have to designate Ft. Collins, Colorado, (one of the largest genebanks in the world) as a centre of diversity

1.3.8

Genebanks and Accessions in *Ex Situ* Collections by Region

Region	Number of Accessions	% of Total	Genebanks	% of Total
Africa	353,523	6	124	10
Latin Amer. & Caribbean	642,405	12	227	17
North America	762,061	14	101	8
Asia	1,533,979	28	293	22
Europe	1,934,574	35	496	38
Near East	327,963	6	67	5
Total	5,554,505	100	1,308	100
CGIAR	593,191		12	

Source: FAO (1998)

1.3.9

Other Considerations

- Physical quality of the collections varies considerably
- Associated information provided determines value
- Major part of diversity in staple crops has been collected and is conserved in genebanks, although farmers' varieties still evolve in the field
- Private plant breeders often prefer their own elite germplasm for breeding programs
- Thus, not all genetic resources are equally useful or equally in demand

1.3.10

Germplasm Transfers

- ***Ex situ*** **collections in the public domain form a major source for both developed and developing countries**
- **Access from *ex situ* sources far exceeds access from *in situ* conditions**
- **CGIAR centres and national genebanks have 'restored' germplasm in recent years to at least 41 countries: apparently countries themselves are losing materials**

1.3.11

Interdependence

- **No country is completely independent in terms of PGRFA: most countries are providers and users**
- **Most countries have agricultural systems based predominantly on crops domesticated elsewhere, and on genetic resources supplied by others**
- **International and national programmes use large amounts of material: access is important to all countries**
- **Interdependence is graphically illustrated by looking at the pedigrees of modern varieties of major food grains**

1.3.12

Dilemmas and Options in the Absence of a Multilateral System

- **How can access to materials in other countries be secured in an efficient and cost-effective manner?**
- **How can access to materials be provided in a way that maximizes benefits to themselves?**
- **In practice, these goals may prove to be rather contradictory, leading to considering co-operative principles and measures**

1.3.13

Stakeholders in Access

- Access is critical to plant breeding programmes
- Access is also critical to farmers who use improved seeds and planting materials, directly or indirectly
- No example of a country relying only on indigenous crops or on genetic resources sourced locally
- All countries need access to genetic resources for agricultural production and food security

1.3.14

Values and Benefits

- Assigning an economic value to individual accessions is difficult, given the number of accessions used and the number of crosses made in breeding programs
- Value is added in the research process
- Benefits can be captured even if the genetic resource is not directly sold: countries, farmers and consumers benefit by having better and more productive varieties
- Arguably the principal value of the resource is as a resource, not as a commodity
- How can appropriate policies based on this understanding be developed?

1.3.15

Conclusions

- Management of PGRFA will benefit from a knowledge of the history of plant genetic resources, and from an understanding of current realities and needs
- Strong policies and beneficial laws are founded on this knowledge and understanding
- Policies and laws not predicated on a factual basis contain 'structural faults' and will result in negative consequences and probably in their own undoing in the future

1.3.16

References

Five Continents
N.I. Vavilov, IPGRI
(facsimile)

Crops and Man
J. Harlan

Guns, Germs and Steel
J. Diamond