



# Synergies between plant breeding and conservation of genetic resources

Francesco Mattina – President of the CPVO





# Outline

- Plants and technology
- Access to genetic resources and innovation
- The Relevant legal framework
- Link among pieces of legislation
- Conclusions



# Plants and technology

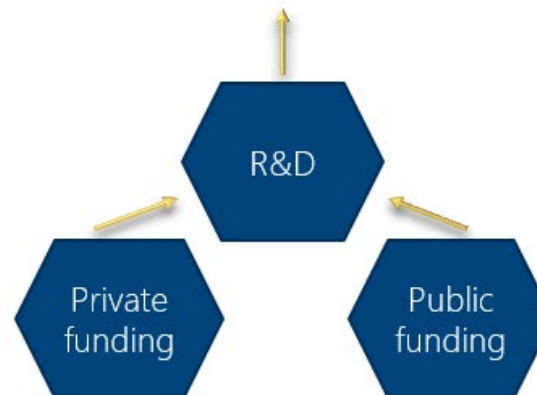


# The importance of innovation



Display: 84x84 pixels  
Camera: None  
RAM: 1KB  
Battery: 900mAh

INNOVATION



Display: 1170x2532 pixels  
Camera: 12MP  
RAM: 4GB  
Battery: 3240mAh

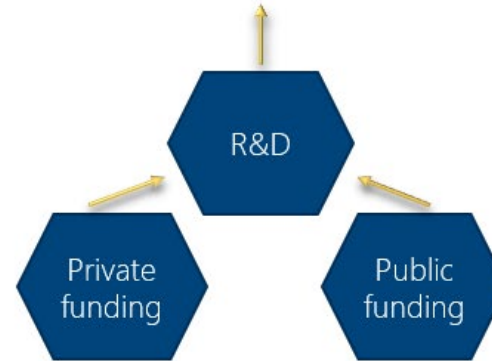
# Technology behind New Plant Varieties



INNOVATION

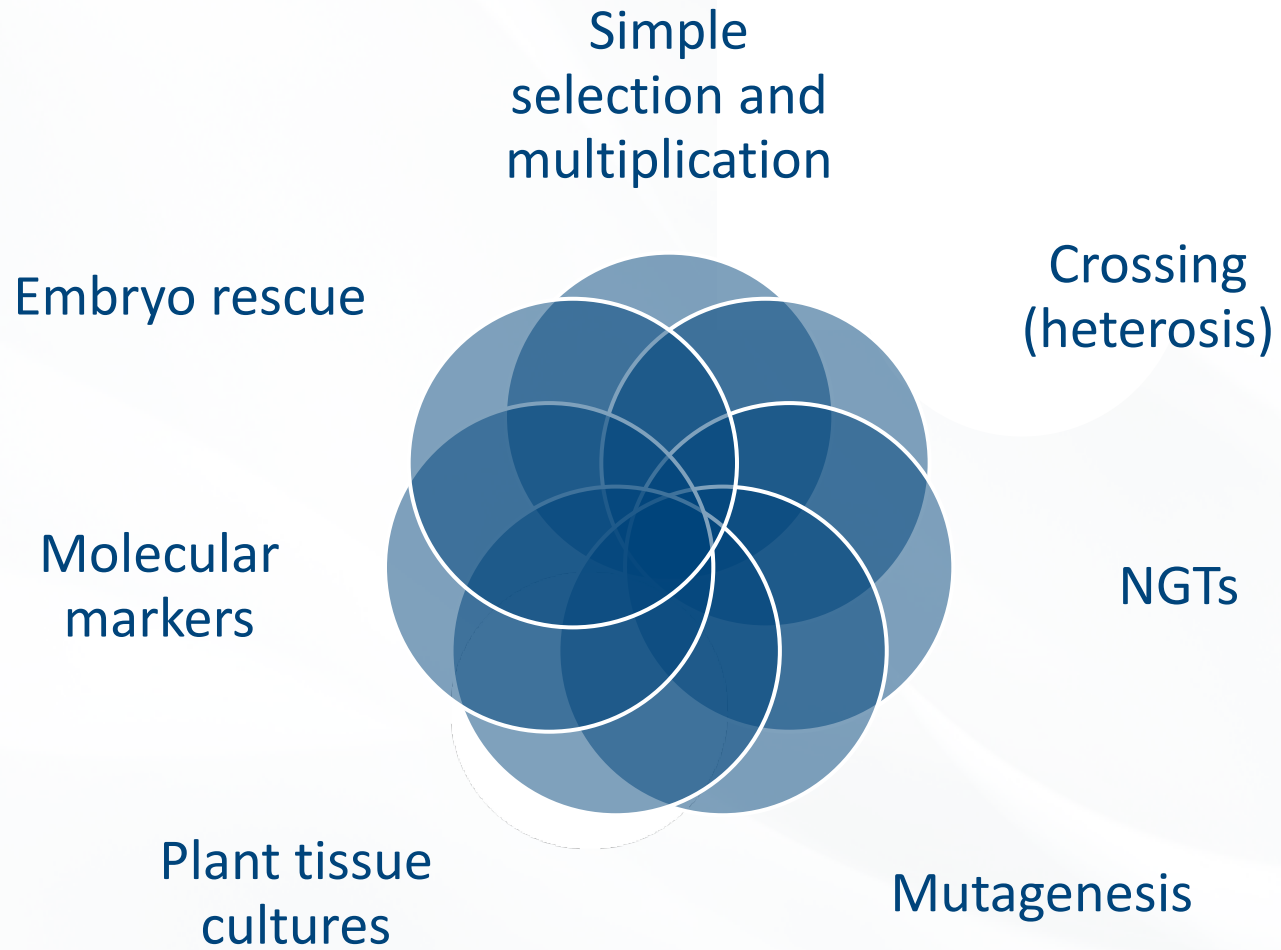


- Lower yield
- Lower resistance to pests
- Susceptible to challenging environments (heat, water stress...)



- Higher and more stable yield
- Adapted to less intrans
- Better resistance to pests  
(reduction of pesticides)
- More tolerant to climate change
- Better quality, longer shelf life...

# Many techniques can be used





# Access to genetic resources and innovation

# Why access to genetic resources?

Innovation in the field of plant varieties entails the access to germplasm

A richer germplasm allows innovators to have better choice in initial material

Some traits are found in germplasm → abiotic stress resistance





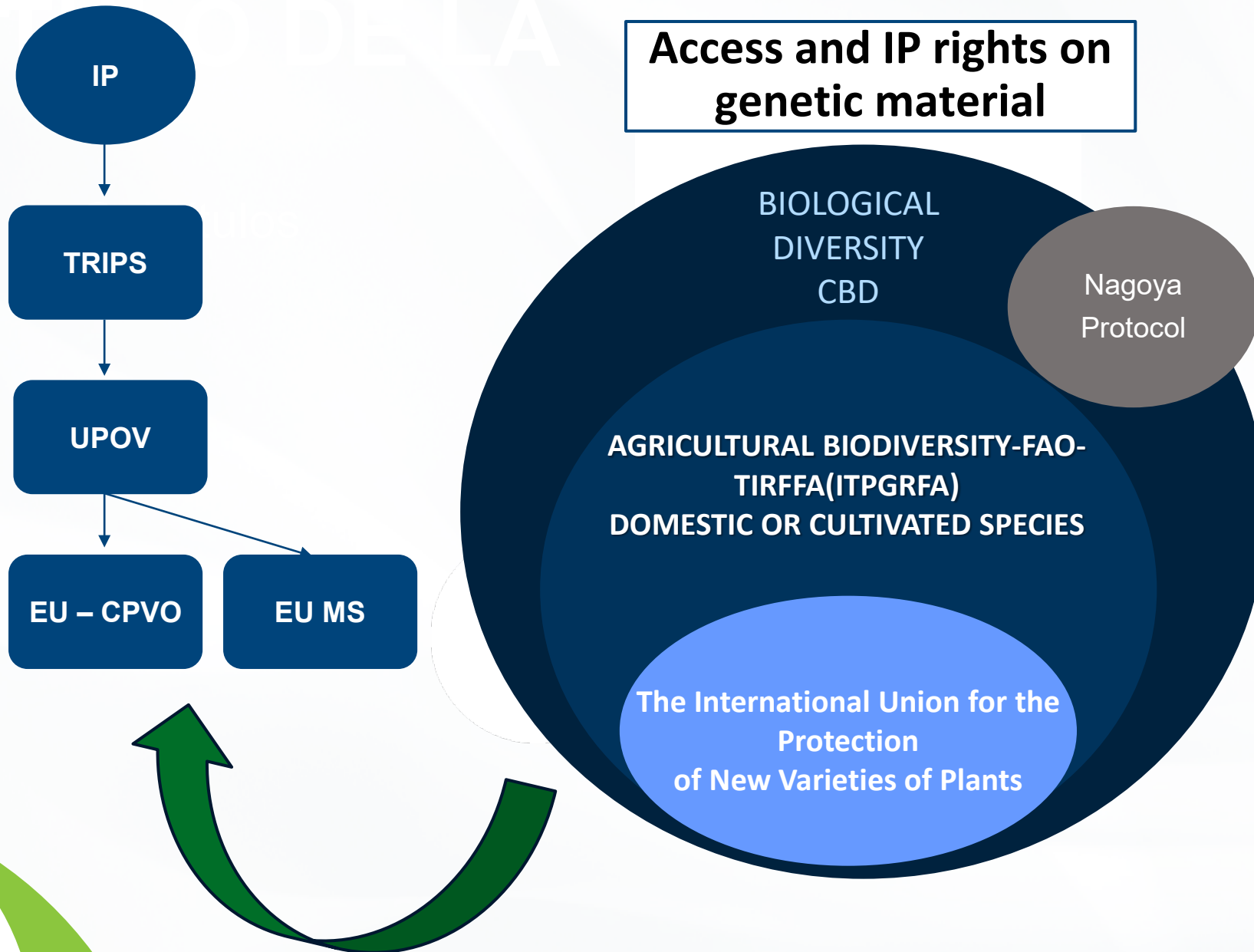
# Other uses of Genetic resources





# The relevant Legal Framework

# Legal Framework at a glance



# Convention on Biological Diversity

Adopted in 1992 with the following objectives

Conserve genetic resources

Sustainable use of genetic resources

Benefits equitably shared

Preserve traditional knowledge

# Nagoya Protocol

## 2010 Protocol to the Convention on Biological Diversity

Access  
Legislation  
(left to  
countries)

Benefit  
Sharing  
(agreement)

Compliance  
(left to  
countries)

# Nagoya Protocol

## Process of access and use of genetic resources

CAN =  
competent  
national  
authority

PIC = Prior  
consent

MAT =  
Mutually  
agreed  
terms

# Nagoya Protocol

## 2010 Protocol to the Convention on Biological Diversity

Access  
Legislation  
left to  
countries  
(MS)

Benefit  
Sharing  
Agreement  
between  
parties

Compliance  
EU ABS  
Regulation  
Reg. No  
511/2014

# International Treaty on Plant Genetic Resources for Food and Agriculture

Focus on food production

Access

Conservation


Food Security

Multilateral system




# CBD in the European Union

The EU is member of the CBD



ABS for the Member  
States = Substantial  
provisions



Compliance is at EU-  
level: Reg. 2014/211 =  
Formal check

# UPOV Convention

## Establishing Plant Breeders' rights

*Sui generis* IP right

Exclusive right

Farm save seeds

# Article 5 UPOV 1991

*Conditions of Protection (1) [Criteria to be satisfied]  
The breeder's right shall be granted where the variety is*

- (i) new,*
- (ii) distinct,*
- (iii) uniform and*
- (iv) stable. (2)*

*[Other conditions] The grant of the breeder's right shall not be subject to any further or different conditions, provided that the variety is designated by a denomination in accordance with the provisions of Article 20, that the applicant complies with the formalities provided for by the law of the Contracting Party with whose authority the application has been filed and that he pays the required fees.*

# UPOV in the European Union

The EU is member of UPOV

Run by CPVO

Pan-European right

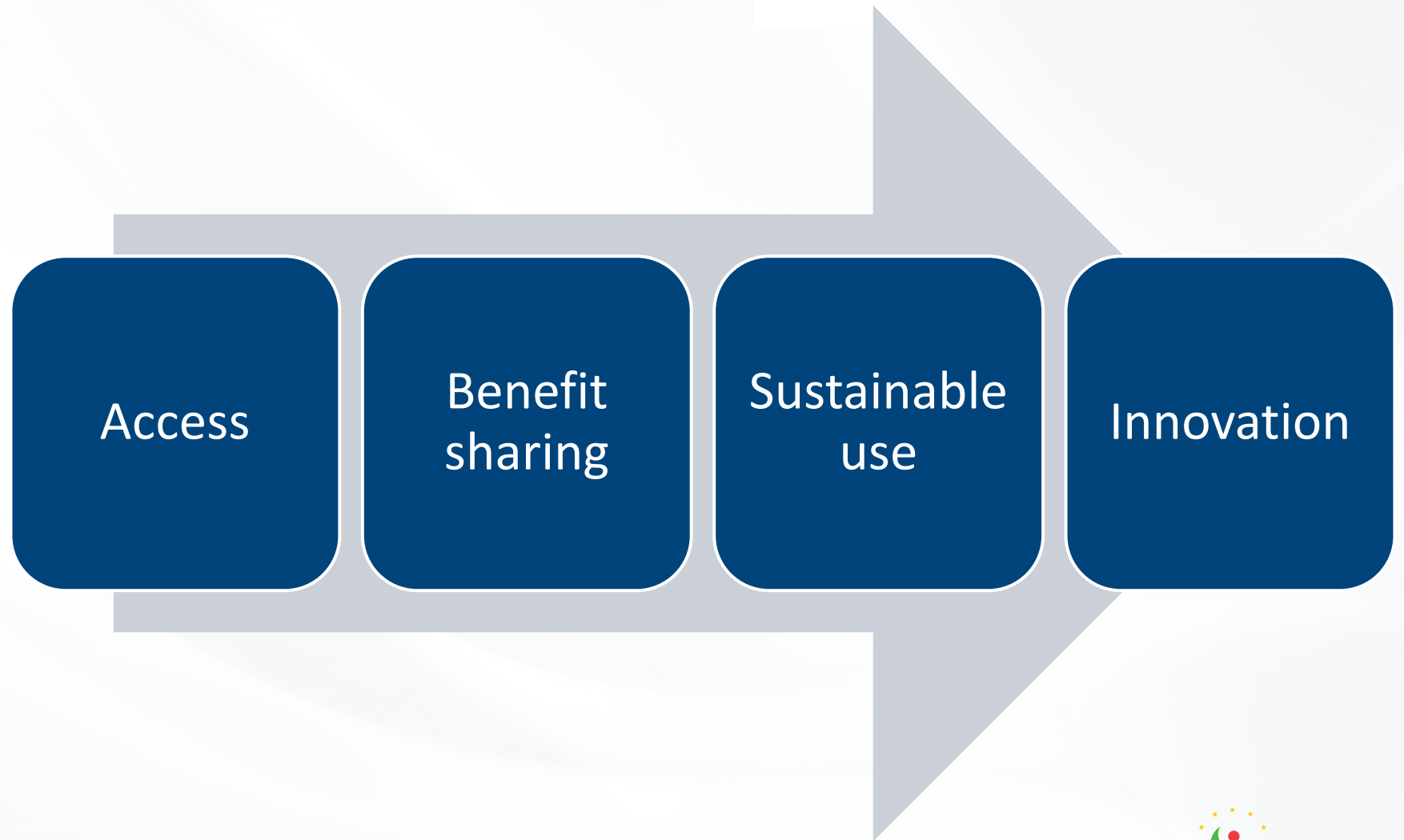
Co-existence with national rights



# Link among pieces of legislation



The systems complement each other



# Compliance check in the EU



IF public funding → Research funding → Due diligence declaration



Pre-commercialisation/final development → Due diligence declaration BEFORE registration common catalogue



Register of collection = compliance presumption



Commercialisation



# To be noted



The CPVO does not require to show proof of correct access to genetic resources



Technical information is required → limited to cultivation conditions to conduct technical examination



Due diligence = obligation of the breeder pursuant to Article 4 reg. No 211/2014





**To sum up**



Intellectual  
property  
protection



Exercise of the  
right

# Case study: introducing genetic variation in rice crops



Impact of water salinisation due to climate change (abiotic) and apple snail (biotic)



NEURICE: Starting from salt-tolerance from a traditional Indian rice variety named **Pokkali** + backcrossing with different Spanish, French and Italian elite rice + embryo rescue



In 2 years managed to create a resilient to climate change variety that is also naturally resistant to apple snail → no need to use chemicals

# Case Study: conservation of genetic resources in France

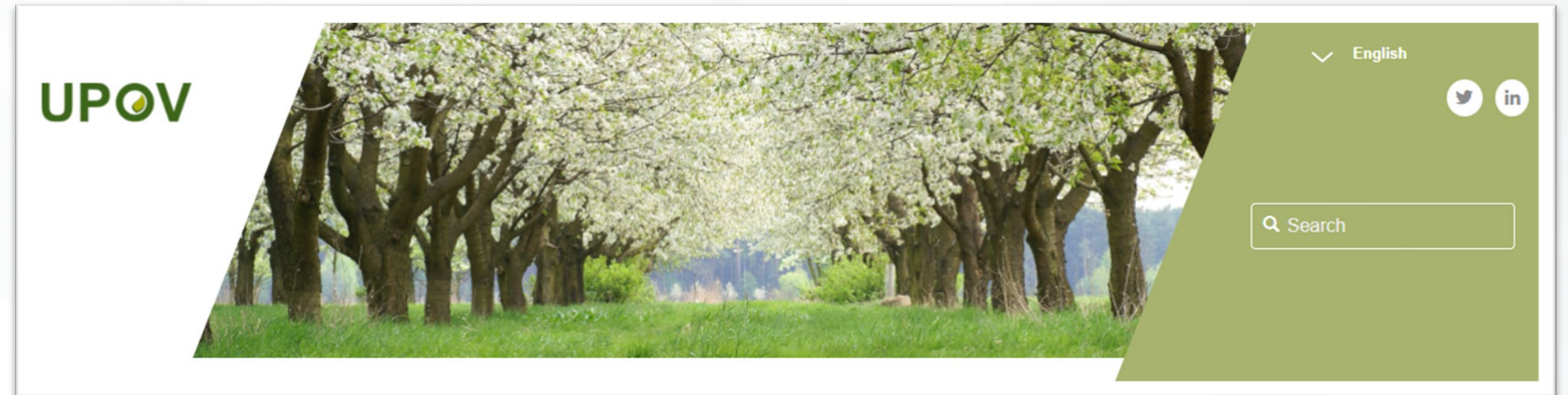
- Mapping and management of collection
- Maintenance of conservation collections
- Support in the creation of a common pool for ITPGRFA multilateral system
- Coordination of local structures
- Think-tank for the conservation genetic resources in France



## CTPS Section for the Conservation of Plant Genetic Resources (PGR)

The Technical Committee for Plant Breeding (CTPS) plays an advisory role, providing analysis and guidance to the Ministry of Agriculture. It is composed of 14 Sections organised by species and, following the Decree of 24 November 2015, a new cross-sectional committee for the conservation of Plant Genetic Resources of cultivated species and their crop wild relatives.

Still curious? Check the [UPOV FAQ](#)



## Complementarity between the UPOV Convention, the Convention on Biological Diversity (CBD) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

### *Aims and objectives*

Biological diversity or 'biodiversity' is the term used to describe the variety of all living organisms and includes diversity within species, between species and of ecosystems. Biodiversity underpins all human activity, notably including agriculture and, therefore, food security.

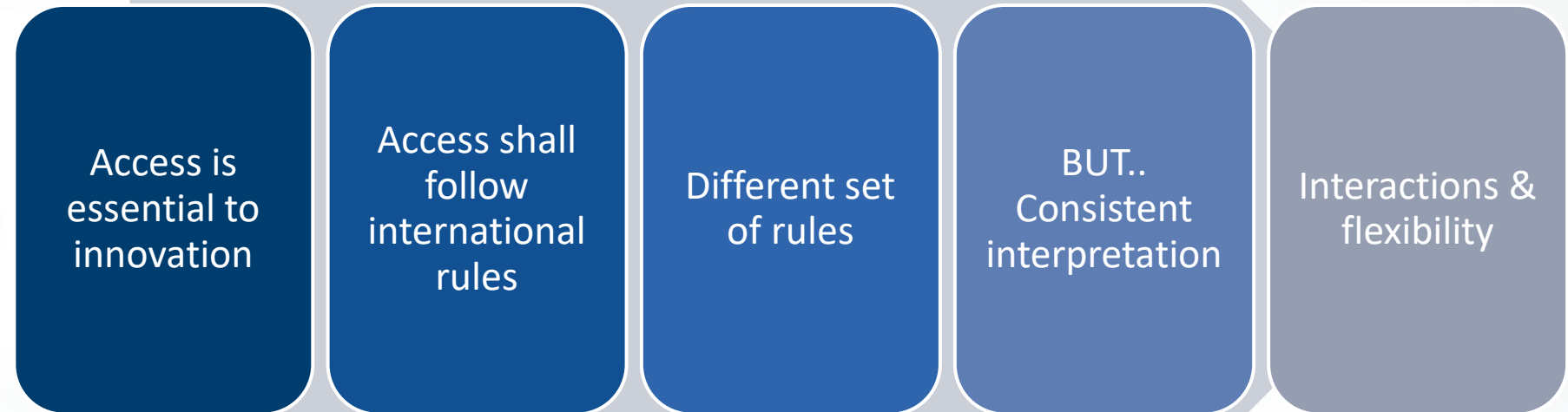
The Convention on Biological Diversity (CBD) has three objectives: the conservation of biodiversity, the sustainable use of the components of biodiversity and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. A supplementary agreement to the CBD, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from the Utilization elaborates on the Convention's provisions on access to genetic resources, traditional knowledge and benefit-sharing in order to contribute to the conservation and sustainable use of biodiversity.



# Conclusions



# Conclusions





Thank you!



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