

THE ABS  
CAPACITY  
DEVELOPMENT  
INITIATIVE



L'INITIATIVE DE  
RENFORCEMENT  
DES CAPACITES  
POUR L'APA

# Business Models of ABS relevant sectors

5<sup>th</sup> Pacific ABS Workshop, 10-13 November 2014  
Mercure Hotel Potts Point, Sydney, Australia

Dr. Andreas Drews

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Federal Ministry  
for Economic Cooperation  
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DANISH MINISTRY  
OF THE ENVIRONMENT



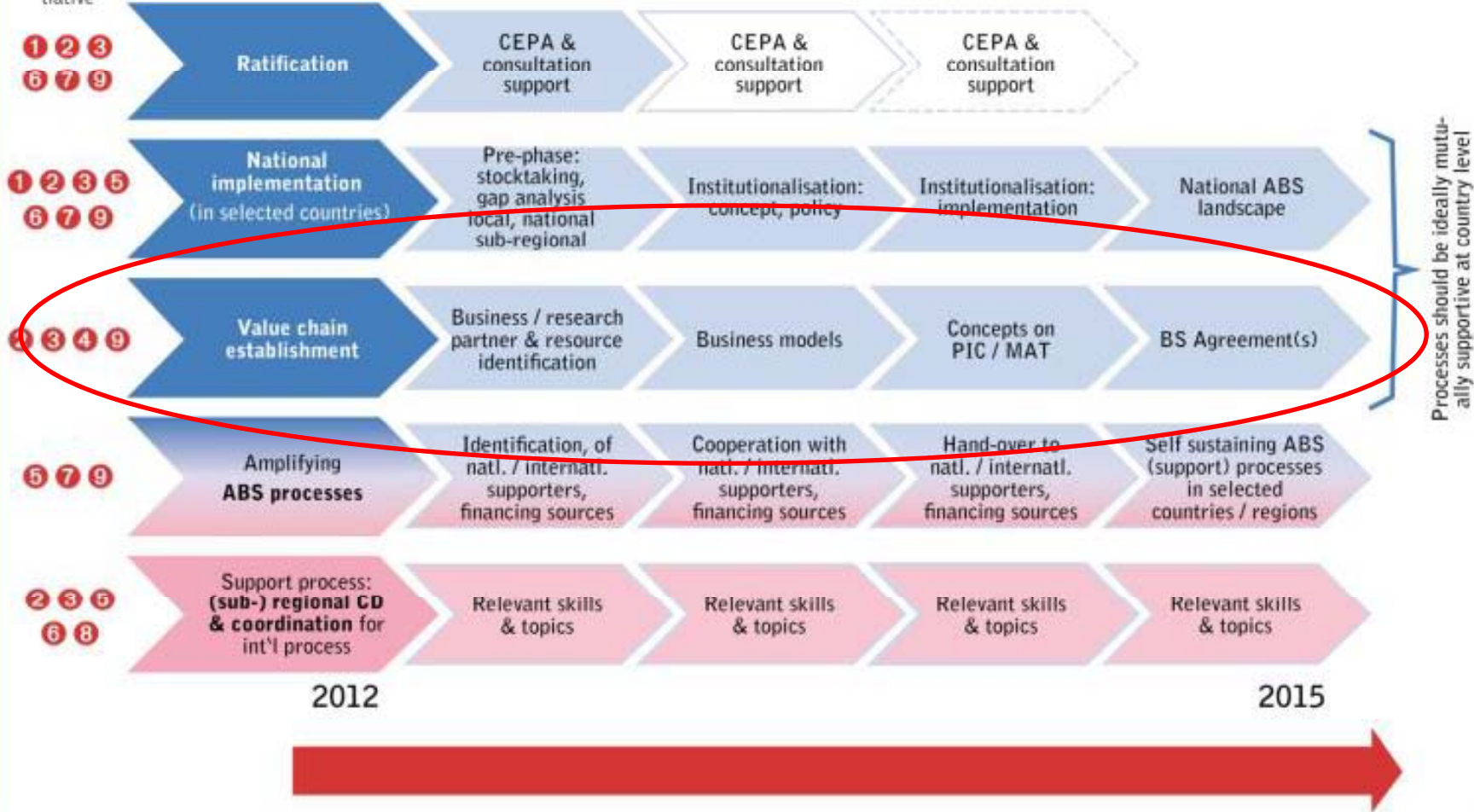
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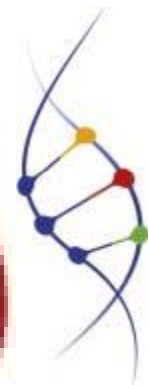
**giz**

Programme Implementing  
the Biodiversity Convention

## Core processes addressed during the current implementation phase for attaining the objectives of the ABS Initiative.

Instruments used by the Initiative

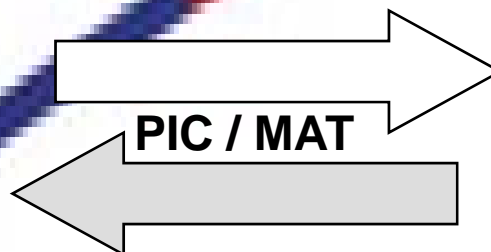
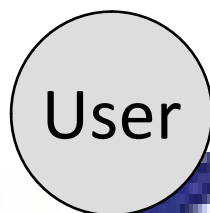




## “Logic” of CBD regarding Access regulations

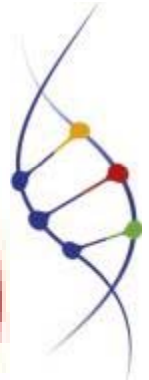


„**resource-rich**„ countries shall facilitate the access to genetic resources

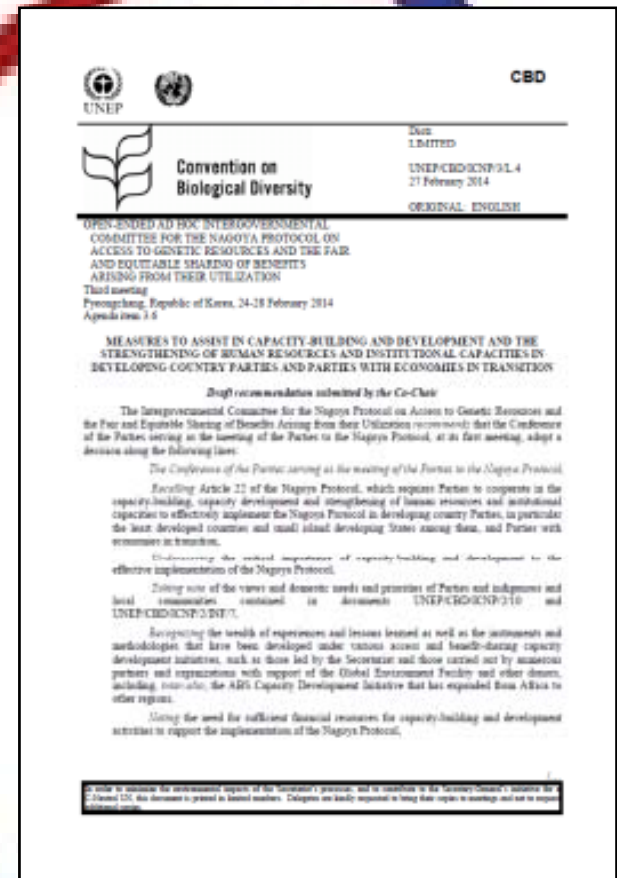


„**technology-rich**“ countries shall share benefits arising from GR; facilitate the access to technologies and means important for conservation and use

# Strategic Framework for Capacity-Building and Development to Support Effective Implementation of the Nagoya Protocol on Access and Benefit-Sharing

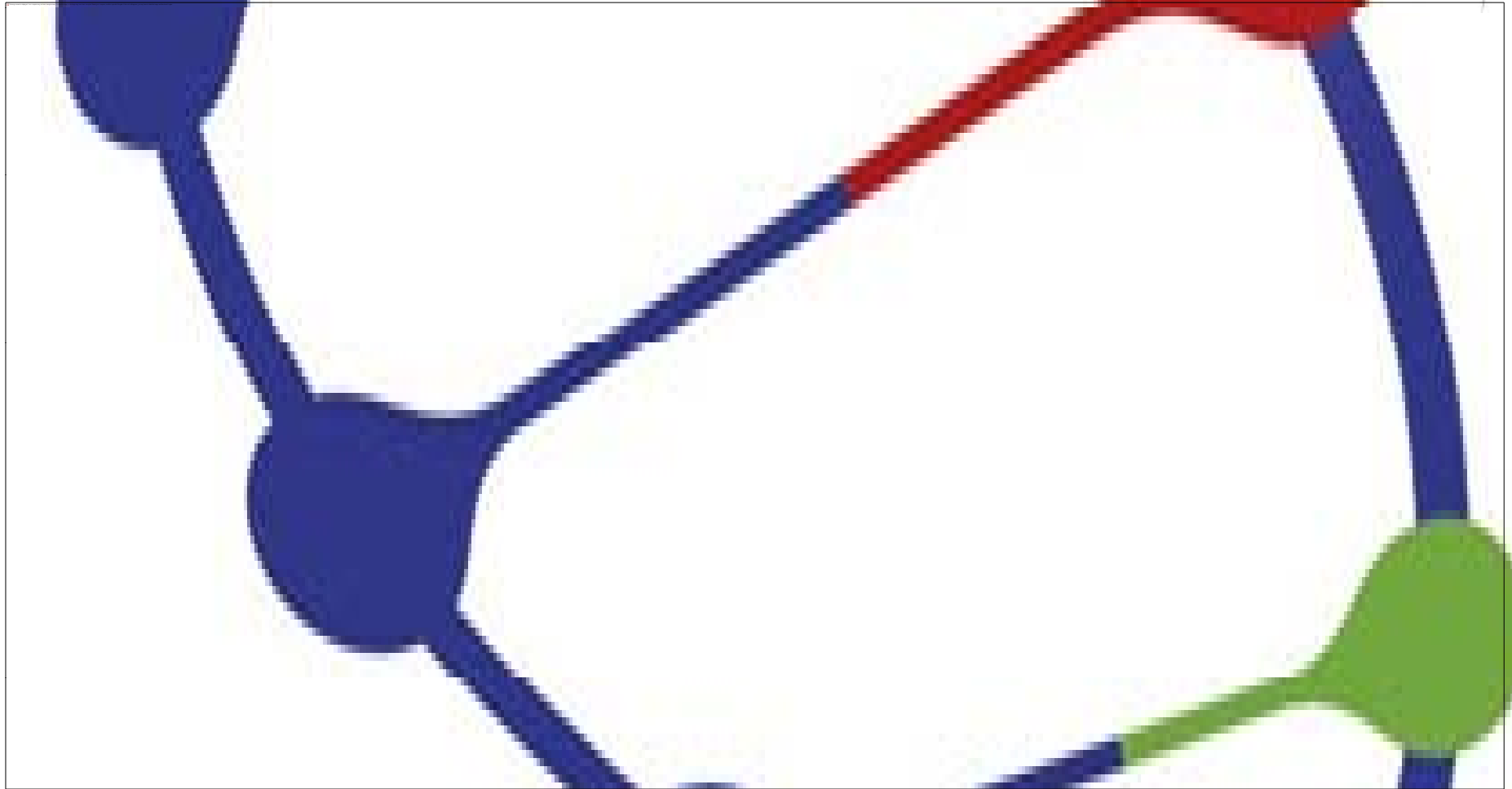
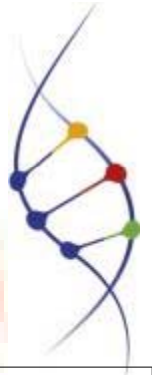



1. Capacity to implement and to comply with the obligations of the NP
2. Capacity to develop, implement and enforce domestic legislative, administrative or policy measures on access and benefit-sharing;
3. Capacity to negotiate mutually agreed terms;
4. Capacity of indigenous and local communities and relevant stakeholders, including the business sector and the research community, in relation to the implementation of the Protocol;
5. Capacity of countries to develop endogenous research capabilities to add value to their own genetic resources.



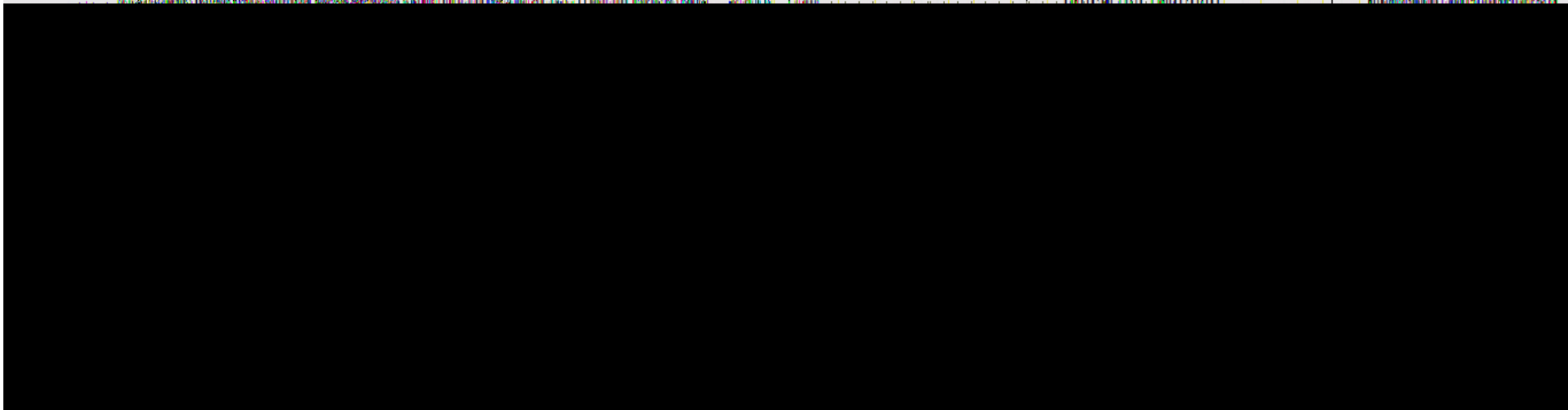
*Appendix I*

**OVERVIEW OF MEASURES REQUIRING CAPACITY-BUILDING AND DEVELOPMENT IN ORDER TO EFFECTIVELY IMPLEMENT THE PROTOCOL BASED ON THE NEEDS AND PRIORITIES EXPRESSED BY PARTIES AND INDIGENOUS AND LOCAL COMMUNITIES**



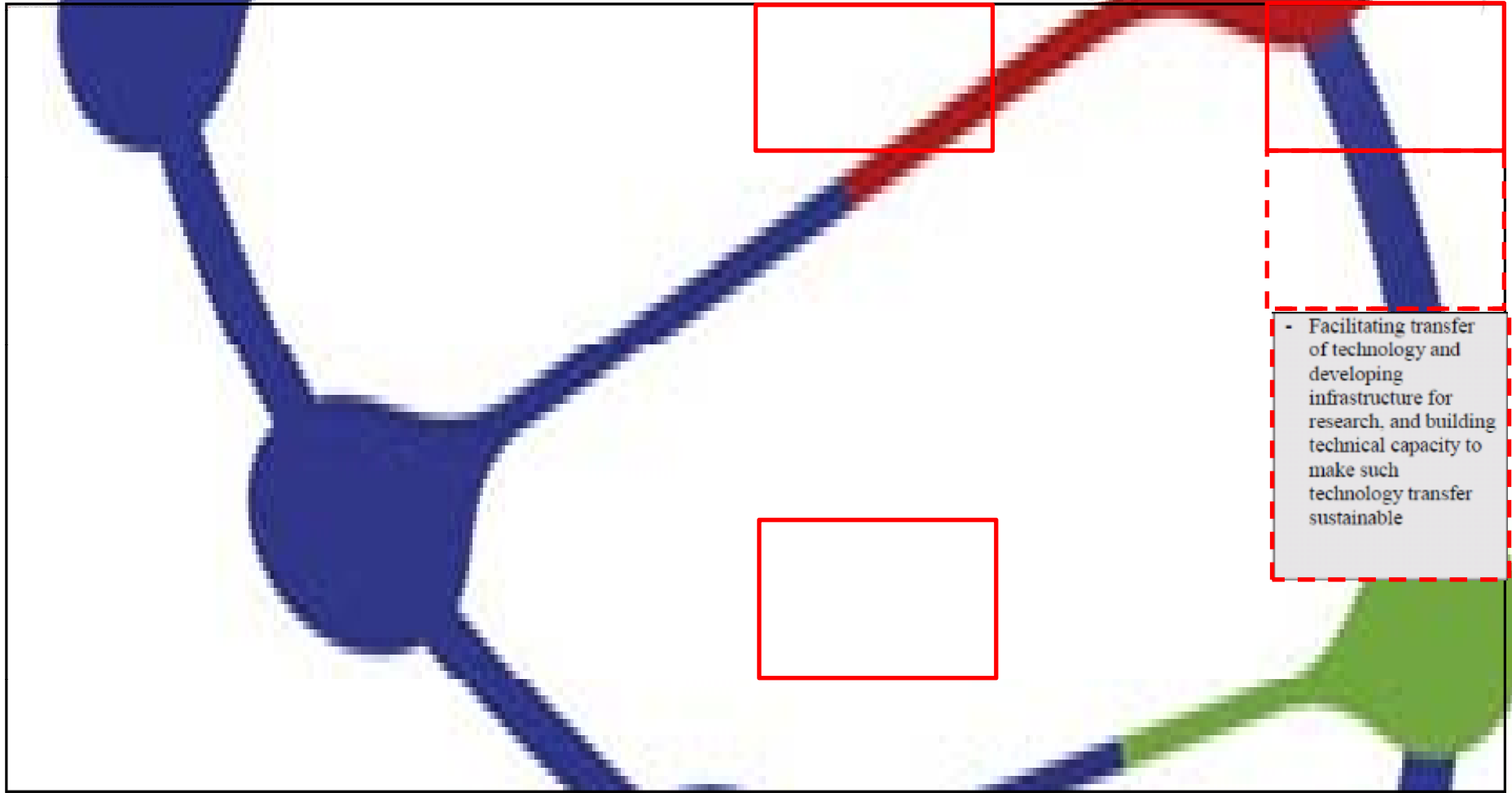
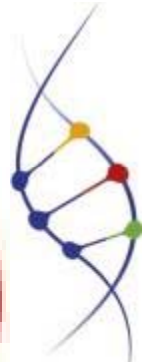


Indicative timeframe <sup>10</sup>	Key Area 1: Capacity to implement, and to comply with the obligations of the Protocol	Key Area 2: Capacity to develop, implement and enforce domestic legislative, administrative or policy measures on access and benefit-sharing (ABS)	Key Area 3: Capacity to negotiate mutually agreed terms (MAT)	Key Area 4: Capacity needs and priorities of indigenous and local communities (ILCs) and relevant stakeholders, including the business sector and the research community	Key Area 5: Capacity of countries to develop their endogenous research capabilities to add value to their own genetic resources (GR)
			with the Nagoya Protocol after they have left the provider country, as appropriate -		
Medium-term	- Developing mechanisms to monitor the utilization of genetic resources, including through designation of checkpoints. - Promoting compliance with domestic legislation or regulatory requirements on ABS	-		- Developing capacity to negotiate MAT - Increasing understanding of the obligations of the Parties under the Protocol	- Facilitating transfer of technology and developing infrastructure for research and building



*Appendix I*

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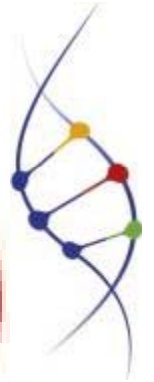


- Facilitating transfer of technology and developing infrastructure for research, and building technical capacity to make such technology transfer sustainable

# Nagoya Protocol on ABS

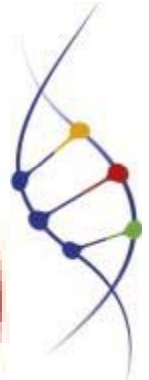
## Objective

“.... the fair and equitable sharing of the benefits arising from the **utilization** of genetic resources, including by **appropriate access to genetic resources** and by **appropriate transfer of relevant technologies**, taking into account all **rights over those resources** and to **technologies**, and by **appropriate funding**, thereby contributing to the **conservation of biological diversity** and the **sustainable use** of its components”





# Definition of utilization under the NP



NP Art. 2

**“Utilization of genetic resources” means to conduct research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology as defined in Article 2 of the Convention.**

“Biotechnology” as defined in Article 2 of the Convention means any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.



## use of GR: concept

Different type of genetic resources

Animal, plant, microbial

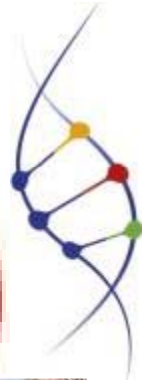
Used for different purposes

Research & development  
- commercial  
- non commercial  
*based on PIC / MAT*

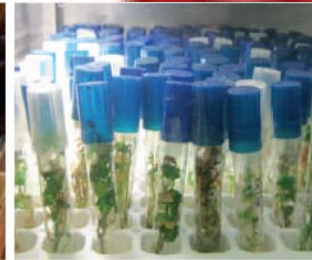
Different types of users operating in different sectors

- biotech
- pharmaceuticals
- seed and crop protection
- personal care and cosmetics
- botanicals and horticulture
- (farm) animal breeding

# Understand business and R&D models to guide policy makers in the establishment of effective national ABS systems



BIOSCIENCE AT A CROSSROADS:  
IMPLEMENTING THE NAGOYA PROTOCOL  
IN A TIME OF SCIENTIFIC,  
TECHNOLOGICAL AND INDUSTRY  
CHANGE\*



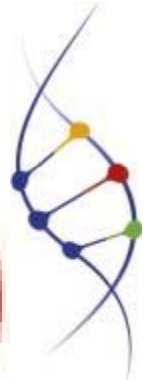
INDUSTRY	GLOBAL MARKETS (US\$)
Pharmaceutical	\$955.5 billion (2011)
Cosmetics	\$426 billion (2012) – natural component \$26.3 billion
Food and beverage	\$11.6 trillion (2009) – functional beverages \$23.4 billion
Seed	\$45 billion (2011)
Crop Protection	\$40 billion (2010)
Industrial Biotech	\$65-78 billion (including biofuels, 2010) – industrial enzymes \$3.3 billion
Botanicals	\$84 billion (2010)



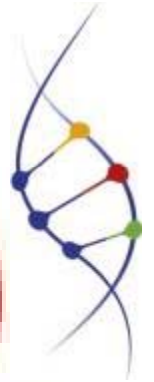
\* 2013 by Sarah A. Laird and Rachel P. Wynberg, as part of a series of SCBD fact sheets and policy briefs

# Biotechnology

- **Market**
  - Global turnover around \$ 75 billion
  - Young industry with 3 main sub sectors (green, red, white) (e.g. biochemicals, biofuels, biomaterials and some consumer products)
- **R&D**
  - Objective: prove activity, enhancing effectiveness / effectivity of processes large scale
  - Difficulty to understand business potential of academic R&D results & future industrial needs
- **Specificity of (green) biotech**
  - Focus: enzymes and metabolites from microorganisms that can endure difficult manufacturing conditions (e.g. pressure)
  - Some companies do bioprospecting (e.g. in extreme environments) but most use existing collection or domestic GR
  - Genome-mining :
    - search directly in soil or water without having to culture the organism
    - Publication of microbial genetic sequences and ability to transfer genetic material digitally
  - High degree of science and technology requires governmental support (e.g. biofuels) partnership to complete product development
  - Patent standard IP instrument
  - B 2 B rather rule than exemption



# Food and beverages



- **Market**
  - Turnover of \$ 11,6 trillion (2009), expected to reach \$15 trillion (2015)  
functional beverages: \$ 23,4 billion
  - Mature, dynamique and diversified sector (9 billion people to feed !)
- **R&D**
  - Objective: health benefits (e.g. weight, energy,...)
  - Low level of R&D (process improvement) but innovation is increasing :  
functional food, natural (e.g. additive free, free from...)
- **Specificity**
  - Pre R&D before corporate R&D - Use of traditional knowledge as an indication of efficacy and safety
  - Commodities dominate - use large volumes – reliability of supply is key
  - Strong competition of specific ingredients in large user countries (e.g. olive, grapefruit)
  - Breeding and crop protection are key, interest in wild plants for domestication
  - Increasing integration of food with other sectors
  - Increasing consumer interest in natural products (& sustainability)  
- > increasing trend of the use of GR (relevance of ABS)



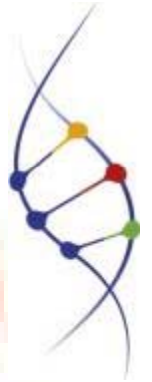
# Cosmetics & fragrance



- **The market**
  - For natural cosmetics, sales of \$ 26,3 billion (2011) out of a global turnover of \$426 billion
  - Oils, fats, waxes, essential oils, plants extracts are used in 'pure natural' and in conventional cosmetics (very small quantities)
- **R&D**
  - Objective of the research:
    - Fragrance : "feature characteristics" of ingredients (smell)
    - Cosmetic : active principle or ingredients (additif, excipient formulation). Anti aging!
  - Major companies focus on brand strategies and intermediaries do intensive research
  - R&D investments differ: from minimal processing of raw material to advance research
  - Speciality: natural compound to guide synthetisation
  - Most ingredients are cultivated to master quality, secure supply and reduce costs
- **Sector specificities**
  - Strong regulation + new Chinese regulation - narrows the focus of GR and R&D
  - Brand image is key - pressure to innovate – demand for a «story» but short shelve life
  - Mix use of patents - due to short shelf life of products it's an expensive tool
  - Sustainability issues high on the agenda of B2C companies due to their customers expectations
  - Niche interest in GR from the South & in traditional knowledge (to guide R&D)



# Pharmaceutical



- **The market**
  - Estimated global revenues \$ 955,5 (2011) expected to reach \$1,2 trillion (2016)
  - Trend: large European and American based companies to do more R&D, with manufacturing in emerging markets, where domestic companies are also on the rise.
- **R&D**
  - Objective: prove activity
  - Companies collaborate on R&D as budgets stall
  - There are many ways to develop new actives. Most large natural R&D programs have closed. -> synthetic chemistry / biotechnology.
  - Natural product programs are found in SME; governmental programs and universities.
- **Sector specificities / trends**
  - Patent cliff – impact on corporate policies and investments
  - Some collection of microorganism and marine organism but overall, limited need to access “fresh” GR from the South. Very tiny quantities of material needed.
  - Domestic biodiversity and companies collections are first choice
  - High degree of science and technology (e.g. genomics) allows
    - faster and deeper screening (especially on microorganisms)
    - possibility to grow them and overcome supply issue
  - Decreasing interest in traditional knowledge, focus on micro-organism

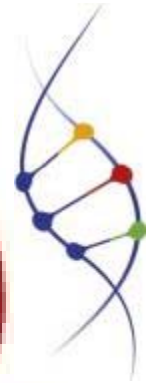




## BIOETHANOL

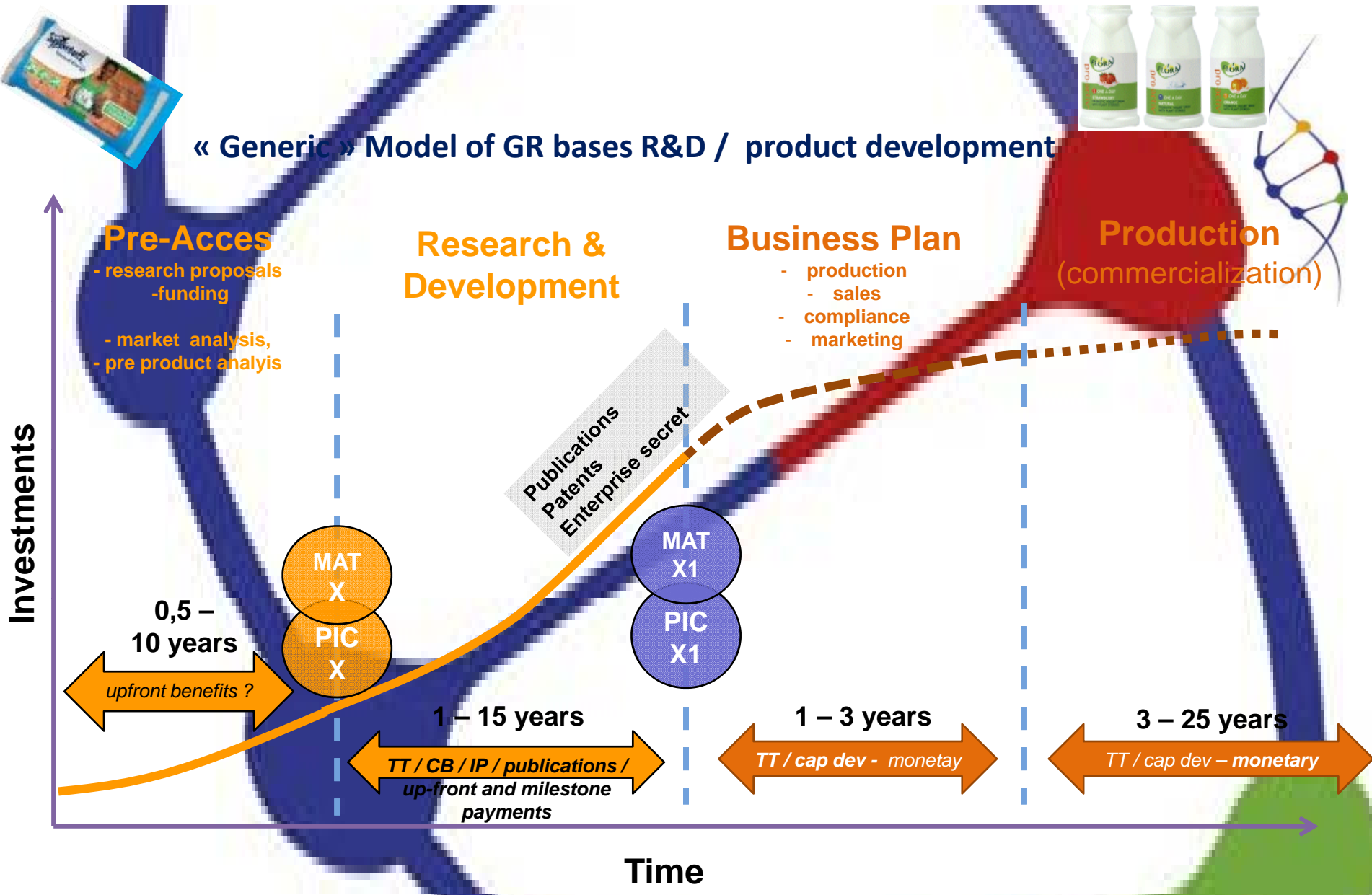
### Huge variations :

- level of science & technology used, investments in R&D (0 - 10 %)
- need to access GR (e.g. continuous, one-off, tiny samples)
- use of TK
- large producer / retailer vs. small specialist intermediaries
- level of internal R&D (from 100% in house to outsourcing of R&D)
- different requirements with respect to IP / IP Protection





# « Generic » Model of GR bases R&D / product development

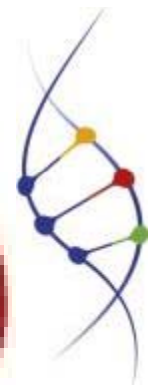


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# Thank you

.....more on ABS and the  
ABS Capacity Development Initiative

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