Valorisation of genetic ressources and associated traditionnal knowledge

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ABS Initiative
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Objectives

- Understand valorization and the meaning of being strategic about it

- Basis for exploring
- options that are available to your country
- impacts on the design of ABS frameworks!

Key message

- Valorisation : GR and aTK generate value!
- There is a need for being strategic
- There are different options – and its about choices !

Context

- Strong expectations that ABS can improve the livelihoods!

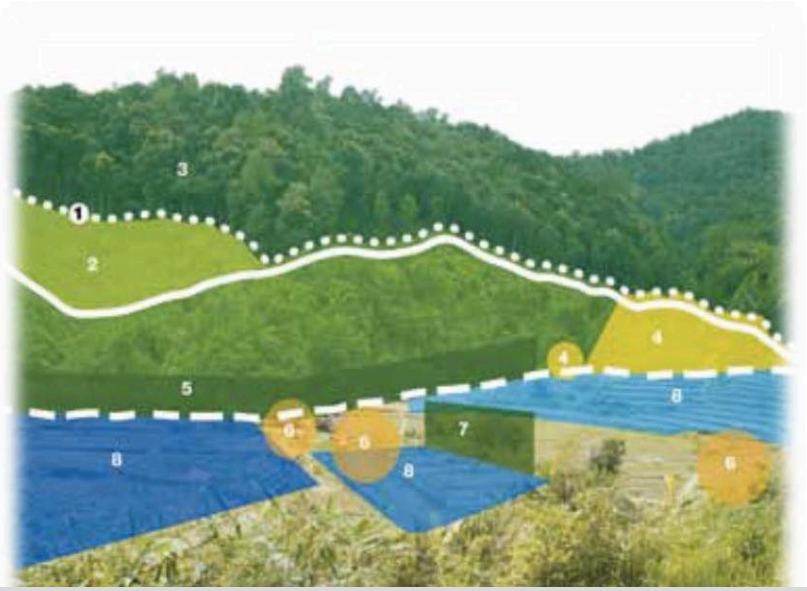
- AU guidelines
  - Encourage the development and implementation of valorization strategies
  - It shapes a country's overall approach to the implementation of the Nagoya protocol on ABS
  - Develop endogenous human, technical and institutional capacity

- Sustainable development goals (Life on earth, life in water, adapt to climante change…)

Key principles about valorization

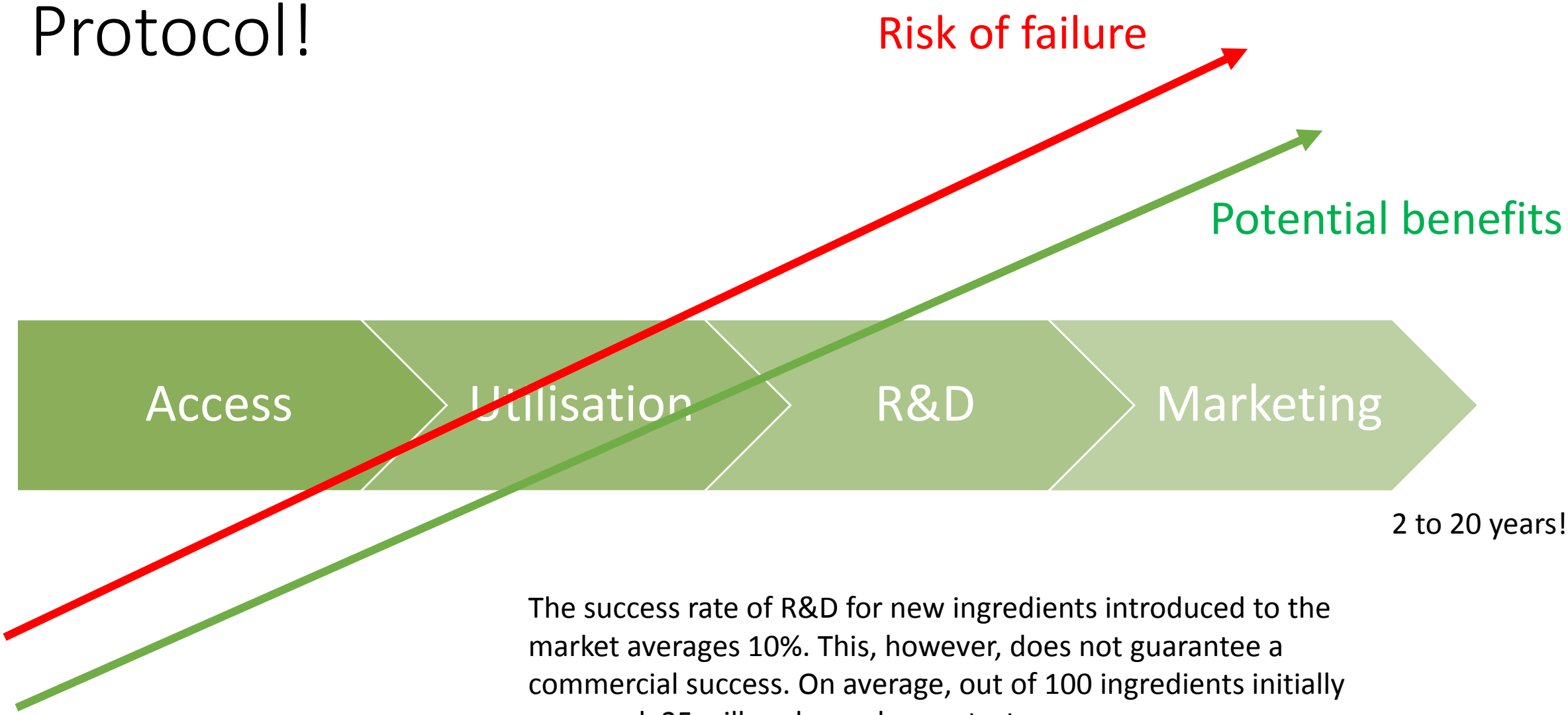
- Valorization is generation of value from GR or aTK through R&D
  - *'Genetic resources means genetic material of actual or potential value'*
- Legal certainty is a condition but not enough
- Bioprospectors will not simply come
- Valorisation is not only monetary or financial – it's a choice !
- It's about being strategic, making priorities and adapt to changes


GLOBAL ECONOMY
...THESE SPECIES ARE UNPROFITABLE, SO THEY WILL BE LAID OFF.
CONSULT
UH... CAN EVERYTHING BE MEASURED IN MONEY?
YEAH, MAN... FOR EXAMPLE, IF IT WASN'T FOR US DUNG DECOMPOSERS, THE WORLD WOULD DROWN IN SHIT.
seppo.net



Valorisation is not in concflit but supports sustainable exploitation and conservation. In can in fact be yields generated by a valorisation strategy, if the right policy choices are made.

Valorisation is at the heart of the Nagoya Protocol!



The success rate of R&D for new ingredients introduced to the market averages 10%. This, however, does not guarantee a commercial success. On average, out of 100 ingredients initially screened, 25 will undergo deeper tests.

In practice how to conduct R&D on GR and aTK?

Bottom up approach : an actor identify a resource and bring it up to the market

Traditionnal knowledge

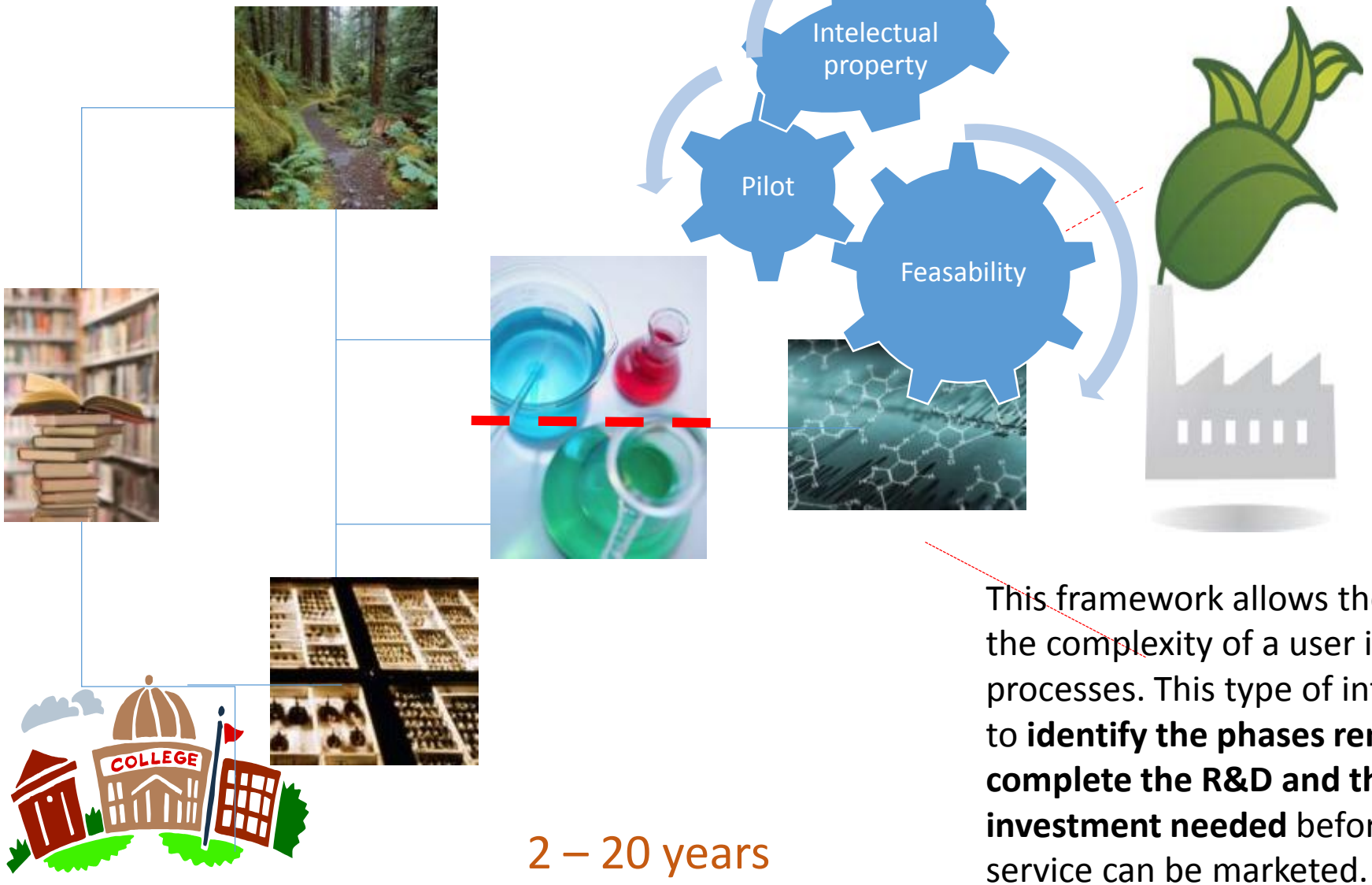
Market

Species

User (University, company)

Top down : someone is coming with a demand for access

R&D process



2 – 20 years

This framework allows the further analysis of the complexity of a user institution's R&D processes. This type of information is useful to **identify the phases remaining to complete the R&D and the level of investment needed** before a product or service can be marketed.

How much is there to win?
What is the business case?
How to generate value?

Minister of the Environment

To which extent does the country want to promote supplementary economic revenues based on GR and aTK?

ABS focal point

How much is there to win?

- The size of the opportunity
  - **International markets** : Strong growth in sectors using GR for R&D
  - **African continent** : 5% average growth over the next 10 years (with huge challenges to materialise this growth potential)
  - **National / regional** :
    - Seeds
    - Bio fertilizers, bio control
    - Food
    - Livestock, aquaculture
    - Energy
    - Building material (housing, transport)
    - …

What is the probability of wining?

BIOSCIENCE A LA CROISEE DES CHEMINS: MISE EN OEUVRE DU PROTOCOLE DE NAGOYA DANS UNE EPOQUE DE TRANSITION



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

How much is there to win in international markets?

	Market size	Expected growth to 2020	R&D intensity 2013 (% of turnover)	R&D investment 2013	Patent grants 2013	Patent evolution
Functional Food	US$168 bn	+8.5% / year Up to US$ 305.4 bn by 2020	**1.2% (Food sector, 73 companies)**	US$ 8 bn (Food sector, 73 companies)	**19 030 (Food chemistry)**	8,2% (Food chemistry)
Cosmetics	US$460 bn	From +3.7% to +6.4% / year	**2.2% (Personal care, 47 companies)**	US$ 3.7 bn (Personal care, 47 companies)	**24 918 (Personal care)**	2,8% (Personal care)
Pharmaceutical	US$1.057 (tn)	+3.8% / year	**14% (293 companies)**	US$ 96 bn (293 companies)	**33 132**	6,30%
Biotechnology	US$129,6 bn	+12.3% / year	**20.55% (for US and EU)**	US$ 16.7 bn (for US and EU)	**20 116**	6,90%

What is relevant for my country?

In practice, what are the potential revenues?

- Cosmetic and functional food
  - R&D Budget / project to develop a new ingredient : minimum 300 000 €
  - Budget initial screening : 10 000 €
  - Samples = peanuts! Scientific information maters!
- Raw material volume
  - Hundres of kg – a few tons

What are the expectations for benefits sharing?

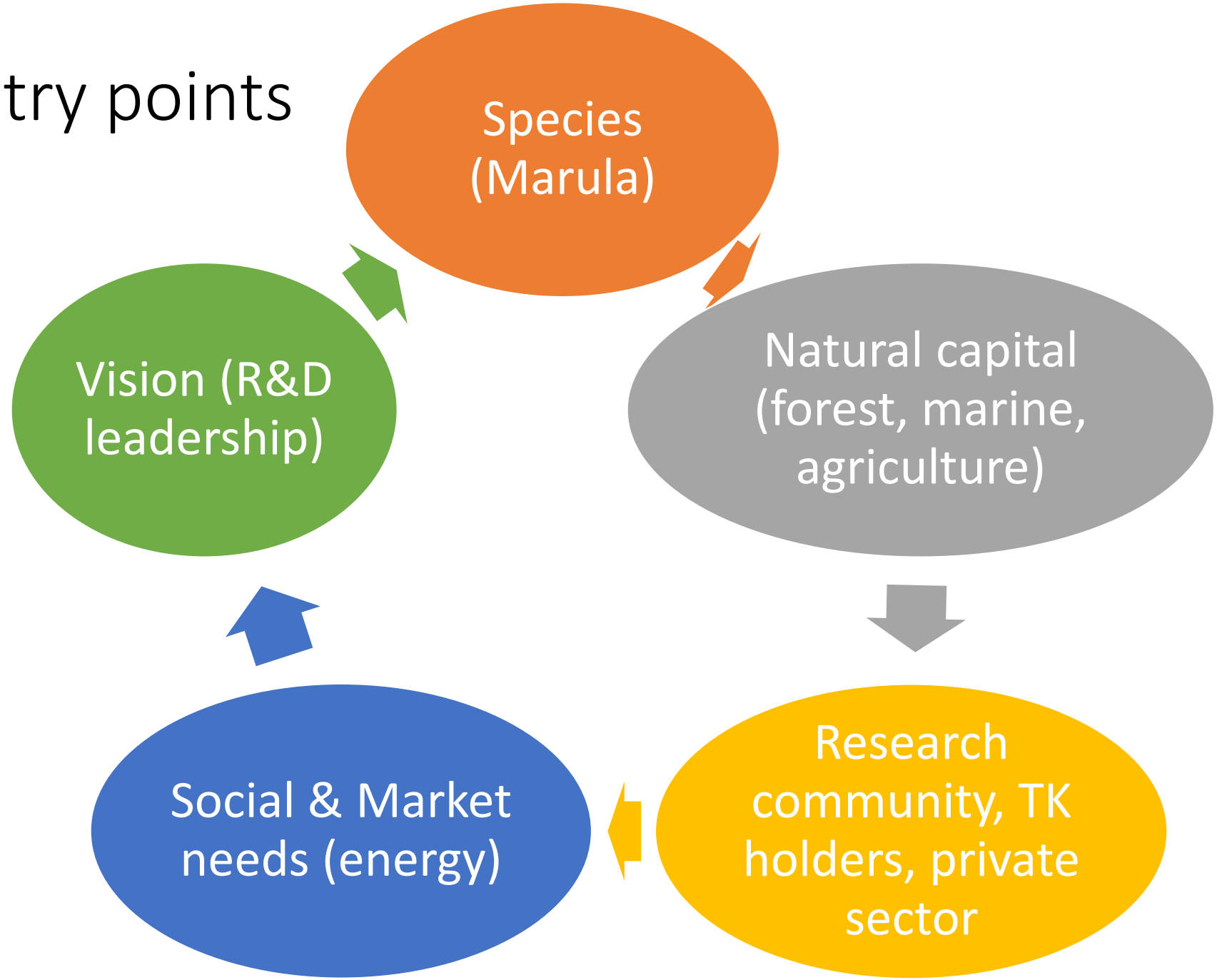
All countries have all the - key ingredients - to get started!

- Good news : a core set of strengths and opportunities to start valorizing
- Different starting points and set of SWOT
- It is about progressing in this dynamic framework

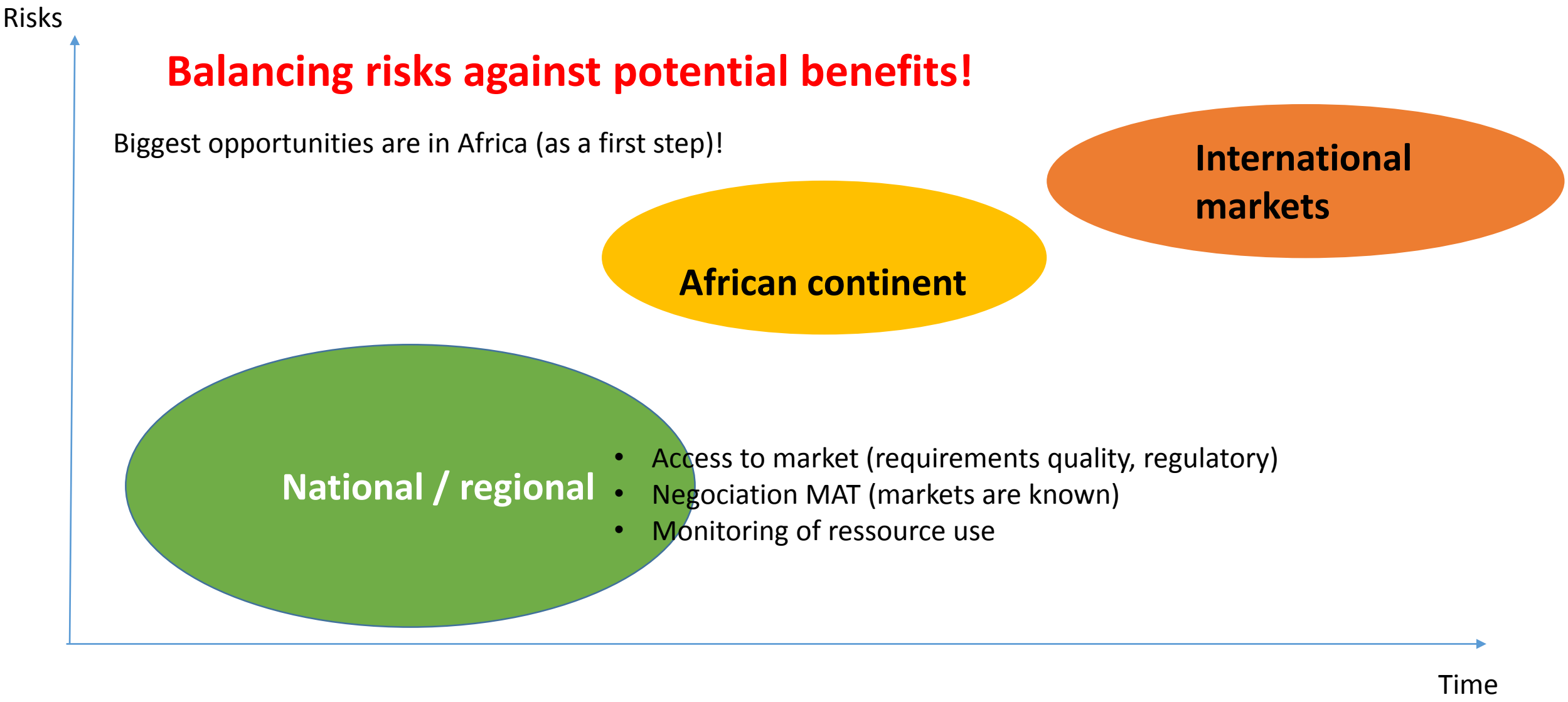
Being strategic

- Setting priorities *‘decide what not do’*
- Continuously adapting to change
- A diagnostic to get started!

Various entry points



Setting priorities



Where are the low hanging fruits?

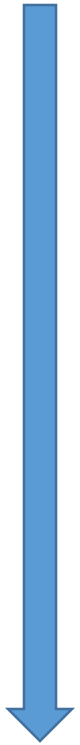
Food complement	Cosmetics	Pharmaceutical	Biotechnologies

- **Consumer demand for:**
  ○ **Functional food: convenient, healthy products and ethical sourcing**
  ○ **Cosmetics: pleasure, health, well-being.**			

Research areas: - **Benefits** the ingredient is providing (e.g., energy, weight) - **Category of the ingredient** (e.g., dairy, fruits, grains) - Nutritional needs (e.g., seniors). **Clinical trials** to scientifically back health claims.	Research areas (targeted customer segments): - **Anti-aging** - **Allergen free** - Nutricosmetic - New colour palettes - Specific skin types - Multifunctional formulas - Male cosmetics. Embryonic move towards a 100% **vegetal industry**. Increasing value addition in origin countries with **extraction** taking place at the source.	- Focus on **lead discovery** as methods for selection of potential leads are less developed. - Research areas focus on **improving the targeting of healthcare** for a wide range of diseases - Explore **natural health trend** demand - Innovation typically derived from biotechnology and **academia** to facilitate market understanding and to further explore related innovation hits	Research areas focus on issues related to: - **Energy scarcity** - Demand for cleaner and more **efficient industry** - **Finite resources** that are missing (including raw materials, water and fertile soil).

Overview of content to develop a valorisation strategy:

1. Stock-taking and assessment
2. National and local participatory visioning exercise with stakeholders
3. Identification of entry points/low hanging fruits
4. Assessment of available resources (natural, human, scientific, technological)
5. External inputs and/or partnerships required – the importance of negotiating MAT
6. Turning the strategy into an action plan
7. Monitoring, evaluation and re-planning when needed



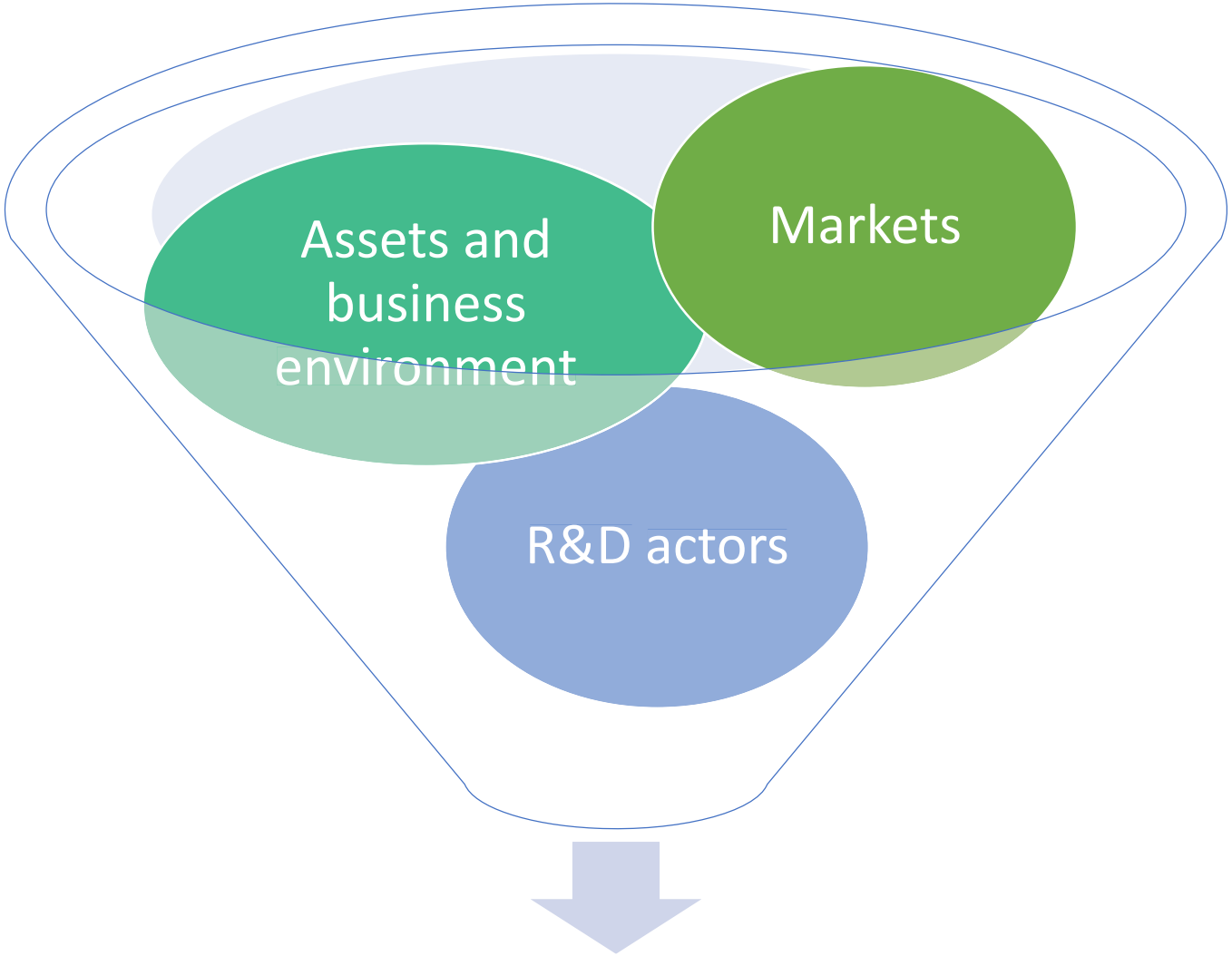
Overview of content – steps to take :

1. Stock-taking and assessment
   - Identifying domestic institutions with potential for R&D , GR and/or geographical areas of potential interest for bioprospecting
   - Identifying domestic actors needs and constraints in valorizing GR and complying with ABS
   - Clarifying the markets trends and the users R&D requirements relevant to a country characteristics.
2. Participatory visioning exercise with stakeholders
   - A valorization strategy connected with the ABS framework
3. Identification of entry points/low hanging fruits
   - Confirming the economic valorization opportunities (i.e. national, regional, international)
   - Clarifying the size of the opportunities and the steps involved to realize them in order to ensure realistic expectations with respect to the sharing of benefits

- Etc.

Key elements: priorities, process, participation

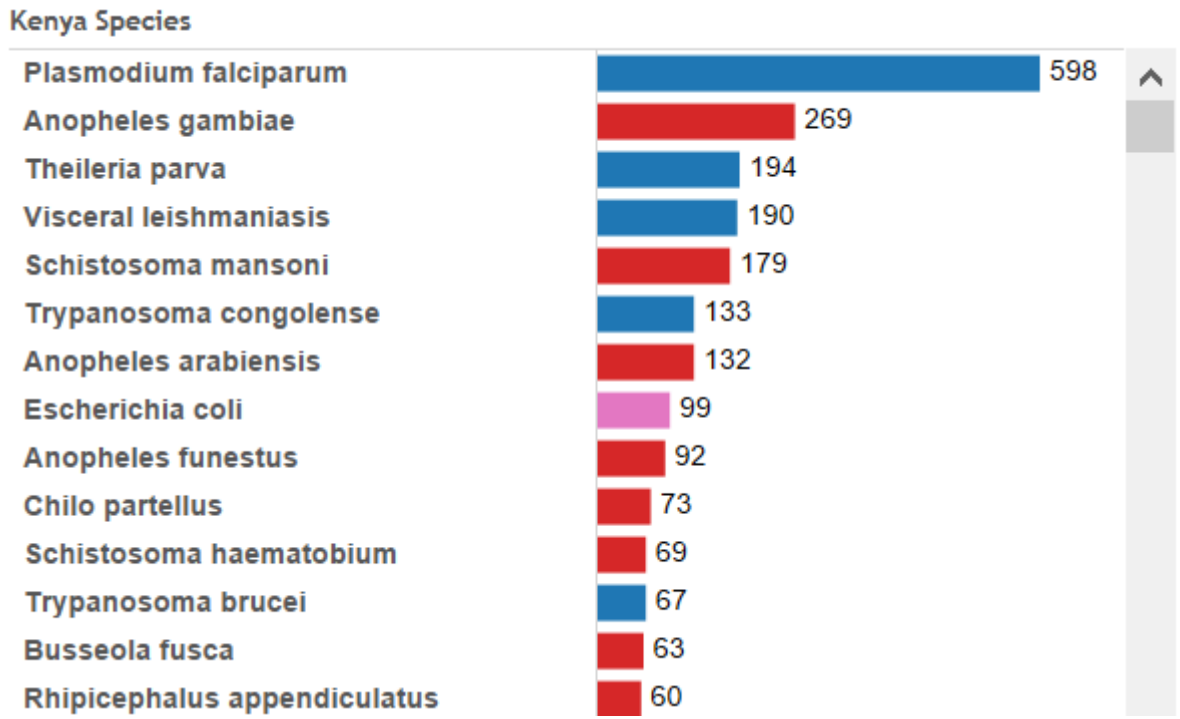
- Clarify the objectives of valorisation
  - Public sector : to meet development needs (e.g. infant food supplement, create rural jobs)
  - Private sector : to generate revenues (e.g. anti aging ingredient)
- Clarify the targeted markets
  - Trends / users / R&D requirements
- Identify your capital and assets
  - Domestic R&D institutions / biodiversity / GR and/or geographical areas of potential interest for bioprospecting / business environment
- Identify domestic R&D actors needs and constraints
  - in valorizing GR and complying with ABS
- Identify how stimulate cooperation to find matches between (market) needs and scientific / traditional knowledge

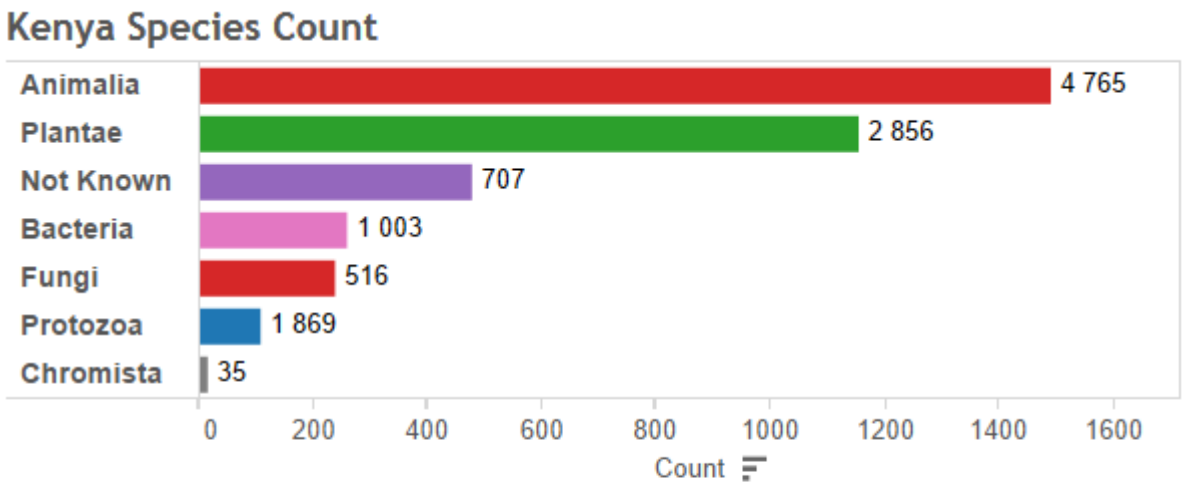


Priorities for valorisation

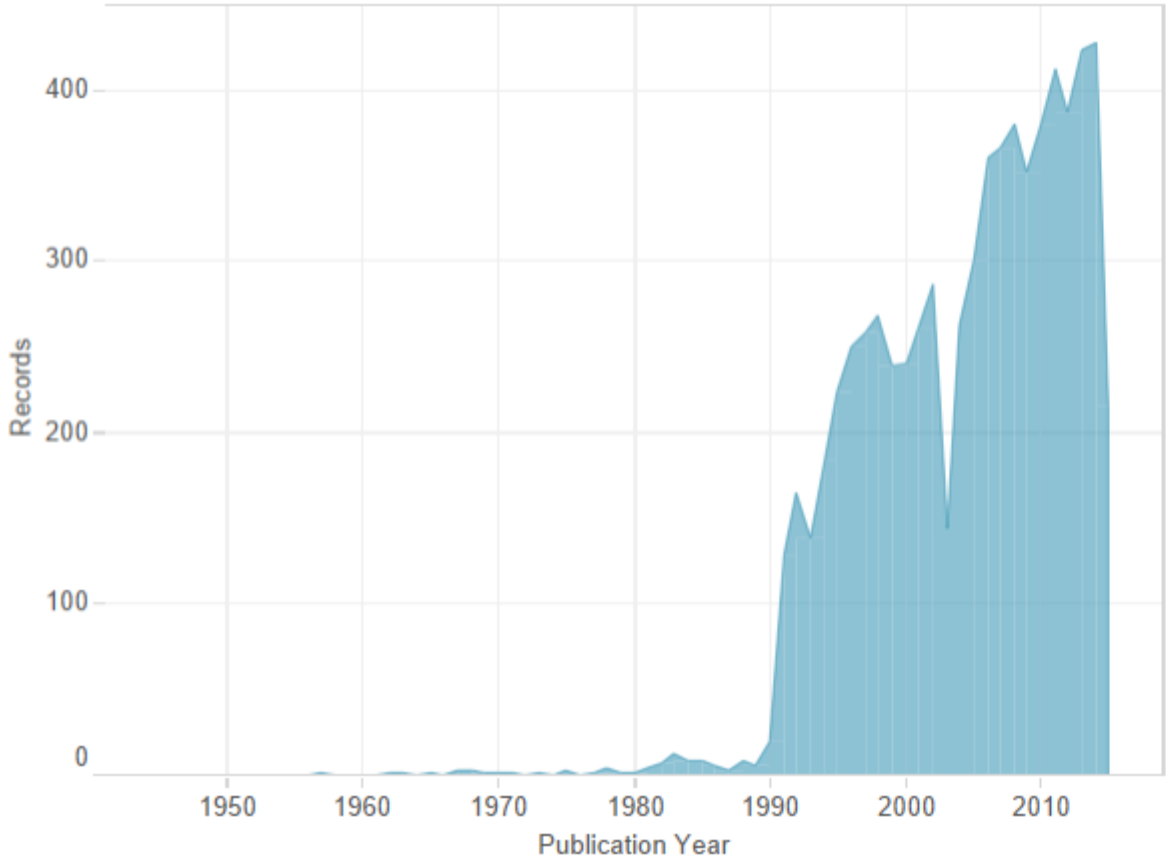
Ex. of a getting started a diagnostic for Kenya capital and assets

- 3752 species names in leterature
- Desease related species dominaite

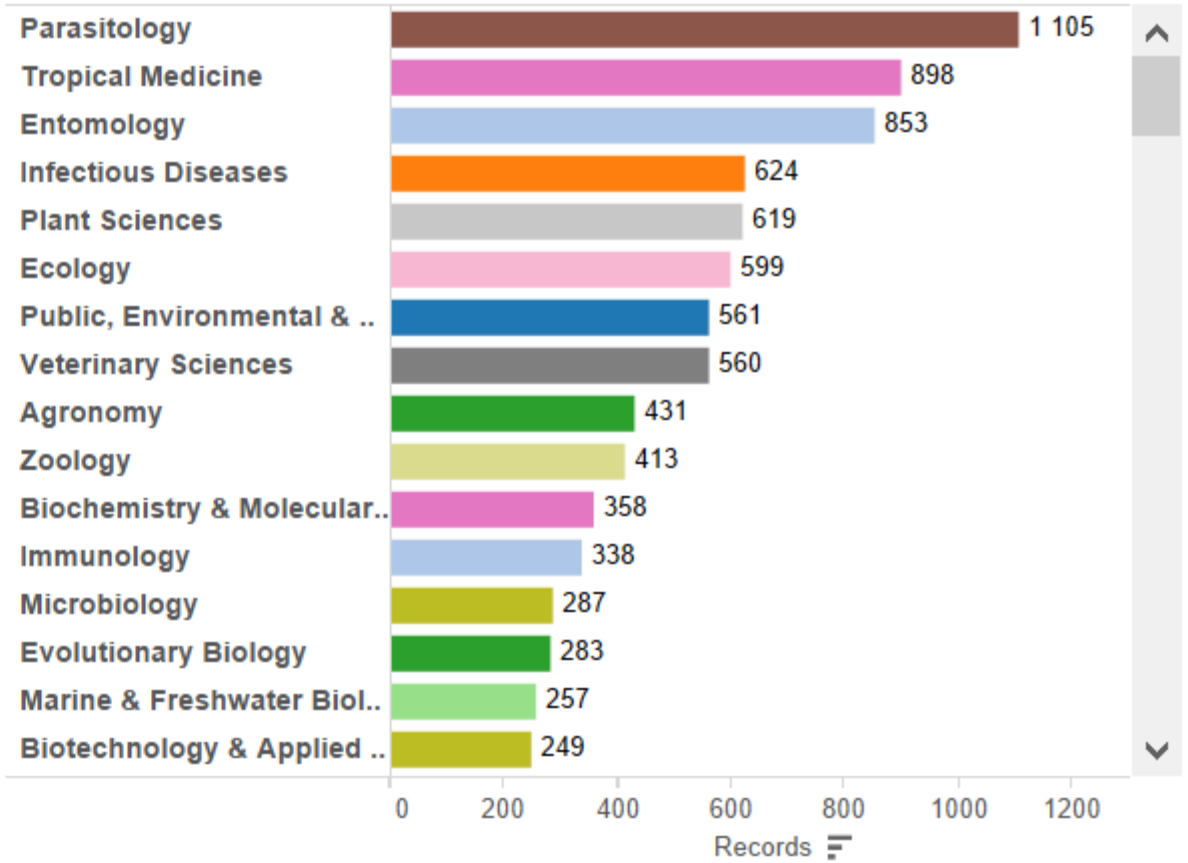




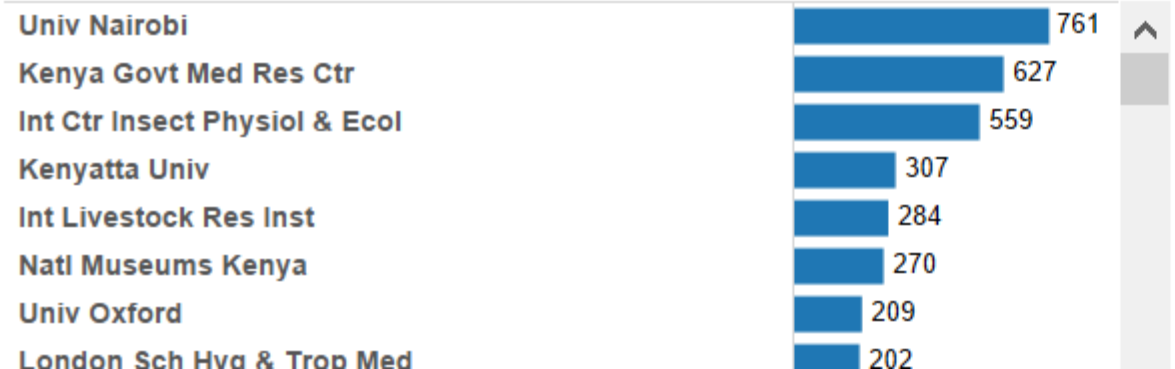
Kenya Species Trends



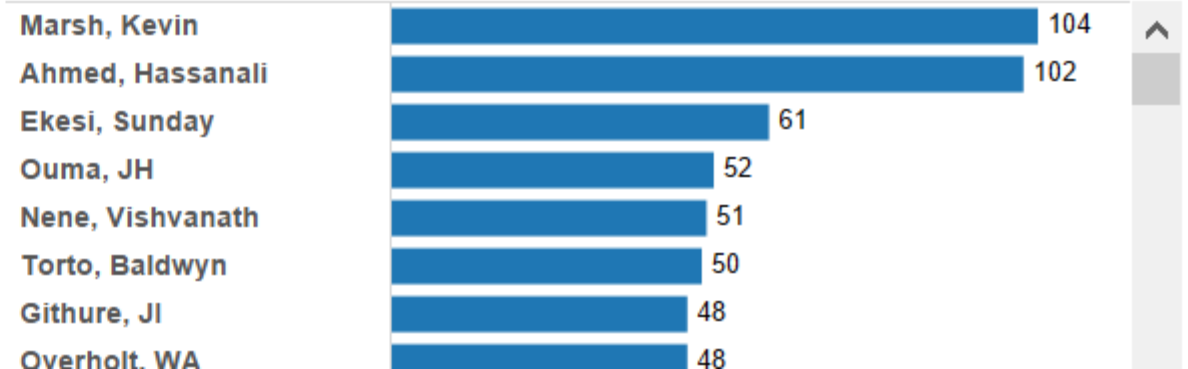
Kenya Species Subject Categories



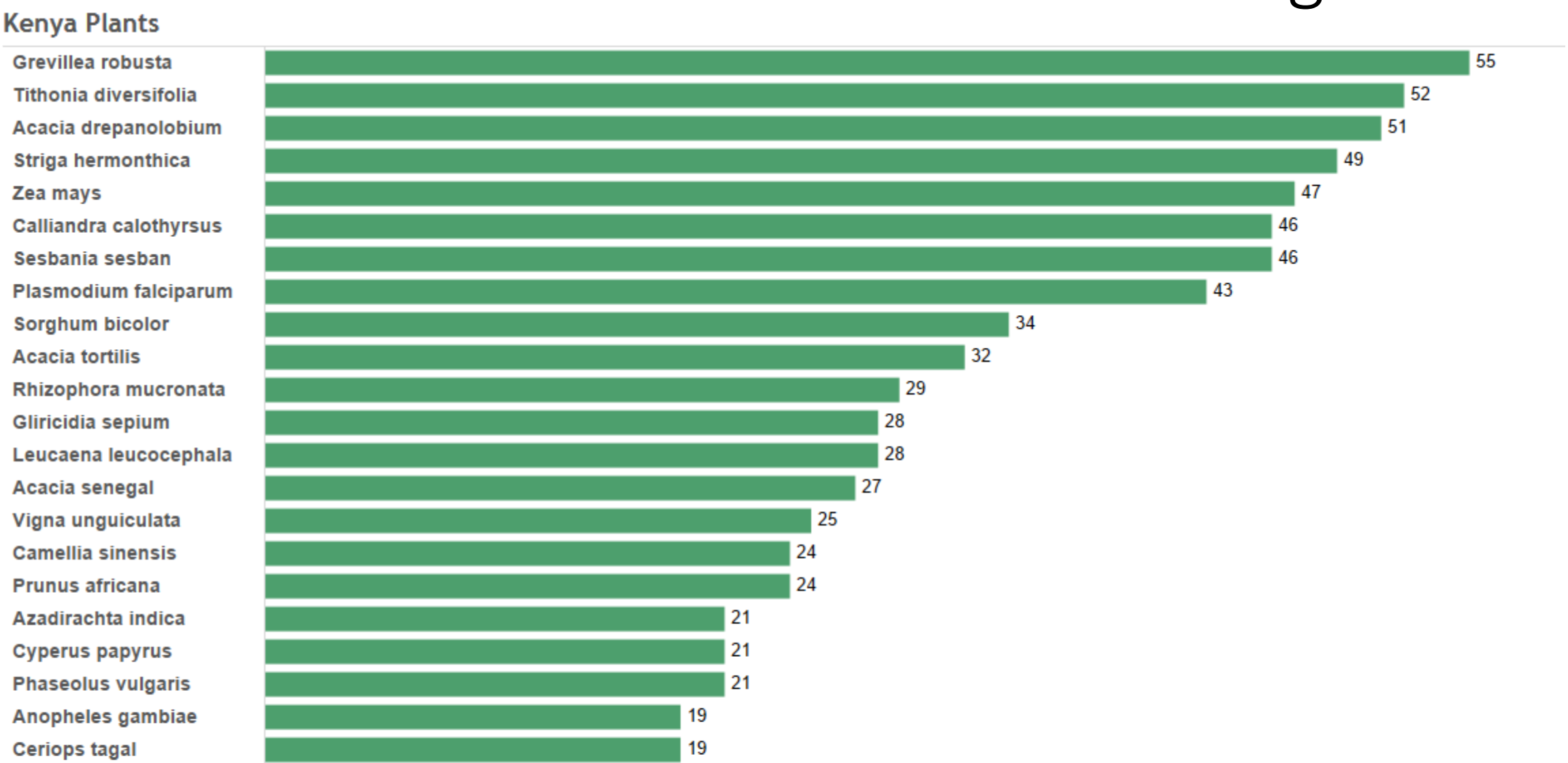
Kenya Species Organisations



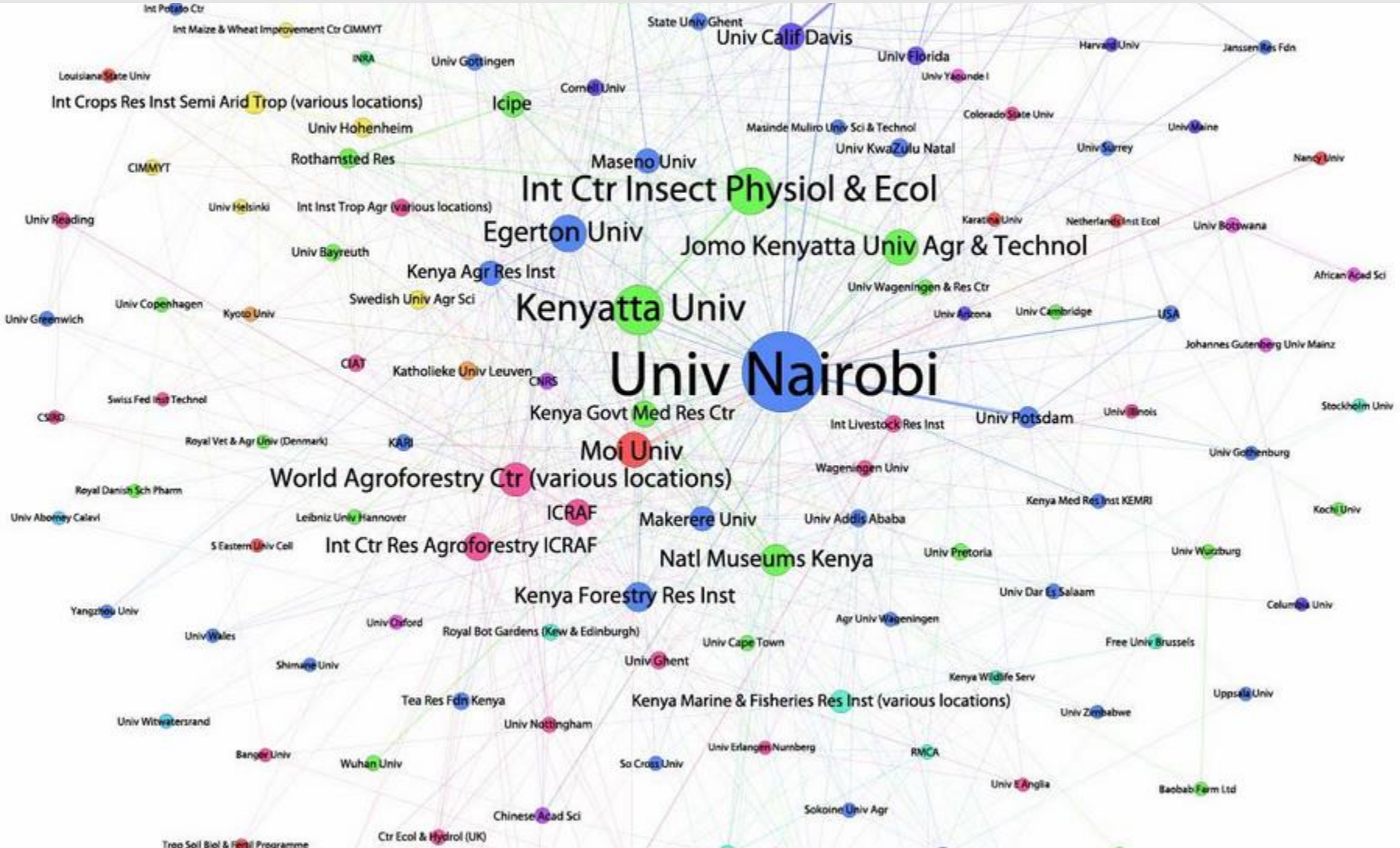
Kenys Species Author



1549 plantes listed in articles
390 are related to traditionnal knowledge



R&D institutions in Kenay on plants



Key message

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