

Launching the Dialogue Forum of IMAGE project

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Key findings of the 2nd global assessment of Animal Genetic Resources, FAO 2015

- ✓ **Livestock diversity facilitates the adaptation of production systems** to future challenges and is a source of resilience in the face of greater climatic variability
// one of the 5 principles of agro-ecology for livestock (Dumont et al, 2014)
- ✓ **The adaptations of specific species and breeds to specific environmental challenges** need to be better understood.
- ✓ **Institutional frameworks** for the management of animal genetic resources need to be strengthened.
- ✓ Establishing and sustaining **effective livestock breeding programmes** remains challenging
- ✓ **Emerging technologies** are creating new opportunities and challenges in animal genetic resources management.

- ✓ ERF 2013: **information on animal gene banks in 25 European countries**
strong investment from States, from stakeholders
→ main initial driver: preservation, back-up.. .and more?
 - ✓ Do we know enough about the genetic resources they store?
 - ✓ Do we get the maximum from our gene banks ?
 - ✓ DNA banks in research institutions : not connected
- **Knowledge needed to better integrate gene banks within animal breeding**

Objectives of IMAGE

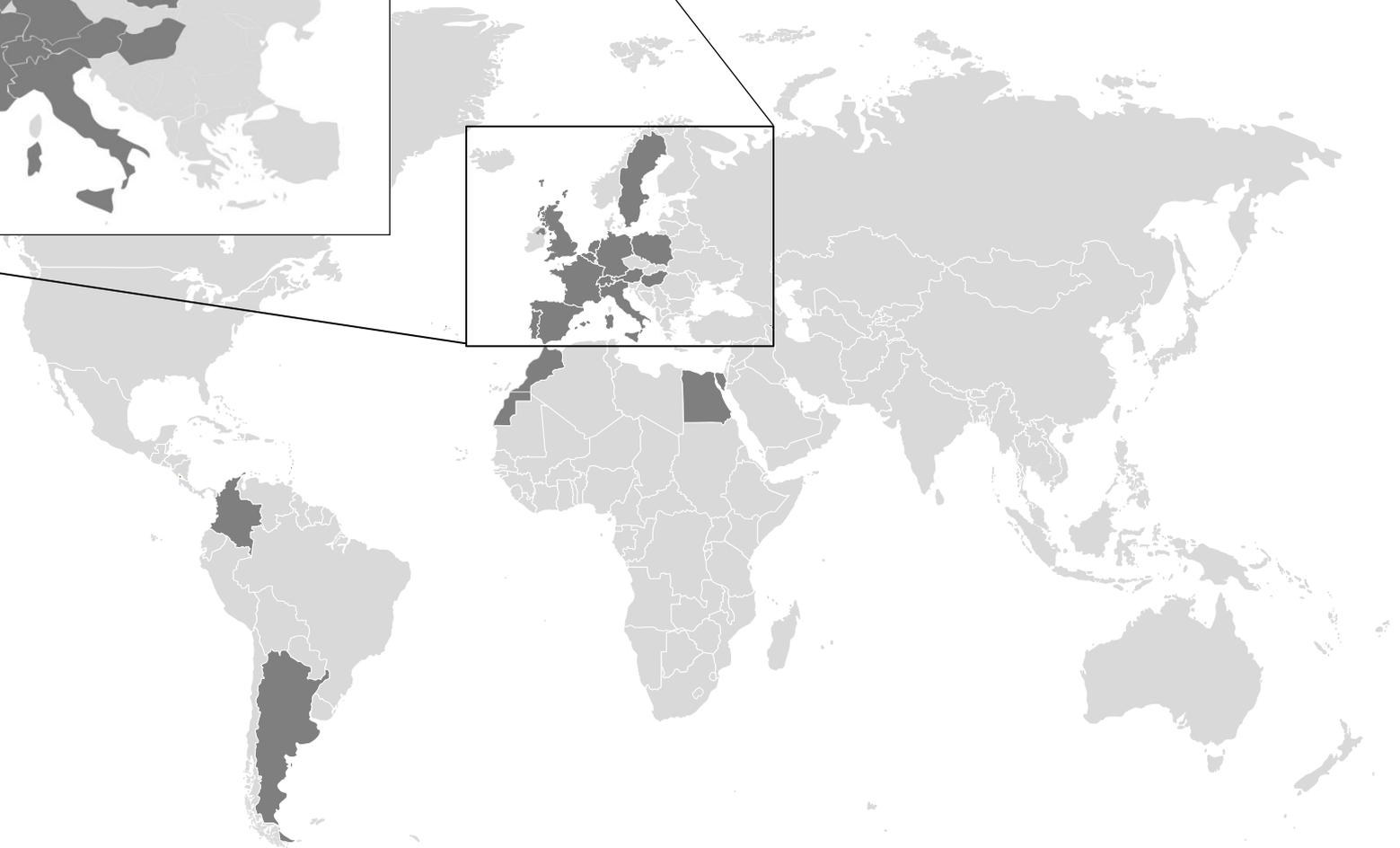


- **to enhance the use of genetic collections**
- **to upgrade animal gene bank management**
- **to demonstrate the benefits brought by gene banks:**
 - **To minimise genetic accidents**
 - **To allow the livestock sector to respond to new environmental constraints and market needs**

through genomics, bio-informatics, reproductive biotechnologies

28 partners, March 2016 to February 2020 ; 7 M€

Large geographical distribution of partners



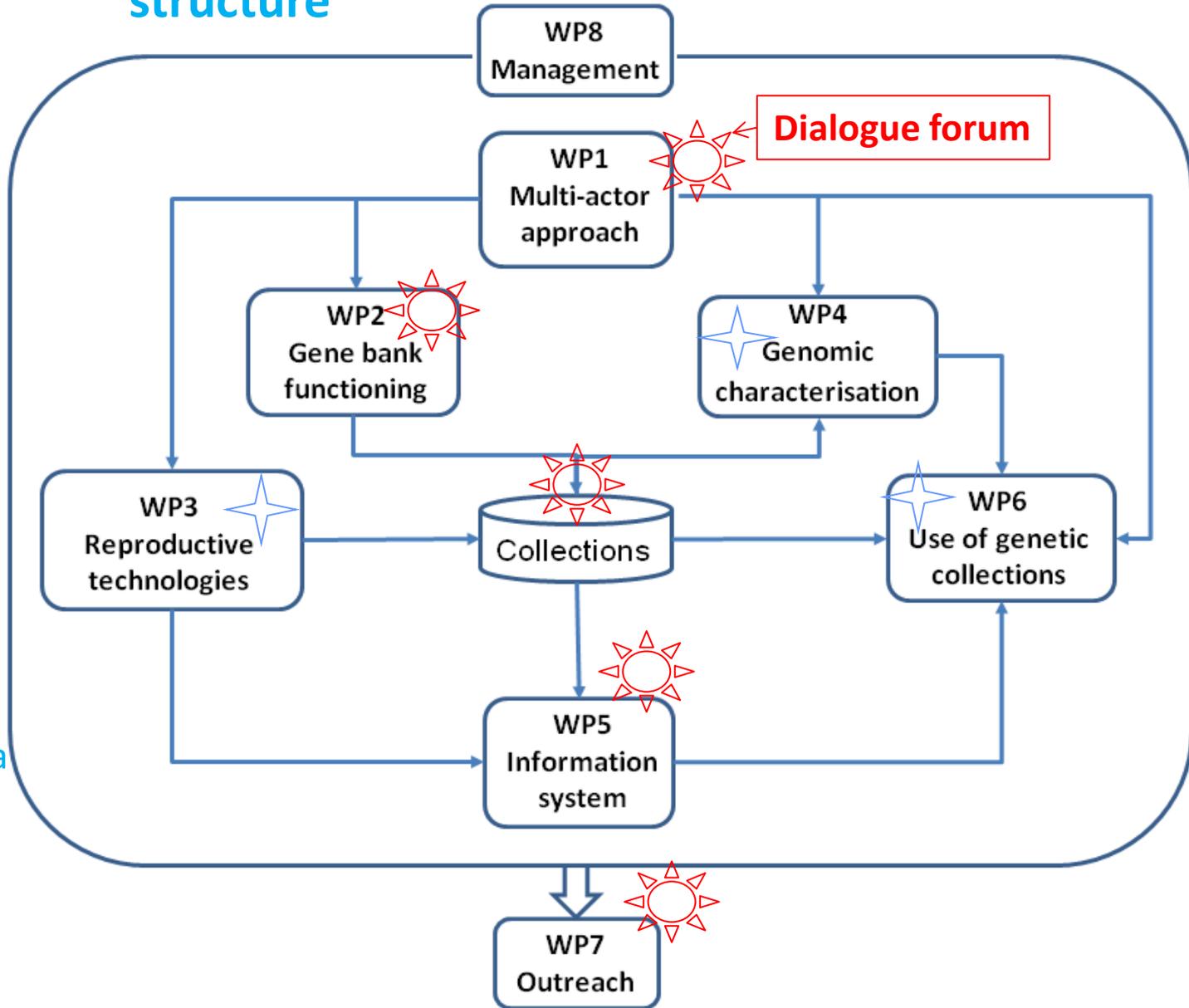
Main approaches of IMAGE



- Involving the stakeholders 'YOU' from the beginning
- Improving the reproductive quality of the gene bank samples and their 'usability' on the field
- Improving the connection between gene bank managers
- Assessing the potential of genetic diversity present in genetic collections, by genomics and data integration
- Facilitating access to information and resources
- Developing and testing strategies and scenarios to facilitate the use of this diversity and to enhance synergy between gene banks and on-farm management of genetic resources
- Increasing awareness about the value of gene banks

WP structure


All species



Chosen Species 
(-bottlenecks,
-available data
-biological considerations)

- **improved/new protocols/criteria/rules for gene bank management (sampling, quality check, storage, distribution, economic model)**
- **Support to the European Gene bank network EUGENA**
- **guidelines for gene bank managers**
- **identification of genomic regions relevant for adaptation & fitness**
- **standard molecular tools to characterize gene banks collections**
- **an integrated database on genetic collections // EBI**
- **a common web portal to facilitate access to data, to collections**
- **improved methods to use gene bank collections for the management of 'in situ' genetic resources**
- **dedicated training modules with a North-South connection**
- **decision-support tools for livestock actors**
- **'Popularisation' of gene banks in the general public**

- **Set up the dialogue forum : composition, first topics (WP1)**
- **Launch surveys among gene banks and stakeholders (WP1+WP2)**
- **Select case studies for sperm quality tests (WP3)**
- **Map available data on gene bank collections (WP4)**
- **Establish the list of individuals to be sequenced (WP4)**
- **First model for data integration (WP5)**
- **Set up demonstration project of introgression in chickens (WP6)**
- **Identify priorities for targeted genotyping in cattle (WP6)**
- **Inventory populations with available time series in gene banks (WP6)**
- **Set up the dissemination plan with web site, logo, newsletters (WP7)**
- **Set up the project collaborative platform, the data management plan (WP8)**

Expectations from the Dialogue Forum



- **Public: breeders, associations or breeding companies,
national coordinators for animal genetic resources : ERF
biotech companies
NGOs, consumers..**
- **Typical questions for you:**
 - **Which reproductive biotechnologies would you use, or not use, why ?**
 - **Data sharing: which data ?**
Share within IMAGE project for which analysis?
What are the incentives or oppositions to data sharing ?
 - **Case studies : any example where gene banks could help you ?**
which additional analysis (sequencing, genotyping) would help you ?
 - **What are your expectations regarding training programmes?**