Considerations on OPEN SCIENCE

UNESCO CONSULTATION

BACKGROUND

UNESCO, as the United Nations Agency with a mandate for Science, is developing a global policy and regulatory agenda on Open Science (UNESCO Recommendation on Open Science) that aims to integrate policy makers, scientists and citizens at large into a common vision and develop a framework to support and strengthen the implementation and endorsement of open science as a practice adopted by all involved stakeholders. The goal is to produce a **Recommendation on Open Science** that will stand as a legal instrument to influence the development of national legislation and best practices.

RATIONALE

Within the strategic mission of the Consortium of European Taxonomic Facilities CETAF, and also in the light of the vision of the Distributed System of Scientific Collections, the Research Infrastructure DiSSCo, collaboration with international organizations is pivotal to align efforts in promoting scientific research as an anchoring pillar for societal development. In that respect, adhesion to Open Science is pivotal to make it more efficient, accessible, transparent and at large, more democratic. We, as a scientific-driven community, have a role to play to foster disclosure of knowledge and to promote literacy of our citizens, while closely collaborating with all actors involved, from politicians to researchers, innovators and citizens, in bridging gaps and thus, actively contributing to the achieving excellence in science.

CETAF-DiSSCo CONSIDERATIONS

The COVID19 pandemic has created an unprecedented crisis at global scale that is forcing citizens and governments to reconsider the perception of normality, to remodel the existing systems we apply and to create new scenarios where society can become more resilient to threads affecting our health, the growth of our economies, the sustainability of the environment

and at large, the way we live now and more importantly, intend to live in the future. Not surprisingly science has become at the center of the decision taking process influencing when, where and what we are allowed to recover and how to come back to what is increasingly acknowledged as the “new reality”. Multidisciplinary approach, international coordination, collaborative work of scientists all over the world is becoming a driving force to fight this pandemic and find adequate solutions, vaccines and treatments, with a direct impact in our lives.

The community of researchers dedicated to construct a powerful knowledge base around geo and biodiversity is united around the European consortium of CETAF and committed to the development of the Distributed System of Scientific Collections (DiSSCo) Research Infrastructure. We jointly gather over 5000 scientists across 22 countries that use natural science collections hosted in Natural History Museums, Botanic Gardens, Universities and other Research Centres to provide data and expertise fundamental to create a robust, accurate and precise understanding of biodiversity so we can protect and preserve it for future generations.

To that end, we, CETAF and DiSSCo, believe that it is the possibility to access and share science that makes the individual efforts a holistic force pushing forward scientific-led developments. Open Science stands as the mechanism enabling us to provide more efficient, reliable and resilient responses to address societal challenges and to achieve the goals we, from our natural science collections-based research, are committed to. Our research community is positioned throughout the data life cycle, from the fundamental research on taxonomy and systematics to the enrichment of that information with morphological, genomic, georeferences and ecological data. It goes further beyond adn covers the research cycle with quality control, reviewing and annotations, publications and outreach. We therefore constitute one of the important anchoring pillars on which biodiversity protection and restoration relies,as fundamental targets highlighted by the Biodiversity Strategy 2030 that the European Commission has just launched on 20 May 2020, in the frame of the European Green Deal.

From the above, we conceive Open Science as a premise for work but also a framework for guiding further developments. Such a structural context implies definition of its constitutive elements such as the information to share, the platforms where to be shared and the actors feeding them; but also includes supporting infrastructure (such as high speed internet, computational services, sustainable and well dimensioned repositories and others) and workflows that channel the processes together with the policies and resources that enable the whole mechanism to become operational worldwide in an efficient, sustainable, secured and transparent manner.

For the research community gathered around CETAF, DiSSCo RI infrastructure will be instrumental for implementing our goal to make scientific developments and data FAIR, i.e findable, accessible, interoperable and reusable.Though still in its preparatory phase, thegroup of the major collections-based research institutions in Europe is highly committed to its construction and operation by 2025, as a pivotal source of Open Science. However,what our CETAF and DiSSCo community offers needs a strong backup acting as a counterpart in a win-

win process. Preservation, curation and access to the priceless heritage hold in the natural science collections, delivery of our data derived from those geo and biodiversity (physical and virtual) specimens, mobilization of the related expertise and publication of outcomes is only one side of the coin. We need policies that support recognition of scientific discovery; we claim for sustainable funding mechanisms that allow scientists to progress on their research freely while responsibly; we work together to achieve recognition of the role played by our fundamental research in tackling challenges such as climate change, biodiversity loss and land degradation; we seek for courageous and harmonized policies on licences and intellectual properties rights that also allow multidisciplinary approaches and collaborative work across borders; we look for pan-European shared research agendas that facilitate, promote and backup scientific research worldwide.

Our CETAF-DiSSCo scientific community works for excellence in science for the benefit of our society. We believe that this is a way to also mitigate existing imbalances with under-developed regions which on the other hand are highly important reservoirs of biodiversity. We promote Open Science among our researchers to build a better and sustainable world. Constraints and burdens to this shared vision should be first identified and then overcome by the necessary legislative measures, when needed, and the overall favorable positioning at international scale. We think that UNESCO consultation can be a tool to address the needed analysis and the most suitable vehicle to first establish adequate recommendations and later on, to enforce their endorsement.