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## Summary on the first RSE Saltire *Scientific Knowledge Across Jurisdictions* cross-disciplinary workshop, 17-18 January 2022

Theme: *From custodians to co-producers of knowledge: rethinking scientific knowledge production in a multicultural world*

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The aim of our first interdisciplinary and international workshop was to identify and map the territory of a rather vast landscape at the cross-section between law and the history and philosophy of science concerning a host of issues related to intellectual ownership, regulatory and governance regimes in science and broader questions about scientific knowledge production and traditional knowledge. In particular, we explored different approaches from a wide-ranging sample of national legislation and international treaties, in relation to traditional knowledge and mechanisms of access and benefit sharing (ABS). Several talks stressed the continuing devastating and often subtle effects of colonialism, sexism and dispossession in approaches to traditional knowledge—past and present—including naming of botanical taxa, storing and sharing traditional knowledge practices. Challenges to a holistic co-production of knowledge become more embedded through narratives of misappropriation and limited engagement by scientists with indigenous people and local communities (IPLC). Several talks directly touched upon the strong practical challenges in meeting benefit sharing obligations such as through repositories, and the extent to which the use of western scientific methods pose specific challenges in giving credits to local and traditional knowledge as part of knowledge production. What are the epistemically, culturally, and ethically more appropriate options in this debate? And how does epistemic discourse on co-production of knowledge tie in with broader legal debates concerning juridical boundaries within which co-

production takes place in sovereign states, traditional communities, as well as in areas beyond national jurisdiction? Our discussions proceeded under three framing questions.

**Session 1. How and to what extent does the present knowledge production system reflect the co-production of scientific knowledge?**

In the first talk, *Christine Frison* and *Pierre Walckiers* from *University of Louvain* explored the relationship between science and philosophy, and the role and integration of scientific discourses in politics and law. They explained the concept of a ‘truth regime’, broadly understood as a corpus of rules and obligations that determine the procedures that individuals must follow to access a truth and emphasizes how often what they called different ‘truth regimes’ are involved in scientific discourse. An example of this is the different legal and scientific approaches to genetically modified organisms, whose complex entanglement was used to show the difficulty in teasing out any privileged level of discourse as more foundational.

*Ann Lewendon* from *University of Aberdeen* switched gear by exploring how the topic of co-production plays out in the complex and unclear arena of the UK research regulatory framework (especially the REF), which is designed to assess impact from knowledge incentivising impact-seeking mechanisms through grants and government funding. Lewendon explored the extent to which such institutional mechanisms may (or may not) succeed in fostering the sharing of knowledge (including intellectual property rights and spin out companies) and the extent to which all this is actually discussed.

Philosopher of science *Rachel Ankeny* in a joint talk with *Audrey Henry*, both from *University of Adelaide*, explored evolving models for co-production of knowledge in South Australia as part of their currently ARC-funded project. There is a general principle accepted by all governments (local states and Commonwealth) that access and benefit sharing (ABS) must ensure that the use of traditional knowledge is undertaken with cooperation and approval of the knowledge holders and on mutually agreed terms, particularly for (potential) commercial purposes. Notwithstanding this, a survey by Australian marine researchers found limited engagement with indigenous communities despite awareness of cultural engagement protocols and legislation. The references to traditional knowledge by local Mirning, Wirangu, Yalata and Anangu communities concerning marine species of particular cultural, tourist and commercial importance (e.g. great white whale shark, abalone, Murray cod) were very limited and often in passing acknowledgements. This problem could be addressed by an increased focus on “political technology” created by the communities or nations grounded in their way of knowing, being and doing.

Reflecting on these presentations, workshop participants noted that transdisciplinary research face very specific challenges in that many different fields use the same words to mean different things, and also that communities often are forced to adopt the language of the researcher or of the scientific forum. The workshop also touched upon the need to overcome structural and institutional disincentives to engage with local communities. A lot of emphasis was placed on the value of indigenous knowledge and approaches to record keeping and the fact that the history of dispossession means the continuity of knowledge and languages of indigenous groups is very fragmented.

## **Session 2. Who is a ‘custodian’, and how does the present knowledge production system engage with this aspect, directly and indirectly?**

*Manuel Ruiz* from the *Sociedad Peruana de Derecho Ambiental* introduced the complex legal landscape to ensure that knowledge systems are vibrant and robust, and that there can be future and fair production of knowledge including intangible assets. Knowledge production was noted to be a multi-faceted term, spanning indigenous local knowledge to “Cartesian scientific knowledge production”. Hence the need to navigate very carefully the entanglement of private and public interests particularly in the context of the so-called “fourth industrial revolution”.

*Amber Scholz*, from the *Microbial Ecology and Diversity Research (DSMZ)* at *Leibniz Institute* introduced their first EU registry collection under the Nagoya Protocol. DSMZ has a collection of alive micro-organisms and cell cultures with about 10,000 customers from 86 countries. There are significant and costly complexities to deliver the access and benefit sharing which is so important legally, ethically and morally. The legal authority to check the user and user-compliance can only lie with a government agency. Not all countries that claim to be custodians are claiming sovereignty over their genetic resources. The risks of creating jurisdiction shopping were noted, including regarding digital sequence information (DSI), as that could have a profound impact on sustainable development, and fair and equitable benefit sharing.

*Chris Lyal*, from the *Natural History Museum* in London, gave a historical retrospective from the point of view of museum studies about the importance of labelling and naming resources, from Victorian colonial times to new contemporary approaches. Collections in Western museums often hide a lot of traditional knowledge, which typically receives little attention with no recording of

indigenous names. This raises very delicate issues given ABS legislation, ethical considerations and the potential for traditional knowledge (TK) to be transferred without consultation. Repositories increasingly have Codes and Ethics Advisory Panels to deal with TK and ABS and use the FAIR (Findable, Accessible, Interoperable and Reusable) and CARE (Collective benefit, Authority to control, Responsibility, Ethics) data principles.

### **Session 3. What are the intersections between traditional knowledge and present approaches to scientific knowledge?**

*Maria Julia Oliva* from the *Union for Ethical BioTrade* noted that regulation of traditional knowledge associated with biological resources responds to a growing appreciation of its cultural, ecological, and economic value. Its objectives are recognizing and respecting the rights of IPLCs over their systems of knowledge, innovation, and practices; and regulating access to TK for its utilization in research and development activities, to ensure prior informed consent and fair and equitable benefit sharing. The Nagoya Protocol (NP) does include obligations for countries to take measures to ensure prior informed consent and fair and equitable benefit sharing and countries have the flexibility to implement these provisions, based on context, priorities, and national law. This provides a lot of flexibility about what exactly constitutes traditional knowledge in each country, and what are the parameters for the protection with potential unintended consequences for the implementation of the NP. Capacity building in relation to benefit sharing should be considered in the context of meeting the needs and sustainability goals for the relevant culture.

*Ikechi Maduka Mgbeoji*, from *Osgoode Hall Law School*, explored the role of Western culture as a gatekeeper in knowledge production activities. The requirements for patent protection accord a privileged status to Western science, making it very difficult for knowledge produced in other cultures to be recognised without losing its authenticity and the defining characteristics of other forms of knowing. The historical neglect of women's scientific contributions—whether to plant science or conservation project—was very complicit in the limited recognition of indigenous peoples knowledge in responses to COVID. There is a socio-legal divide because the social or social cultural and knowledge divide, which has become embedded in law and in legal instruments and institutions.

*Margo Bagley, Emory University School of Law*, explored the present knowledge protection system by the World Intellectual Property Organization (WIPO). The InterGovernmental Conference (IGC) on intellectual property and genetic resources charted the terrain of traditional knowledge and the intersections between TK and custodianship. The IGC is negotiating three draft texts, two of which would create new IP rights in relation to traditional knowledge and traditional cultural expressions, and the third of which would create more transparency in the patent system by requiring applicants to disclose the origin of genetic resources used. There are calls from countries in the Global South for the highest level of protection for secret and sacred traditional knowledge which would involve economic rights, and moral rights of attribution among others.

*Madhavi Sunder, Georgetown Law*, addressed the ongoing place of TK in current discussions of intellectual property and global justice. Western intellectual property rights have naturalized the distinctions between nature and culture; reinforced the dichotomy between raw material and innovation. When the law defines the contributions of the poor as nature rather than culture, it denies the creativity of other cultures creating the genuine risk of misappropriation. Sunder stressed the importance of recognising also from a legal and IP right point of view, local communities as creative partners, not custodians of raw materials.

*Ron Corstanje from Cranfield University* shifted attention to new models of evaluating soil and different uses of traditional knowledge in the agricultural domain. Soil is incredibly important to the biosphere, with 95% of food in the world being in the first layer of the soil. Mismanaging soil can have real consequences for society and life but it is not still being effectively regulated and this has left to exploration in government and policy making of the concept of soil quality or soil health. Soil science uses Bayesian statistics to measure a number of parameters related to soil quality. The discussion focussed on the extent to which local communities and their knowledge with respect to arable, livestock and semi natural soil may or may not enter into assigning probabilities to the relevant parameter values. Further question arise as to who would then own the result given that the project captures community knowledge.

*Ana Delgado, from the Centre for Technology, Innovation and Culture, University of Oslo*, discussed digital sequences information in bioprospecting and some implications for traditional and indigenous people and knowledge, with a particular focus on dematerialisation (data deluge / advance in gene editing and synthetic biology, copying sequences from databases and designing *de novo*),

deterritorialization (data can be difficult to track and trace and one can easily change the jurisdiction) and deregulation (global databases may be seen as being no one's land and part of a global commons, beyond CBD). Hence the need for legal frameworks and technologies that can avoid all that: more complete metadata and annotation, better tracking mechanism, better legal definitions of what constitute genetic material, etc.

Reflecting on the presentations, the workshop participants noted the importance of power, structures, ownership and legal structures, which have enabled Western and colonial views to prevail with ensuing mechanisms of extraction / appropriation of traditional knowledge. Hence the need to re-imagine a system of legal protection with useful intersections with debates regarding intangible cultural heritage that can better address some of these pressing and open questions.