UNEP

CBD

Convention on Biological Diversity

Distr.
GENERAL

UNEP/CBD/WG-ABS/8/INF/3
30 July 2009

ENGLISH ONLY

AD HOC OPEN-ENDED WORKING GROUP
ON ACCESS AND BENEFIT-SHARING
Eighth meeting
Montreal, 9-15 November 2009
Item 3 of the provisional agenda*

# THE ROLE OF COMMONS/OPEN SOURCE LICENCES IN THE INTERNATIONAL REGIME ON ACCESS TO GENETIC RESOURCES AND BENEFIT-SHARING

*Note by the Executive Secretary*

1. The Executive Secretary is pleased to circulate herewith, for the information of participants in the eighth meeting of the Ad Hoc Open-ended Working Group on Access and Benefit-sharing, a discussion paper on the role of commons/open source licences in the international regime on access to genetic resources and benefit-sharing, ESRC Centre for Economic and Social Aspects of Genomics (Cesagen), University of Lancaster and the Peruvian Society for Environmental Law (SPDA). This paper is referred to in the first paragraph of the suggestions on operational text submitted by Cesagen, which is also available at https://www.cbd.int/abs/submissions/abswg-08-cesagen-en.pdf.

2. The paper is being circulated in the form and language in which it was received by the Secretariat.

* UNEP/CBD/WG-ABS/8/1.

/…

# An Access and Benefit-Sharing Commons?

## The Role of Commons/Open Source Licenses in the International Regime on Access to Genetic Resources and Benefit Sharing

### Discussion Paper

Paul Oldham[1]
ESRC Centre for Economic and Social Aspects of Genomics (Cesagen)
Lancaster University, UK

## 1. Introduction:

A review of the negotiating text for the international regime on access to genetic resources and benefit-sharing suggests that negotiations are situated somewhere between two extremes. The first is represented by business as usual, in the form of purely voluntary measures, that will fail to address the problem of biopiracy/misappropriation and enable the benefit-sharing provisions of the Convention on Biological Diversity (CBD). The second is represented by state sovereignty as ownership of both genetic resources and traditional knowledge that will abrogate the underlying rights of indigenous peoples and local communities, disable the access provisions of the CBD, and stifle the possibility of non-commercial research. The challenge here is that one inequitable situation may well be exchanged for another.

This discussion paper is predicated on the view that people, peoples, and communities should be at the heart of the international regime. That is, the international regime should enable and facilitate *choices* for ordinary providers in making knowledge and resources available in conditions of sufficient certainty of respect for their rights to facilitate wide participation and collaborations for constructive purposes. As such, drawing of the efforts of the Africa Group and others to humanise the regime, this discussion paper is directed towards opening up the middle ground in the pursuit of a constructive regime that will enjoy wide public support and acceptance.

This discussion paper draws on the success of "commons/open source" licensing models in the fields of software, creative works and their emerging application to biology.[2] Commons/open source licenses are a suite of modular licenses that allow providers of resources to set the basic terms and conditions under which material is made available

---

[1] Paul Oldham is a Research Fellow at the ESRC Centre for Economic and Social Aspects of Genomics (Cesagen), Lancaster University and holds a Ph.D. in Anthropology from the London School of Economics. Cesagen is a Research Centre of the UK Economic and Social Research Council (ESRC) whose support is gratefully acknowledged. This paper part of a series established by the *Andean-Amazon Initiative for the Prevention of Biopiracy* led by the Peruvian Society for Environmental Law (SPDA) with support from the International Development Research Centre (IDRC), Canada. The author thanks Preston Hardison with whom the idea of commons and open source has been a long running discussion on the sidelines of ABS meetings, Dr. Rebecca Ellis for her valuable comments, and participants in ABS7 and the Vilm workshop on traditional knowledge who encouraged further work on this topic. The views expressed are the author's own and responsibility for any errors or misinterpretations rests with the author. This document is available free of charge as *Initiative for the Prevention of Biopiracy*, Research Documents, Year IV, No. 11 through SSRN at http://ssrn.com/abstract=1438027 .

[2] For a detailed review of the developments informing this paper see Hope, J (2008) *Biobazaar: The Open Source Revolution and Biotechnology*. Cambridge, Mass: Harvard University Press.

on terms that are transparent to users. These licences are generally based on the selective waiver of elements of the bundle of rights provided by copyright but are increasingly being developed for material transfer agreements under the Science Commons and applied to patent licensing.[3]

This discussion paper provides an outline for what might be called an 'ABS commons' to enable the provisions of the international regime. The centre piece of the proposed 'ABS commons' would be a set of access and benefit-sharing commons licenses to promote sharing of knowledge and resources under conditions of sufficient certainty regarding respect for the rights of providers to encourage wide participation.

The primary beneficiaries of the ABS commons would be indigenous peoples and local communities, provider countries, and the non-commercial research sector in both provider and user countries. ABS commons licenses would be non-exclusive in nature and provide choices for making resources available on non-commercial or commercial terms across jurisdictions. It is anticipated that the primary use of the licenses would be for non-commercial purposes as the dominant use of traditional knowledge and genetic resources.

The ABS commons licenses would anticipate the possibility of unforeseen commercial applications through separate and additional agreements to the original licence. Additional agreements for non-exclusive commercial licenses would meet new PIC and MAT requirements and related terms including respect for the rights of indigenous peoples and local communities. Such additional agreements would be directed towards promoting open and networked innovation for the generation of public goods.[4] Examples of such goods would include the objectives of the Convention and extend to include research and innovation on neglected diseases and facilitating adaptation to climate change.[5] This approach would help to ensure that the international regime assists participants with meeting the common challenges of the 21st Century, is widely used, and generates wide public awareness and support.

The proposed ABS commons licenses are complementary to the main provisions of the regime and focus on enablement and participation. The proposal does not seek to replace provisions but to enable them. It is proposed that references to access and benefit-sharing commons licences be included in the text of the international regime for further elaboration following adoption of the international regime at COP10 in 2010. Proposals for potential operative text are provided separately as a contribution to thinking on possible options for inclusion.

---

[3] http://sciencecommons.org/projects/licensing/

[4] See Chesbrough, H (2003) *Open Innovation: The new imperative for creating and profiting from technology*. Boston: Harvard Business School Press. See also OECD (2008) *Open Innovation in Global Networks*. Organisation for Economic Co-operation and Development. Location: http://www.oecd.org/document/43/0,3343,en_2649_34269_41441387_1_1_1_37417,00.html . Accessed: 19 June 2009. For a somewhat breathless but highly informative approach see Tapscott, D & Williams, A (2008) *Wikinomics: How Mass Collaboration Changes Everything*. London: Atlantic Books. Ibid. Hope (2008).

[5] Moran, M; Ropars, AL; Guzman, J; Diaz, J and C, Garrison (2005) *The New Landscape of Neglected Disease Drug Development*. London: Wellcome Trust. http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_publishing_group/documents/web_document/wtx026592.pdf

The key features of the ABS commons and commons licenses proposed in this discussion paper are:

1. Creating a protected ABS commons for access to genetic resources and benefit-sharing that provides sufficient certainty with respect for rights to encourage wide participation;
2. Providing providers with a range of choices on the terms and conditions under which knowledge and resources are made available in conditions or sufficient certainty of respect for their rights to encourage wide participation;
3. Clarity for users on permitted uses;
4. Participants seeking access for non-commercial purposes under an ABS commons licence would be able to signal acceptance of a non-commercial licence to a potential provider in advance;
5. Licenses would cover material in multiple forms under one system (material samples, compounds, electronic sequence data, publications etc.) and facilitate sharing between participants;
6. Provision for change of use through separate additional agreements to accommodate unforeseen developments including commercial use directed to public goods based on new PIC and MAT;
7. Licenses would be simple to understand, issue, manage and track to encourage wide participation using electronic means, unique identifiers and DNA bar codes. Licenses would be issued in inter-linked “human readable”, “machine readable” and integral “lawyer readable” form and permit label generation;
8. Licenses would combine and enable existing elements of the regime concerning, model clauses, Material Transfer Agreements and certificates to reduce transaction costs;
9. Licenses would be visible to, and interoperable with, the global patent information system through classification and unique identifiers for use in the patent citation system;
10. Licenses would be backed by penalties and sanctions to facilitate compliance. Penalties and sanctions might include, inter alia: the use of differential fee-schedules to encourage use and compliance with licenses by patent applicants; discontinuation of applications in participating jurisdictions in the absence of compliance.

## 2. A Brief Overview of Commons/Open Source Initiatives:

The foundation for the rise of commons/open source approaches can be traced to the work of the Free Software Foundation[6] in the 1980s and the Open Source Initiative in the 1990s.[7] In the 1980s the Free Software Foundation released what is now the GNU operating system under the General Public License (GPL).[8] The GPL creatively exploits the possibilities of copyright through the use of "copyleft".[9] Copyleft terms require users who make follow on modifications to programme source code, and any software incorporating the source code, to make the source code available under the same terms. The key achievements of this approach are to simultaneously ensure that the source code does not enter the public domain, and become amenable to private appropriation, and to stabilise the public domain through the creation of an expanding protected commons for the software code and software incorporating the code.[10]

By the 1990s it was becoming clear that the emphasis on the term "free" (which did not primarily refer to price but to freedom) represented an obstacle to emerging business models based on these approaches. Furthermore, the requirement that software incorporating GPL code was made available under exactly the same terms was seen as an obstacle to software developers' freedom to decide what to do with software they created. The term "open source" was coined to reflect a more pragmatic focus on business models and consists of a suite of approved licenses, including the GPL, for different purposes that meet the requirements of the Open Source Definition.[11] Probably the most common misconceptions of what is often called Free and Open Source Software (FOSS) is that it is 'free' in terms of price, rather than enabling new business

---

[6] Free Software Foundation http://www.fsf.org/. The development of this approach is inextricably bound up with the work of Richard Stallman who developed copy left and founded the Free Software Foundation.

[7] Open Source Initiative http://www.opensource.org/

[8] The GNU General Public License is available at http://www.gnu.org/ . See also the GNU Lesser General Public License (LGPL) which permits the inclusion of libraries in proprietary products. The latest version of the GPL is version 3.0 which seeks to overcome efforts to restrict access to source code covered by the GPL through physical digital rights management approaches.

[9] Richard Stallman (1996) What is Copyleft? Available from http://www.gnu.org/copyleft/copyleft.html

[10] Maurer, S and Scotchmer, S (2006) 'Open Source Software: the New Intellectual Property Paradigm'. *NBER Working Paper No. W12148*. Location: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=896220

[11] The Open Source Definition accommodates the GPL but specifies in point 9 that the "License Must Not Restrict Other Software," in so far that, "The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software." The rationale for this is that "Distributors of open-source software have the right to make their own choices about their own software." Source: http://www.opensource.org/docs/osd . At the time of writing in June 2009 a total of 66 licenses were listed as approved as meeting the open source definition by opensource.org. For discussion see Lerner, J and Tirole, J (2001) The Simple Economics of Open Source. Available in a variety of dated versions including NBER Working Paper No. W7600. Location: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=214311

models, and that the software is public domain.[12] Rather, open source can be said to navigate the space between the public domain and proprietary models based on copyright and software patents.[13] The best known examples of open source software are Apache server software, which dominates the market for servers supporting the internet, and the Linux server and personal computer operating system.[14]

A key focus of open source is the promotion of collaborative software development backed by definitions, standardised licenses, social contracts governing projects, and open ended project teams. The main repository for open source projects is sourceforge.net which as of February 2009 listed some 230,000 projects with an estimated 2 million registered users and 34 million unique visitors per month.[15] On the 1st of July 2009 sourceforge.net registered 4 billion downloads of open source software. Participants in open source software development range from individuals seeking to learn new skills, distributed teams of IT professionals, and companies who dedicate major programming efforts to developing and maintaining open source software. Business participation is not altruistic behaviour but reflects the usefulness of open source software to businesses and the emergence of open source business models as alternatives to pure proprietary models in competitive markets such as server and operating system software. A good example of competitive approaches is the recently announced Google Chrome operating system that will be based on an open source Linux core operating code or "kernel".[16] Open source software has been widely adopted by companies and government departments because it is generally more affordable, more adaptable to user needs, and more secure than proprietary alternatives. Open source is central to the

---

[12] Bruce Perrins, the main architect of the open source definition, explains the nature of this problem in a 1999 book *Open Sources: Voices from the Open Source Revolution*, as follows: "A common misconception is that much free software is *public-domain*. This happens simply because the idea of free software or Open Source is confusing to many people, and they mistakenly describe these programs as public-domain because that's the closest concept that they understand. The programs, however, are clearly copyrighted and covered by a license, just a license that gives people more rights than they are used to."

[13] One of the key issues that has been raised in relation to such licenses has been the enforceability of open source or commons licenses. A variety of cases, commencing in the Netherlands in 2006, have upheld the validity of such licenses including an August 2008 decision by the United States Court of Appeals for the Federal Circuit in *Jacobsen v. Katzer*. For details see Rowe, B (2008) THE"IP" Court Supports Enforceability of CC Licenses, 13 August 2008. http://creativecommons.org/press-releases/entry/8838. The text of the decision is available here and the *Amicus Curiae* brief filed by Creative Commons, the Linux Foundation and others is here. Accessed 16 July 2009. For discussion see Gomulkiewicz, R (2009) 'Conditions and Covenants in License Contracts: Tales from a Test of the Artistic License', *Texas Intellectual Property Law Journal* Vol. 17: 335-361

[14] According to Netcraft in June 2007 Apache held a 47.12% of the server market (followed by Microsoft on 24.80). http://news.netcraft.com/. Linux is available on commercial and non-commercial terms in a variety of flavours including RedHat Linux and Ubuntu. The non-profit Linux foundation is dedicated to fostering the growth of the Linux "ecosystem". http://www.linuxfoundation.org/

[15] See SourceForge.net. http://sourceforge.net/apps/trac/sourceforge/wiki/What%20is%20SourceForge.net?

[16] The existing Google chrome browser is licensed under the Berkeley Software Distribution (BSD) approved open source licence and its components are licensed under a variety of other licenses including the Lesser General Public Licence (LGPL). The Linux kernel from which the Google Chrome operating system will be built is licensed under the General Public Licence and it is likely that the wider components of the operating system will be licensed using a variety of other open source licences. This reflects the mixing and matching of licensing terms by developers to suit particular purposes. For details of the Google Chrome OS see http://googleblog.blogspot.com/2009/07/introducing-google-chrome-os.html. Accessed 16 July 2009.

strategies of countries such as Brazil in making affordable ICT available in schools and to citizens and the creation of an inclusive information society.[17]

In the realm of science and biology the shift towards open source approaches is being driven in part by the convergences between software and biology (i.e. bioinformatics, genomics and synthetic biology). This is manifest in a wide range of open source bioinformatics tools and languages such as the NCBI Toolkit, for BLAST (Basic Logarithm Alignment Search Tool), GenBank and Entrez, including BioPerl and BioLisp and a wide range of other software tools such as BioJava, Biopipe, BioRuby, BioPython and the European Molecular Biology Open Source Software Suite (EMBOSS).[18] The emergence of these tools may form part of the hidden face of technology transfer for ABS.[19]

Looking beyond software, members of the science community have been confronting difficulties in gaining access to journals and data, difficulties in obtaining materials under material transfer agreements, and problems in accessing patented research tools and technologies.[20] Responses in this area including open source journals such as the Public Library of Science (PLoS) and the Scientific Commons,[21] the creation of modular Biological Material Transfer Agreements by the Science Commons Biological Material Transfer Project,[22] the CAMBIA Biological Open Source (BiOS)[23] patent licensing initiative for agricultural biotechnology, and in more general terms OpenWetWare for researchers in biology and biological engineering/synthetic biology.[24]

As examples of what has been characterised as collaborative "horizontally networked user innovation" open source approaches are increasingly being applied in the field of

---

[17] The growing adoption of open source software in Latin America is reflected in the use of terms such as Free Libre Open Source Software (FLOSS). Brazil, under President da Silva, has played a leading role in the promotion of open source software in public ministries including reported requirements that software developed in Brazil with public funding is made available under an open source licence. For details see Benson, T (2005) Brazil: Free Software's Biggest and Best Friend. *New York Times*, March 29 2005 http://googleblog.blogspot.com/2009/07/introducing-google-chrome-os.html . See also, Kingstone, S (2005) Brazil adopts open-source software, *BBC News*, 2 June 2005. http://news.bbc.co.uk/1/hi/business/4602325.stm. For recent discussion on open source in Brazil see Open source software in Brazil: too many projects to keep up with! *Free Software in Latin America*, blog post dated 5 March 2009. http://news.northxsouth.com/2009/03/05/open-source-brazil-update/

[18] Op. cit. Hope 2008: 255. EMBOSS http://emboss.sourceforge.net/what/#

[19] See Decision IX/15 para. 11 with reference to open source and the CBD.

[20] One response to these widely reported problems is provided by the non-profit Science Commons discussed in detailed elsewhere in this paper. See, Wilbanks, J and Boyle, J (2006) Introduction to Science Commons. Science Commons. http://sciencecommons.org/wp-content/uploads/ScienceCommons_Concept_Paper.pdf

[21] The Public Library of Science (PLoS). http://www.plos.org/ . The Scientific Commons (not to be confused with Science Commons) indexes publicly available scientific literature http://en.scientificcommons.org/

[22] Science Commons, see in particular the Biological Materials Transfer Project. Location: http://sciencecommons.org/projects/licensing/

[23] See the BiOS Initiative for Open Innovation operated by CAMBIA, Australia. Location: http://www.bios.net/daisy/bios/mta.html

[24] http://openwetware.org/wiki/Main_Page

healthcare.[25] Under the Fightaids@home project computer owners and participants in the World Community Grid[26] lend spare computer capacity to facilitate experiments directed to overcoming HIV drug resistance.[27] In other developments open source approaches have been promoted as an approach to R&D for drug discovery with a particular focus on neglected diseases.[28] In 2009 drawing on the open source emphasis on "kernels" (core functional code) within open source operating systems such as Linux a "kernel" was released for open source drug discovery for neglected diseases.[29] When combined with the emergence of Public Private Partnerships (PPPs) as models for neglected disease drug development and the realisation that the majority of approved pharmaceuticals are of natural origin,[30] potential pathways are provided to innovation in areas poorly served by dominant innovation models.[31]

For the purposes of an international regime on access and benefit-sharing, the most promising models in open source are located in the non-profit Creative Commons and related Science Commons projects. The Creative Commons was established to allow providers of creative works (such as publications, media and software) to choose from a set of modular licensing options based on selective waiver of copyright using an automated system.[32] Options include a requirement for attribution, non-commercial or commercial use, whether to permit derivative works, and share alike under the same licensing terms. In contrast, the Science Commons is, among other projects, directed towards addressing the complexities of Biological Materials Transfer Agreements (MTAs) by providing a set of standardised options.[33] These working models are demonstrated in the final section of this paper.

These commons projects seek to facilitate sharing by radically reducing transaction costs and simplifying licensing procedures through the automated generation of modular licenses based on provider choices. These licenses are generated in "human", "machine"

---

[25] Op. cit. Hope (2008): 243

[26] http://www.worldcommunitygrid.org/

[27] http://fightaidsathome.scripps.edu/

[28] See for example, Munos, B (2006) 'Can open-source R&D reinvigorate drug research', *Nature Reviews Drug Discovery*, 18 August 2006 doi:10.1038/nrd2131. See also the recently established Health Commons project. http://www.healthcommons.net/

[29] Orti, L et al (2009) 'A Kernel for Open Source Drug Discovery in Tropical Diseases'. *PLoS Neglected Tropical Diseases*. April 2009. Vol.3. Issue 4. e418

[30] See Newman, D & Cragg, G (2007) Natural Products as Sources of New Drugs over the Last 25 Years. *J.Nat.Prod.* 70: 461-477. See also Newman, D. and G. Cragg and K. Snader (2003) 'Natural products as Sources of New Drugs over the Period 1981-2002', *J.Nat.Prod*. 66: 1022-1037.

[31] Moran, M; Ropars, AL; Guzman, J; Diaz, J and C, Garrison (2005) The New Landscape of Neglected Disease Drug Development. London: Wellcome Trust. http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_publishing_group/documents/web_document/wtx026592.pdf

[32] http://creativecommons.org/ . Users of the Creative Commons for software licensing are directed to the GPL, the LGPL and the less restrictive Berkeley Software Distribution (BSD) licence developed for the release of the Unix-like operating system of the same name.

[33] See the Science Commons Biological Materials Transfer Agreement Project licensing tool at http://sciencecommons.org/projects/licensing/

and “lawyer” readable formats that link to the relevant material covered by the license. These initiatives have a lot in common with the international ABS regime as envisaged in the negotiating text. Specifically, elements of the international regime directed towards model clauses, material transfer agreements, certificates, unique identifiers and distinctions between types of research utilisations of genetic resources could become the foundation for the development of what might be called access and benefit-sharing commons licenses.

**3. An ABS Commons:**

The key focus of the outline for an ABS commons is *enablement* of the international regime with a particular focus on providing choices for providers of knowledge and genetic resources. Additional considerations are minimising transaction costs and promotion of wide participation by providers and users to realise the third objective of the Convention.

a) <u>The ABS commons:</u>

An ABS commons would be a regulated and rule defined space that facilitates access to genetic resources and benefit-sharing within a protected commons based on the rules of participation to be established under the international regime.[34] The ABS commons would be a bounded space where failure to comply with the rules of the commons would incur penalties previously agreed by parties to the commons. The role of State Parties to the commons would be to set the basic framework of rules to enable participation in the commons. The aim of such rules would be to create conditions of sufficient certainty with respect to the rights of participants to facilitate wide participation in reciprocal exchanges of knowledge and resources (benefit-sharing) and collaborations directed towards the generation of public goods.

It is important to emphasise that a commons is not “a pasture open to all” that may be freely exploited in the pursuit of self-interested maximisation without regard for the interests of other participants in the commons or its future existence and welfare.[35]

A key aim of the ABS commons would be to secure respect for the rights of providers of knowledge and resources. As such the ABS commons would focus on *enablement* of the rights of providers, notably indigenous peoples and local communities, to make informed *choices* on the terms and conditions under which knowledge and resources are made

---

[34] The choice of the term ABS commons is informed by the following observation from the beginning of the negotiations of the international regime. “It may be noted that in regime theory the term “international regime” has been defined as “a set of principles, norms, rules and decision-making procedures around which actors’ expectations converge in a given area of international relations”. Such principles, norms, rules and procedures can be laid down in legally binding or non legally binding instruments. However, it has also been asserted that the concept implies “some minimal effectiveness which can be measured by the degree of rule-compliance.” UNEP/CBD/MYPOW/2 para10. page 3. Citing Krasner, Stephen D.,(ed.) *International Regimes*, London, (1983), p. 2. and Martin List and Volker Rittberger, “Regime Theory and International Environmental Management” *in* Hurrell, Andrew and Kingsbury, Benedict (eds), *The International Politics of the Environment,* Oxford, (1992), 85. The discussion in this paper is not intended to suggest an alternative to a protocol as advanced by a number of Parties.

[35] Hardin, G (1968) The Tragedy of the Commons. *Science* 162: 1243-1248

available, enduring recognition of their contributions, and benefit-sharing through reciprocal exchanges.[36]

b) Outline core principles of the ABS Commons:

- Facilitating *choices* for providers of knowledge and genetic resources;
- Enduring recognition of all contributions over time;
- Facilitating access and benefit-sharing based on the principle of reciprocity;
- Providing certainty of respect for the rights of providers;
- Providing certainty on permitted uses for users;
- Interoperability across jurisdictions;
- Reciprocal enforcement of rules of the ABS commons by participating Parties;
- Promotion of non-commercial collaborative research networks involving providers and users directed towards problems identified by providers and public goods;
- Promotion of open and collaborative innovation based on respect for PIC and MAT of providers directed towards problems identified by providers and public goods;
- Simplicity in terms of use, management, and transparency to providers and users;
- Minimal transaction costs;
- Visibility to the intellectual property regime including incentives and penalties to promote respect for the ABS commons;
- Widespread participation including public participation and support for the ABS commons.

c) Purposes:

A primary purpose of the ABS commons would be to facilitate collaborative research between indigenous peoples, local communities and the research community in provider and user countries for non-commercial purposes based on respect for the rights of indigenous peoples and local communities.

A second purpose would be to serve as a forum through which collaborative research networks on mutual areas of interest can be established between indigenous peoples and local communities and the research community based on respect for rights and *enduring recognition* of the contributions of participants.

A third purpose, based on new PIC and MAT, is to promote open innovation networks directed towards the objectives of the Convention and public goods such as the first two objectives of the CBD, innovation for neglected diseases, and adaptation to climate change.

A fourth purpose would be to promote the application, and where necessary further elaboration, of ethical fair trade certification and labelling schemes to access and benefit-sharing arrangements in the pursuit of equitable benefit-sharing in activities involving the commercialization of genetic resources and traditional knowledge falling within the scope of the international regime.

---

[36] As set out in the United Nations Declaration on the Rights of Indigenous Peoples, indigenous peoples enjoy the right to free, prior and informed consent. PIC is considered a necessary precondition for the exercise of informed choices. Use of the term choices shifts the emphasis to the possibility of exercising positive choices based on recognition of PIC.

**Participants:**

In ABS the focus is upon establishing appropriate conditions for reciprocal exchange relationships to permit the circulation of goods (genetic resources and traditional knowledge) leading to wider benefits. This involves a range of social and economic agents including the following principal agents:

1. Indigenous peoples and local communities;
2. Members of the Research Community (non-commercial);
3. States as providers and users of genetic resources and *enablers* for access and benefit-sharing;
4. Public Collections (museums);
5. Industry and Public Research Organisations engaged in commercial research (across a range of sectors and serving a range of markets);
6. The public (including civil society organisations and special interest groups i.e. amateur naturalists etc.);

This ordering of participants in the outline ABS commons puts people, peoples, and communities first. That is people, respect for their rights, and the promotion of reciprocal exchanges between people, peoples and communities should be at the heart of the international regime. This is based on a set of assumptions.

First, that the development of an ABS commons would be based on recognition and respect for the rights of indigenous peoples, their customary laws and protocols and promote exchanges based on the principle of reciprocity, mutual recognition and respect in the context of the international regime. Second, that the ABS commons would promote collaboration between indigenous peoples, local communities and the non-commercial research community based on existing tools outlined in the international regime (the Declaration on the Rights of Indigenous Peoples, customary laws, community protocols, codes of ethics, additional guidance etc.). Specifically, the ordering prioritises collaborative networks between indigenous peoples and non-commercial researchers based on mutually agreed priorities. ABS commons licences would be directed to promoting and enabling certainty of respect for rights of indigenous peoples and local communities who choose to participate in the wider ABS commons.

Third, taking into account the sovereign rights of states under the CBD, and the framework established by the international regime, this proposal focuses on the role of states in *enabling* equitable reciprocal exchanges (benefit-sharing) between participants in the ABS commons. The emphasis here is on securing sufficient certainty of respect for the rights of providers to ensure wide participation.

Fourth, public collections, as major repositories for biodiversity, are increasingly attempting to make information from their collections widely available online through initiatives such as the Catalogue of Life, the Global Biodiversity Information Facility and the Encyclopedia of Life.[37] This involves an estimated +100 million pages of taxonomic

[37] a) Catalogue of Life http://www.catalogueoflife.org/search.php b) Global Biodiversity Information Facility http://www.gbif.org/ c) Encyclopedia of Life http://www.eol.org/ d) Biodiversity Heritage Library http://www.biodiversitylibrary.org/

information.[38] The collections are doing this using creative commons style approaches and open source software in which a key principle is recognition of contributions. The proposed ABS commons licenses could articulate with these initiatives with a view to promoting enduring recognition of contributions to knowledge of biodiversity by indigenous peoples and local communities with *some rights reserved* in making knowledge and resources more widely available.[39]

Fifth, innovation in the 21st century, particularly in the biosciences, is increasingly networked and is characterised by "open innovation" as opposed to the vertically integrated "cathedral" models that dominated the 19th and the 20th Century.[40] The proposed ABS commons would recognise this and seek to promote open innovation directed to the generation of public goods (i.e. the objectives of the Convention, neglected diseases, adaptation to climate change) through the provision for non-exclusive commercial licenses based on new PIC and MAT.

Finally, "the public", or more accurately "publics", in ABS seem to be confined to somewhat unimaginative exercises in raising public awareness in the negotiating text (i.e. stakeholders). This is possibly because it seems to be virtually impossible to explain ABS to anyone in one sentence.[41] The proposed ABS commons licences would reverse this situation by making access and benefit-sharing publicly visible in the same way that the Creative Commons has become widely known. Specifically, ABS commons licenses would be publicly visible through the use of *branded symbols* (i.e. on documents, websites, and possibly commercially sold products) and linked to human readable versions of what those symbols mean (i.e. attribution, non-commercial, derivative work not permitted/permitted, share alike etc.) backed by the full "lawyer readable" licence. The commons licences would make ABS *mobile* and *visible* to publics (including school children for example) who care about biodiversity and the indigenous peoples and local communities on this planet.

Viewed from the perspective of participants, the one sentence answer to the question 'what is the Access and Benefit Sharing Regime?' under this outline proposal would thus become: The Access and Benefit Sharing Regime is an international commons that allows indigenous peoples, local communities, researchers, institutions and companies to share

---

[38] This figure is based on information provided at the e-Biosphere conference. However, this appears to depend on what is counted and how. For example the Biodiversity Heritage Library brings together 10 major museum collections with an estimated +2 million volumes of biodiversity literature. The library announced the loading of the 10 millionth page online in November 2008 and estimated that there are between 60-100 million pages (http://biodiversitylibrary.blogspot.com/2008/11/100000000-pages.html). In a presentation by Nick King, Executive Director of GBIF, a map was displayed containing 174 million records and reference made to around 150 million specimen and observation data. See King, N (2009) Global Biodiversity Information Facility. Presentation e-Biosphere Conference 1-3 June 2009. http://www.e-biosphere09.org/PDF/Monday%201st/Session%202/King.pdf

[39] The phrase "some rights reserved" is widely used by the Creative Commons to describe the licenses generated by providers for creative works.

[40] This elaborates on the famous characterization of software development in terms of the Cathedral and Bazaar by Eric Steven Raymond (2000) *The Cathedral and the Bazaar*. http://catb.org/esr/writings/cathedral-bazaar/cathedral-bazaar/cathedral-bazaar.ps . See also the influential work of Yochai Benkler (2006) *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven and London: Yale University Press.

[41] The difficulty in answering this question was raised during a side-event by the German-Netherlands-Norway sponsored ABS Capacity Development Initiative for Africa at ABS7. http://www.abs-africa.info/

knowledge and genetic resources directed towards the creation of public goods using a trusted system backed by Parties to the Convention on Biological Diversity.

**Outline of Access and Benefit-Sharing Commons Licenses:**

1) Non-exclusive & Non-Commercial Licenses:[42]

The ABS commons would recognise that the majority of existing exchanges of biodiversity related knowledge and resources serve non-commercial purposes. A standardised non-exclusive and non-commercial licence in human readable, machine readable and lawyer readable formats tied to unique identifiers and, where available, DNA barcodes would form the centre-piece of the ABS commons licenses.

The benefits of the non-exclusive non-commercial licenses for providers would include, inter alia;

1. Enduring recognition of the contributions of providers (notably indigenous peoples and local communities);
2. Certainty regarding the terms under which knowledge and resources are made available;
3. Increased access to information including repatriation of information on the same licensing terms by participating users including public collections;
4. The promotion of collaborative research networks directed towards problems identified by providers and public goods (i.e. research on neglected diseases);[43]
5. Distributed capacity-building including training, access to research resources, and technology transfer directed towards problems identified by contributing providers.

2) Non-exclusive Commercial Licenses:[44]

The proposed ABS commons is not opposed to commercial development and commercial applications but would seek to do three things:

a) to ensure respect for the rights of providers including PIC and MAT from indigenous peoples and local communities;
b) reduce uncertainty regarding potential change of purpose for commercial use;

---

[42] See references to research not aiming at commercialization in III.A.15 option 2 and III.C.1.c option 2 of UNEP/CBD/WG-ABS/7/8

[43] According to the World Health Organization an estimated 1 billion people worldwide, principally in developing countries, suffer from a neglected disease with major implications for morbidity and mortality rates, principally among infants, and economic development (http://www.who.int/neglected_diseases/en/). For discussion see, WHO (2007) Global Plan to Combat Neglected Diseases 2008-2015. World Health Organization. See also the resolutions of the World Health Assembly on the Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property contained in Resolutions WHA61.21 and WHA62.16. On intellectual property issues see WHO (2006) *Public Health, Innovation and Intellectual Property Rights*. Report of the Commission on Intellectual Property Rights, Innovation and Public Health. World Health Organization. See also, Chan, M (2009) Strengthening multilateral cooperation on intellectual property and public health. http://www.who.int/dg/speeches/2009/intellectual_property_20090714/en/index.html

[44] See reference to Research and development aiming at commercialization in III.A.15 option 2 and III.C.1.c option 2 of UNEP/CBD/WG-ABS/7/8

c) provide incentives for commercial development directed towards the generation of public goods that are poorly served by existing innovation models through the use of non-exclusive licensing.

A central issue in access and benefit-sharing is unforeseen commercial applications arising from research on traditional knowledge and genetic resources without reference to the PIC and MAT of providers or the sharing of benefits. This generates significant uncertainties in the form of fears that knowledge and resources valued for other purposes by indigenous peoples and local communities will be violated or that potential values arising from commercial applications will not be shared.

The ABS commons would recognise the potential for unforeseen commercial applications outside the terms of a non-commercial licence through a requirement for a *separate additional agreement* for commercial development based on new PIC and MAT with providers and such additional terms as may be established under the international regime.[45] Commercial development of knowledge and resources made available to the ABS commons in the absence of a separate agreement, including applications for patent rights, would be subject to incentives, penalties and sanctions in jurisdictions participating in the ABS commons.

Provision for separate and additional non-exclusive commercial licenses for potential commercial applications is directed towards the enablement of the right to self-determination of indigenous peoples set out in the United Nations Declaration on the Rights of Indigenous Peoples and the right to development of local communities. The enablement of these rights requires the enablement of *choices*, including decisions made through institutions, processes and procedures established by indigenous peoples and local communities and judged legitimate by them.[46] Provision for non-exclusive commercial licenses would provide space for negotiation, prior informed consent and mutually agreed terms as established by the international regime and in compliance with international human rights law. Non-exclusive commercial licenses would provide greater choice for providers in entering into ABS arrangements as they deem appropriate when compared with exclusive 'lock in' or 'eggs in one basket' licenses.[47]

A second consideration in provisions for non-exclusive commercial licenses relates to models of innovation in the 21st Century. Existing ABS debates are informed by a "cathedral model" of innovation in which "raw" material and knowledge feeds into the "cathedral", typically a large pharmaceutical or agricultural company, under an exclusive licence where it is subjected to patent protection, further research and development and

---

[45] This directly follows the dual licensing model developed by the Creative Commons known as CC Plus. Location: http://wiki.creativecommons.org/CCPlus

[46] Alexander, M and Hardison, P & Ahren, M (2009) Study on Compliance in Relation to Customary Law of Indigenous and Local Communities, National Law, Across Jurisdictions, and International Law. UNEP/CBD/WG-ABS/7/INF/5

[47] An example is exclusive licensing of *hoodia* to a UK pharmaceutical company Phytopharm by the South African CSIR and subsequent limitations on San rights to develop *hoodia* as part of a benefit-sharing agreement. Licence data http://www.phytopharm.co.uk/hoodiafactfile/ . For discussion see for example, Wynberg, R and Laird, S (2007) Bioprospecting. *Environment*, December, Vol. 49, Issue 10: 20-32. See also Vermeylen, S (2008) 'From life force to slimming aid: Exploring views on Commodification of TK' *Applied Geography* 28: 224-235 and Bavikatte, K; Jonas, H & and von Braun, J (2009) Traditional Knowledge and Economic Development: The Biocultural Dimension. Forthcoming UNU Traditional Knowledge Initiative publication.

may become a pharmaceutical or other product. Viewed in terms of approvals of new pharmaceuticals this is a failed model that belongs to the 19th and 20th Century.[48] Innovation in the 21st Century is increasingly networked and open and depends on collaborations between multiple agents including public research institutions, the private sector and public funding agencies.[49] This is particularly true for research and innovation for neglected diseases where capacity to sequence the genomes of *Leishmania major (Leishmaniasis)*, *Trypanosoma brucei* (sleeping sickness) and *Theileria annulata* (a bovine parasite affecting cattle) in 2005 depended on international collaborations between research institutes in both developed and developing countries.[50]

In focusing on the enablement of choices for providers the ABS commons would not preclude provider choices on exclusive licenses. However, the ABS commons would prioritise non-exclusive commercial licensing directed towards maximising the potential for collaborative "open" innovation in pro-competitive conditions. In particular, the ABS commons would prioritise, and provide incentives for, the generation of public goods. Examples might include addressing key problems confronting participants, such as indigenous peoples and local communities, in the commons such as neglected diseases and adaptation to climate change.

3) Commercialization:[51]

The possible commercialization of knowledge and genetic resources (as tangible and intangible products) could potentially be tied to license/certification schemes operating along Fair Trade lines i.e. product labelling tied to standards.[52] This possibility, which remains very schematic, could help to avoid the situation that arose with *hoodia* - where widespread sale of botanicals took place without benefit-sharing for the San of Southern

---

[48] This problem has been widely discussed in the science and business literature (i.e. Nature Reviews Drug Discovery) and is in part attributed to an overemphasis on the potential of synthetic combinatorial approaches at the expense of natural products. In practice as Newman, Cragg and associates have repeatedly demonstrated nature will rarely be beaten as a source of new pharmaceuticals when viewed at the level of actual approvals. See Newman, D & Cragg, G (2007) Natural Products as Sources of New Drugs over the Last 25 Years. *J.Nat.Prod.* 70: 461-477. See also Newman, D. and G. Cragg and K. Snader (2003) 'Natural products as Sources of New Drugs over the Period 1981-2002', *J.Nat.Prod*. 66: 1022-1037.

[49] OECD (2008) *Open Innovation in Global Networks*. Organisation for Economic Co-operation and Development. Location: http://www.oecd.org/document/43/0,3343,en_2649_34269_41441387_1_1_1_37417,00.html . Accessed: 19 June 2009.

[50] For details see, Ivens AC et al. The genome of the kinetoplastid parasite, Leishmania major. Science 2005;309(5733):436–42. Berriman M et al. The genome of the African trypanosome Trypanosoma brucei. Science 2005;309(5733):416–22. Pain A et al. Genome of the host-cell transforming parasite Theileria annulata compared with T. parva. Science 2005;309(5731):131–3.

[51] See reference to Commercialization in III.A.15 option 2 and III.C.1.c option 2 of UNEP/CBD/WG-ABS/7/8

[52] Fair Trade models have been applied to coffee, bananas and chocolate among many other products and are increasingly extending into beauty products. European countries, such as the UK, have promoted significant investment in fair and ethical trade. According to the UK Fair Trade Foundation an estimated 5 million people from 59 developing countries benefit from the international Fairtrade system and 18 million UK households purchased Fairtrade goods in 2008. http://www.fairtrade.org.uk/press_office/press_releases_and_statements/july_2009/uk_overseas_aid_budget_to_boost_fairtrade.aspx. The Fairtrade certification mark and labelling scheme is operated by Fairtrade Labelling Organizations International. http://www.fairtrade.net/

Africa and also led to the listing of *hoodia* under CITES.[53] A form of Fair Trade/license tied to standards could allow customers to *differentiate* between products complying with the terms of the ABS regime and those that do not. This could help to avoid the use of traditional knowledge and representations of indigenous peoples in the marketing of products without their consent or benefit-sharing. Such a scheme, based on existing models and experiences, could have the advantage of generating reputational gains for companies involved in ABS in competing in markets.[54] This possibility clearly requires further exploration but reflects the possibilities of complementarities and synergies with existing models.

4) Public Domain Tool:

The centre-piece of the ABS commons would be non-exclusive non-commercial licenses with provision for commercial licenses under separate additional agreements. Knowledge and resources made available under these licenses may be publicly accessible but would not be in the public domain in legal terms by virtue of the reservation of some rights. Entry into the public domain requires a full waiver of all rights by a provider. In certain circumstances it may be desirable to submit certain knowledge and resources into the public domain in the interest of the wider commons.[55] Provision for such eventualities could be made through a separate tool for definitive submission into the public domain, subject to the explicit consent of the provider.[56] It is not proposed that traditional knowledge and genetic resources of indigenous peoples be submitted to the public domain in light of the provisions of the United Nations Declaration on the Rights of Indigenous Peoples (i.e. Art 31).[57] Indeed, indigenous peoples representatives have objected to the classification of their knowledge as *de facto* falling into the public domain (principally by researchers). The proposed commons licenses are a response to that problem.

---

[53] *Hoodia gordonii* (and synonyms) are listed under CITES for all parts and derivatives except those carrying a label specifying collaboration with the CITES Management Authorities of Botswana/Namibia/South Africa under agreement BW/NA/ZA xxx. Source: CITES species database. http://www.cites.org/eng/resources/species.html

[54] For information on market values for biodiversity products see Laird, S and Wynberg, R (2008) Access and Benefit-Sharing in Practice: Trends in Partnerships Across Sectors. CBD Technical Series No. 38. Montreal: Secretariat of the Convention on Biological Diversity.

[55] A widely cited example is the industry and public institution established Single Nucleotide Polymorphism Consortium (SNP Consortium) which deliberately released 1.4 million SNPs (pronounced “snips”) arising from research on the human genome into the public domain to prevent proprietary enclosure of this basic information. Thorisson, G and Stein, L (2003) ‘The SNP Consortium website: past, present and future,’ *Nucleic Acids Research*, Vol. 31 (1) 124-127. The SNP Consortium (http://snp.cshl.org/) has subsequently morphed into the International HapMap Project to create a public resource and haplotype map of the human genome where haplotype refers to common patterns of variation in SNPs. It has been widely pointed out that industry participation in the consortium was no altruistic but reflected a common interest in preventing patent racing on basic genetic information. For discussion see, Sunder-Rajan, K (2004) *Biocapital: The Constitution of Post Genomic Life*. Duke University Press. Reardon, J (2007) ‘Democratic Mis-haps: The Problem of Democratization in a Time of Biopolitics’. *Biosocieties*, 2: 239-256.

[56] This option is included based on the creative commons model which provides a public domain tool. http://creativecommons.org/publicdomain/. The possible inclusion of a public domain tool as part of an ABS commons would require careful consideration regarding its purposes in view of the human rights dimensions relating to indigenous peoples and local communities.

[57] Available from http://www.un.org/esa/socdev/unpfii/en/declaration.html

5) Reducing Transaction Costs - Automated Online Licence Generation: [58]

A key aim of commons licenses is to radically reduce transaction costs through simplification for providers and users of the underlying legal complexities of ABS requirements. Most humans are not lawyers. In short, the aim is to create a system that is simple for both providers and users to use on a practical day to day level and can be readily understood by providers and users participating in the ABS commons.

Using modern ICT tools this can be achieved through an automated online electronic license generation tool.[59] Under this proposal registered users of the system (a category including indigenous peoples and local communities, research institutions, public collections and other groups participating in the commons) could generate licenses for knowledge and resources they wished to make available.

Building on the existing automated Creative Commons and Science Commons models for copyrighted works and MTAs providers would be presented with an online menu of options for the generation of licenses and labels for samples. These menus might include, inter alia:[60]

1. The details of the provider (indigenous peoples or local community concerned) linked to standardised codes (to be developed based on language names);
2. The country of origin (standardised international country code);
3. The details of the relevant national focal point/competent authority;
4. The terms and conditions of the licence (i.e. non-commercial);
5. Description of the material provided. This description could be linked to standardised classification codes to facilitate search and retrieval in the commons;
6. Unique identifiers including:
    a. URL of registered provider (i.e. competent indigenous local authority);
    b. URL of national focal point/competent national authority;
    c. DNA barcode (where available);
    d. Other unique identifiers (i.e. accession numbers where known)
7. Collaborating parties (i.e. universities/institutions/companies)
        a. Institution details accompanied by standard country codes to generate indicators of cross-Party collaborations under the international regime;
8. Location of physical samples (where known)]
9. Date of issue of the licence
10. Information on the desired purposes for which material is made available (i.e. research on neglected diseases) to facilitate collaborative research networks;
11. A menu of standardised *International Patent Classification* (IPC) codes to facilitate monitoring of areas of technology in which licences are used and to promote visibility in the global patent information system;
12. A menu of standardised United Nations *International Standard Industrial Classification* (ISIC) to facilitate monitoring of the economic areas of activity in which licensed

---

[58] See http://creativecommons.org/license/

[59] Fully functioning examples of such systems are provided by the Creative Commons and the Science Commons (see Section 5 of this discussion paper). These systems would require modification (rather than reinvention) for the purposes of ABS commons licenses.

[60] See in particular references to the internationally recognized certificate issued by a domestic competent authority in III.C.2.b of UNEP/CBD/WG-ABS/7/8. The above scheme would enable a range of provisions under compliance as set out in the negotiating text.

resources are used and permitting links to formal economic indicators as established in the UN system;
13. Additional information as established under the international regime.

The automated system would generate a “machine readable”, “human readable”, and “lawyer readable” ABS commons licence.

1. The machine readable version of the license would be used in online electronic environments to attach the licence to relevant material (i.e. publications, DNA and amino acid sequence data, compound data) in order to make clear that the material falls within the ABS commons and is subject to licence terms. Simple symbols would indicate the type of licence and its requirements (i.e. attribution, non-commercial, share alike). The unique identifier embedded in the machine readable version would link to the human readable (simplified terms) and lawyer readable (full terms) of the licence.
2. The human readable version of the licence would consist of a simple branded page of symbols standing for the main provisions and brief descriptions to provide a rapid snapshot of the terms of the licence. This would be linked through to the lawyer readable version;
3. The lawyer readable version of the license would set out the full terms of the licence and be based on applicable law (i.e. in provider countries) and terms established by the international regime. A strength of this approach is that it may be possible to ‘bundle’ a Material Transfer Agreement and a certificate into one document in order to reduce transaction costs.

Linkages to material samples:

The automated system would generate copies of the license to accompany the material and labels containing the unique identifier for the license to be attached to specimens. The ability to print multiple labels under the same licence will be particularly useful in dealing with batch samples (i.e. unsorted material collected from a forest canopy). Proposals for rapid DNA barcoding of samples and the inclusion of DNA barcode data to facilitate tracking of samples is envisaged as part of this process. However, enablement would require further inputs from specialists working on DNA barcoding.

Shrink Wrap and Click Wrap Licenses:

Shrink Wrap licenses are used in fields such as physical software where opening the package signals acceptance of the license terms under which the material is made available. In contrast, click wrap commonly refers to the click-through acceptance of terms and conditions (i.e. for entering a website or downloading content). Both are potentially applicable to ABS commons licences. Lessons learned in their use under the SMTA of the International Treaty on Plant Genetic Resources for Food and Agriculture could provide valuable insights into experience in their use.

6) <u>Complementarities with the International Treaty on Plant Genetic Resources for Food and Agriculture</u>:

The ABS commons licences are intended to articulate with the multilateral system and Standard Material Transfer Agreement (SMTA) established under the International Treaty on Plant Genetic Resources for Food and Agriculture.

The SMTA operating under the ITPGRFA contains the main terms of the SMTA, unique identifiers and an Annex setting out the List of Materials provided.[61] The Annex provides a list of unique sample identifiers, Designations, Species, and Origin of material accessed under the Multilateral System.

The outline proposal for ABS commons licenses is intended to complement, and articulate with, the International Treaty in relevant areas. Experience under the International Treaty in operating the Multilateral System is clearly relevant to the proposed development of the ABS commons licenses.

7) Facilitating Advanced Requests for Access and Partnerships:[62]

An important feature of the electronic system would be to facilitate requests for access through advanced signalling. Registered users of the system seeking access to engage in field collections would be able to submit an online request to the relevant authorities. Where this involved a request for access through advanced acceptance of the terms of a non-commercial licence, the process would be simple, straightforward, and transparent to providers.

An additional benefit of an advanced request system would be to reduce social distance and promote partnerships. Thus, an advanced request for access under a non-commercial licence would be entered into the system and be transparent to other registered users in the provider country (national focal point/competent authority/ indigenous peoples and local community organisations) outlining the request for non-commercial access and its purposes. In relevant cases this could facilitate the development of partnerships, i.e. in conducting research and collections in specific areas and assist with expediting the permit process.

An advanced signal, through acceptance of the terms of a non-commercial licence (as a formal contract), would contribute to certainty among providers and users by avoiding the common situation in which providers (i.e. indigenous peoples and local communities) must attempt to *interpret* intentions.[63] Specifically, acts of collection for non-commercial purposes or commercial purposes look exactly the same from the perspective of a casual observer. Observers are thus left guessing as to the potential intentions of researchers engaged in collections. Non-commercial licenses would remove this uncertainty *in advance*.

This would contribute to overcoming one of the central problems confronting researchers in conducting research in CBD partner countries: overcoming social distance and mistrust in the context of biopiracy to establish partnerships.

---

[61] See the SMTA section of the website of the International Treaty. http://www.planttreaty.org/smta_en.htm

[62] For non-commercial uses this proposal would simplify access procedures as detailed in the negotiating text section III.B. of UNEP/CBD/WG-ABS/7/8.

[63] See Consortium for the Barcode of Life et al (2008) Report of A Workshop on Access and Benefit Sharing in Non-Commercial Biodiversity Research. Location: http://www.barcoding.si.edu/PDF/BonnABSWorkshopReport-FINAL.pdf Also available as UNEP/CBD/WG-ABS/7/INF/6

8) Interoperability and reciprocal enforcement across jurisdictions:

A central feature of ABS commons licenses is that they would be interoperable across jurisdictions. That is a participant in the ABS commons would be able to search for and locate commons resources for a subject of interest under a non-commercial licence from multiple jurisdictions in conditions of reasonable certainty regarding the terms of the licence.

This would not preclude specific licensing terms as determined by Parties in their sovereign capacity. Existing commons licences (notably Creative Commons licenses under copyright law) have been adapted to the applicable national copyright law of many countries and signalled in the licence deed through the use of national flag symbols.[64] This suggests that it is possible to arrive at high level licenses with interoperable provisions adapted to applicable law. The development of national ABS legislation is at an early stage in many countries and this suggests that Parties could be mindful of the desirability of standard provisions. Specifically, a basic set of standard licensing terms would facilitate the operation of the commons across participating Parties and facilitate reciprocal enforcement of compliance by Parties participating in the ABS commons. As such, agreement on standardised basic licensing terms would facilitate a functioning commons.

It may be noted that severability clauses are a feature of existing creative commons licenses such that only the specific provision found unenforceable in a particular jurisdiction is affected rather than the whole license.[65] This may merit further analysis in the context of possible ABS commons licenses.

9) Visibility and Transparency to the Intellectual Property Regime:[66]

A central problem that has emerged in debates on ABS is the lack of visibility of the origins of traditional knowledge and genetic resources in the wider intellectual property regime, notably the patent system, as a result of the lack of provision of such information by applicants for intellectual property rights.[67] As outlined in the negotiating text, and as adopted by a number of Parties, enhanced disclosure of origin requirements in patent

---

[64] At the time of writing in June 2009 Creative Commons licences had been adapted or "ported" to 50 countries with additional projects in progress. See http://creativecommons.org/international . Licenses can be generated in Spanish via creative commons spain (http://es.creativecommons.org/) and Mexico (http://creativecommons.org.mx/). Licenses have also been ported to Brazil in Portugese versions (http://creativecommons.org/international/br/).

[65] See http://wiki.creativecommons.org/FAQ

[66] This is linked to proposals for the internationally recognized certificate in III.C.2.b option 1 with reference to searchable patent applications, see option 1.c.iii. See also, Disclosure requirements under III.C.2.e of UNEP/CBD/WG-ABS/7/8.

[67] This problem is considered in greater length in Oldham, P & Hall, S (2009) A European Patent Indicator for Access to Genetic Resources and Benefit Sharing. Section 7. Report to the European Environment Agency EEA/BSS/08/012. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1397108. See also Oldham, P (2007) Biodiversity and the Patent System: Towards International Indicators. Location http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1088134 . Also available as UNEP/CBD/WG-ABS/5/INF/6

applications, including disclosure of the names of indigenous peoples concerned,[68] would reduce uncertainties and provide a means to address cases of biopiracy/ misappropriation.[69]

The ABS commons licenses are fundamentally directed towards enabling choices for providers, notably indigenous peoples and local communities. Those choices do not preclude applications for patent rights where a provider so decides. However, the ABS commons licences, through provision for non-commercial terms, provide a greater range of choices than existing intellectual property instruments. That is they could be said to occupy the space between trade secrecy and patents while recognising the relevance of copyright for biodiversity and traditional knowledge in the era of bioinformation.[70]

One strength of the ABS commons licenses approach is that it will be possible to make the licensed knowledge and resources visible to the international patent system. Specifically, the patent system is now a *global information system* (see for example the esp@cenet worldwide patent database operated by the European Patent Office).[71] This system operates across multiple jurisdictions around the world using a combination of standardised country codes, unique identification numbers, and an alpha-numeric classification system (the International Patent Classification or IPC) consisting of 70,000 classification codes that provide a detailed description of the contents of an application. In addition the patent information system uses a priority number system (consisting of a country code, a unique number, and the date) to establish the priority of an application under the Paris Convention. Finally, the patent system employs a citation system whereby other patent applications and scientific literature constituting prior art affecting the scope of a claimed invention are recorded on the front page of the record.[72]

The proposal for the development of ABS commons licences, as detailed in the references to standardised country codes and classification codes, would make ABS commons licences transparent to the international patent system. This has the following potential implications:

---

[68] The recommendations of the Eighth Session of the United Nations Permanent Forum on Indigenous Issues include the following: "21. The Permanent Forum recommends that patent offices worldwide establish a mechanism whereby, when a patent is requested for a new product or procedure derived from indigenous peoples' resources or traditional knowledge, the origin of this knowledge is made public or otherwise disclosed and that the necessary consultations and negotiations take place with the indigenous peoples concerned." E/2009/43 -E/C.19/2009/14. For the background research informing this recommendation see Op. cit Oldham (2007) and Oldham & Hall (2009).

[69] An additional uncertainty of key interest to indigenous peoples and local communities is the tendency to classify the knowledge and resources of indigenous peoples as if they fall into the public domain. Indigenous representatives have repeatedly pointed out that access to knowledge and resources is governed under customary laws and that the classification of their knowledge and resources as *de facto* falling within the public domain is contrary to customary laws and their human rights (i.e. under CESCR Art 15.1c and Article 31 of the UN Declaration on the Rights of Indigenous Peoples).

[70] See Parry, B (2004) *Trading the Genome: Investigating the Commodification of Bio-Information*. New York: Columbia University Press. See also Oldham, P (2004) Global Status and Trends in Intellectual Property Claims: Genomics, Proteomics and Biotechnology http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1331514. Also available as UNEP/CBD/WG-ABS/3/INF/4

[71] See the EPO esp@cenet database at http://ep.espacenet.com/

[72] For detailed discussion see Op. cit. Oldham & Hall (2009) and Oldham P (2007).

1. Individuals, institutions and companies seeking to pursue patent rights that make use of knowledge and resources covered by an ABS commons licence could be required to seek a commercial licence from providers through additional agreements subject to new PIC and MAT as outlined above for commercial licenses.
2. Applicants for patent rights could be provided with an opportunity to secure an ABS commons licence from providers within a set time period to allow space for negotiation with providers.[73] Until that time the patent application would be maintained but subject to a higher fee schedule in all participating jurisdictions where the application is submitted (i.e. under the Patent Cooperation Treaty).[74] Revenue from the fee schedule would pass to the financial mechanism with a view to serving as a compensatory mechanism for providers for agreed purposes. In the absence of compliance with the requirement to obtain a commercial licence within the set time period, the patent application would be terminated in all participating jurisdictions in the interest of maintenance of the ABS commons. Rather than licensing terms being extinguished by such a terminated application through classification as falling into the public domain, the patent application would be incorporated into the terms of the licence by reference and the license would remain in force.
3. Applicants for patent rights who had previously secured a commercial licence from providers would be entitled to enter the system on the regular, or lower, fee schedule to encourage compliance.
4. In determining new PIC and MAT for commercial uses additional flexibilities could be deployed by providers to encourage the maintenance of the purposes of the ABS commons. These include, *inter alia*:
   a. Use of licenses of right (in available jurisdictions such as the UK). Licenses of right involve an applicant registering that a patent is available for non-exclusive licensing to others in return for a reduction of patent fees by half (UK);[75]
   b. Patent pools;[76]
   c. Open Patents;[77]

---

[73] For example, patent applications are generally published at least 18 months after the date of filing (the priority date). For discussion see Ibid. Oldham & Hall 2009 and Oldham 2007.

[74] EPO (2005) The cost of a sample European Patent – new estimates, incorporating Roland Berger Market Research (2004) Study on the cost of Patenting – Final Report, Prepared for the European Patent Office. European Patent Office. WIPO (2008) *World Patent Report: A Statistical Review 2008*. http://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/pdf/wipo_pub_931.pdf .

[75] See the UK Intellectual Property Office website and database for details a) http://www.ipo.gov.uk/types/patent/p-manage/p-useenforce/p-licence/p-licence-right.htm and b)http://www.ipo.gov.uk/types/patent/p-os/p-dl-licenceofright.htm. For discussion see Garde, T (2005) 'Supporting Innovation in Targeted Treatments: Licenses of Right to NIH-Funded Research Tools'. 11 *Michigan Telecommunications and Technology Review* 249-284 . It has been noted that a situation may occur in which an infringer of a patent may demand a licence of right to avoid the likely damages arising from litigation.

[76] Patent pools can raise antitrust issues but have been widely discussed in relation to overcoming biotechnology and software patent thickets. For general discussion see Lerner, J and Tirole, J (2004) 'Efficient Patent Pools'. *American Economic Review*, Vol. 94, Issue 3: 691-711. See also Lerner, J and Tirole, J (2005) 'The Economics of Technology Sharing: Open Source and Beyond', *Journal of Economic Perspectives*. Vol. 19, Issue 2: 99-120.

[77] See for example the "protected commons" initiative at CAMBIA using BiOS licenses (http://www.bios.net/daisy/bios/mta.html) and in software the open invention network for Linux http://www.openinventionnetwork.com/patents.php

d. Peer Review Projects.[78]

10) Financial considerations:

The ABS commons licenses outlined above are intended to minimise transaction costs for all participants in the ABS commons. Ideally, as with existing commons licensing models, licenses should be free of charge through the efficiencies of using standard online tools. However, three main options exist for financial contributions to the functioning and development of the ABS commons:

1. Donations from Parties and users of the system (possible fee schedules and micropayment models);
2. Revenue from the use of an ABS fee schedule for patent applications in participating jurisdictions;
3. Charges for commercial users seeking commercial licenses.

**Summary:**

The outline for access and benefit-sharing commons licences provided above is not intended to be complete but is intended to sketch out the main elements of the proposed ABS commons licensing system and its purposes for further discussion. The practical development of the proposed licenses would pose a number of questions that would need to be addressed including, inter alia;

1. What are the legal foundations of access and benefit-sharing licenses in terms of contract law i.e. in relation to compounds and other materials that might be covered by such commons licenses?;
2. What additional measures might be necessary to generate legal certainty with respect to such licenses?;
3. What are the key points of articulation between licenses and what additional design questions would need to be addressed?;
4. What are the key points of articulation between the licenses, intellectual property instruments and the public domain?;
5. Are licenses irrevocable as with copyright based creative commons licenses?;
6. While intended to involve perpetual respect for rights in the case of indigenous peoples and local communities (i.e. human rights are not temporary), questions surround the wider duration of licenses in other circumstances that are likely to merit discussion;
7. Are licenses linked to fees, if so in what circumstances (i.e. commercial use) and under what terms, conditions or licensing schedules?

In advancing this proposal at this stage in the debates the most appropriate way forward for those interested in supporting commons/open source approaches under the international regime would be to include provision for further elaboration of the licences following adoption of the regime. A detailed summary of how this might be achieved within the existing negotiating text from ABS7 and suggestions on operative text are provided separately.

[78] See for example the recently concluded pilot of the Peer to Patent Project involving the USPTO and companies such as IBM http://www.peertopatent.org/

## Summary of Suggestions for the Negotiating Text

The key component of an ABS commons would consist of access and benefit-sharing commons licences within the framework of the international regime. These would be built on existing components of the ABS regime as set out in the Annex of UNEP/CBD/WG-ABS/7/8. A detailed step by step summary of how this could be achieved along with suggestions on operative text are provided separately. The following is a brief explanation of the main points.

In terms of the negotiating text the licences would enable the "linkage of access to the fair and equitable sharing of benefits" (III.A.1) based on: a) enablement of monetary and non-monetary benefits (III.A.1.3); b) enablement of access to and transfer of technology (III.A.1.4); c) enablement of the sharing of research results (III.A.1.5); d) enablement of effective participation in research activities (III.A.1.6).

This could be achieved by importing the three categories of utilization of genetic resources from "Sectoral menus of model clauses for material transfer agreements" (III.C. 1.c option 2) specifying "Research not aiming at commercialization", "Research and development aiming at commercialization" and "Commercialization" (III.C.1. c option 2, para. 4 a, b, c) into a re-elaborated version of "Sharing of results of research and development on mutually agreed terms" (III.A.1.5).[79] The re-elaboration would include the three categories of utilization.

Additional changes could take place to "Effective participation in research activities, and/or joint development in research activities to include reference to enabling collaborative research networks (III.A.1.6.). As primary beneficiaries of this approach indigenous peoples and local communities would be included in the research sections from which they are presently absent (both III.A.1.5 & 6). In addition explicit reference to indigenous peoples and local communities could be incorporated within provisions on technology transfer (III.A.1.4) that are presently confined to a reference to traditional knowledge.

The licenses would be built, following adoption of the regime, based on the menus of model clauses for inclusion in material transfer agreements and the components of the "Internationally recognized certificate issued by a domestic competent authority" (III.C. 2.b, option 1). The proposed tracking and reporting systems elsewhere in compliance would be enabled through this process.[80] The section on "disclosure requirements" could be adapted to include reference to licences as a complement to disclosure in line with the reasoning provided above and in the underlying patent indicators reports (III.C.2.e).[81]

With respect to the rights of indigenous peoples and local communities, the main means in the existing text would link references to customary laws and community protocols with the licenses throughout much of the text and in particular "Measures to ensure compliance with customary law and local systems of protection" (III.C.4). A possible textual formula in line with the existing text might be 'customary laws, community

---

[79] Note that the three categories are also listed in section A in III.A.15 option 2 on page 36 of UNEP/CBD/WG-ABS/7/8

[80] The existing text on "awareness raising" under compliance (III.C.1.a) could be expanded to anticipate these developments.

[81] Op. cit. Oldham & Hall (2009), Oldham (2007)

protocols and licences'. Reference to access and benefit-sharing licences could be made explicit through terms such as "access and benefit-sharing commons licences" or the like. The fundamental importance of the principle of reciprocity could usefully be incorporated within preambular language under III.C.4.

With regard to access the heading "Simplified access rules for non-commercial research" (III.B.8, option 1) could be enabled through submission, in advance, of acceptance of a non-commercial license in an online system as discussed above.

As this makes clear, in the author's view the principle components for the creation of ABS commons licences are already present in the negotiating text. What is required is adjustment to placement, additional elaborations under the research section and ensuring that provisions relating to indigenous peoples include reference to licenses.

**4. Rationale and Key Concepts**

This section discusses the background thinking and key concepts involved in the proposal for the elaboration of commons/open source licensing models. The section argues that an overemphasis on the control of potential value of genetic resources contributes to an ABS anticommons.[82] The way out of this anticommons is provided by focusing on actual values embedded and articulated in customary laws and in particular the principle of reciprocity. Drawing on work in economic anthropology and a range of examples, the discussion focuses on how an understanding of the spectrum represented by generalised, balanced and negative reciprocity assists with understanding the problem confronting ABS at the level of the types of relationships established between people. The principle of reciprocity also assists with respecting customary laws and addressing problems of scale in the exchange and circulation of knowledge and resources under an international regime.

Key issues that emerge are:
1. The need to promote relationships falling within the realms of generalised and balanced reciprocity;
2. A requirement for enduring recognition of contributions;
3. Choices for providers on the terms and conditions of contributions under which knowledge and resources are made available;
4. Visibility as a condition for enablement of rights.

**Biopiracy, Hyperownership and the problem with Potential Value:**

The international regime on access and benefit-sharing represents a response to the problem of biopiracy/misappropriation. However, it is presently difficult to disagree with the observation by Sabrina Safrin that ABS debates are characterised by "hyperownership in a time of biotechnological promise" generated by "the corrosive interplay between the patent-based and sovereign-based systems of ownership of genetic material".[83] In other words, ABS appears to be trapped between business as

---

[82] For the purposes of the Convention a genetic resource is defined as genetic material of actual or potential value. See Article 2 Use of Terms.

[83] Safrin, S (2004) 'Hyperownership in a Time of Biotechnological Promise: The International Conflict to Control the Building Blocks of Life', *American Journal of International Law* Vol. 98: 641-685. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=658421

usual, consisting of a drive for minimal voluntary measures that does not affect the system of ownership that generated the demand for the regime, and the assertion of state sovereignty as state *ownership* of traditional knowledge and genetic resources. The choices on offer appear to be limited to business as usual or state nationalisation.

This discussion paper is animated by the view that people, peoples, and communities should be at the centre of the international regime. Specifically, the international regime should enable and facilitate *choices* in making knowledge and resources available. The key questions here are operational: who is going to use the international regime, how are they going to do this, and for what constructive purposes? Furthermore, given the scale of human exchanges of biological material and knowledge across international borders, including such recent developments as emailing sequence data and public DNA databases, how will States regulate access and benefit-sharing in the absence of support from providers (indigenous peoples and local communities), users (the research community, public collections, companies and others) and the publics in whose name the regime will be established? Building on efforts by the Africa Group, 'middle ground' Parties, and the International Indigenous Forum on Biodiversity (IIFB) to humanise the international regime, ABS commons licenses seek to address these questions by providing operational solutions that enable choice.

Efforts to place people at the heart of the ABS regime, such as recent efforts by the Africa Group, can readily be dismissed by 'hard headed' ABS 'realists' as akin to the "motherhood and apple pie" problem, no one can disagree in principle but in practice such proposals are regarded as unrealistic in the face of more brutal economic realities. In practice this view arises from an almost exclusive focus on the *potential* value of genetic resources and is central to understanding the "corrosive interplay" between state and patent based ownership described by Safrin as generating "hyperownership".

A useful way of approaching this problem is through the concept of the anticommons.[84] An anticommons is a situation in which participants in a commons maximise the pursuit of private property and over-estimate the likelihood that their particular 'resource' will be key to future developments (i.e. a pharmaceutical product).[85] This leads participants to, *ex ante*, over-estimate the value of the contribution their resource may make to a potential development *that has not yet and may not happen*, to refuse reasonable offers with respect to their resources in the hope of obtaining higher returns, and at the same time to fear both misappropriation by others and the consequences of infringement. An anticommons is characterised by a severe climate of mistrust based on the over-estimation of potential rather than actual value.

In ABS the anticommons is reflected in fear of biopiracy among indigenous peoples, local communities, and countries, and increasingly heavy restrictions on research on biodiversity for researchers engaged in non-commercial research by state authorities. The ABS anticommons is also characterised by a lack of willingness on the part of industry

---

[84] Heller & Eisenberg (1998) 'Can Patents Deter Innovation? The Anticommons in Biomedical Research'. *Science* Vol. 280: 698-701. See also, Oldham, P (2007) 'Biopiracy and the Bioeconomy,' in Glasner, P and Atkinson, P & Greenslade, H (eds.) (2006) *New Genetics, New Social Formations*. London: Routledge.

[85] In developing the anticommons argument Heller & Eisenberg focus on the anticommons effects of patent activity in producing a fragmented property landscape of too much property (of a particular type). The ABS anticommons is in part an externality generated by the privileging of particular forms of property (patents) to the exclusion of other more flexible alternatives. For fuller discussion of models and incentives see the work of Suzanne Scotchmer (2004) *Innovation and Incentives*. Cambridge, Mass.: MIT Press.

sectors to engage with access and benefit-sharing arrangements for fear of considerable bureaucratic red tape and reputational harms arising from allegations of biopiracy relating to *potential* future developments. Nevertheless, industry contributes to the perpetuation of the anticommons through resistance to countenancing modifications to the system of ownership, the patent system, that fundamentally contributes to the over-emphasis on potential value.[86] Defence of a particular model of patent based innovation and rent seeking is a key component in the "corrosive interplay" of forces that generates the ABS anticommons.[87]

An important feature of an anticommons characterised by an over-emphasis on potential value is the defensive behaviour of participants through declarations of resources as *inalienable possessions*.[88] Inalienable possessions are a category of 'objects' that are judged to be of such value by their holders that they cannot be given away or exchanged for something else. Inalienable possessions can be objects such as family heirlooms which are so tied up with the identity of a family, or group, that they cannot be shared or given away to others. That is, they come to stand for the family, group, people (or country) concerned. However, inalienable possessions can have a strategic use in trade relations by providing the lure, or promise, of access to the inalienable possession as a basis for establishing trade relations for intermediate goods, rather than the inalienable possession itself.[89]

However, knowledge and genetic resources cannot be inalienable possessions in the sense of a closely guarded family heirloom.[90] Secrets can of course be kept, but the human proclivity for communication within and across languages remains a significant obstacle to the keeping of secrets. This problem becomes more serious when we consider biology. On the one hand, we are confronted by the resolute indifference of biological organisms to political boundaries, be they the lands and territories of indigenous peoples, or the boundaries of states. On the other hand, the increasing human ability to penetrate the estimated 1.5 billion year history of life on this planet through genomics and synthetic biology reveals the common evolutionary history, and common genetic heritage of biological organisms across kingdoms, family, genera and species.[91]

---

[86] In certain respects the function of the patent system is to mobilise and ultimately realise potential value. However, it has become clear that demand for monopoly rights does not necessarily mean more innovation unless close attention is paid to patent quality. For further discussion see Guellec and Pottelsberghe (2007) *The Economics of the European Patent System: IP Policy for Innovation and Competition*. Oxford: OUP. See also, Scotchmer, S (2004) 'The Political Economy of Intellectual Property Treaties' *Journal of Law, Economics and Organizations* 20: 415-437.

[87] See Krueger, A. (1974) 'The Political Economy of the Rent-Seeking Society', *American Economic Review*, LXIV, 291-303 and Tullock, G. (1993) *Rent Seeking*, The Shaftesbury Papers, 2. Aldershot: Edward Elgar Publishing Ltd.

[88] Weiner 1992 *Inalienable Possessions: The Paradox of Keeping While Giving*. Berkeley: University of California Press.

[89] Ibid. Weiner 1992.

[90] For fuller discussion of these points see Pastor Soplín, S and Ruiz Muller, M (2009) The Development of an International Regime on Access to Genetic Resources and Fair and Equitable Benefit Sharing in a Context of New Technological Developments. *Initiative for the Prevention of Biopiracy*, Research Documents, Year IV, No. 10 April 2009. For discussion of the implications of genomics for ABS see Op. cit. Oldham 2004.

[91] Jortner, J (2006) 'Conditions for the emergence of life on the early Earth: summary and reflections,' *Philosophical Transactions of the Royal Society B*, 361: 1474, 1877-1891

The foundations of 'life' are thus coming increasingly into view in a way that may not in fact require acts of collection in countries of origin. Furthermore, the increasing ability to transform biology into an informational good (i.e. DNA and amino acid sequence data) is likely to render physical checkpoints of limited utility in efforts to control such possessions.[92]

An additional problem with declarations of inalienable possessions (by states) in ABS debates is the relationship between genetic material and human knowledge. Put bluntly, what makes genetic material a resource is human knowledge of its existence, uses and properties. In the absence of knowledge, biology becomes impenetrable aggregate genetic material. Efforts to edit out and separate knowledge in relation to resources (i.e. the rights of indigenous peoples and local communities in "traditional knowledge") and the privileging of particular forms of knowledge will be discussed below. At this juncture it is sufficient to emphasise that:

- knowledge is constitutive of a resource;
- sharing knowledge generates new knowledge and resources through processes of combination and recombination that enhance human understanding;
- political efforts to separate knowledge and resources are directed towards capturing and controlling *potential* future value and pre-determining resource allocations from such value.

The relevance of the concept of inalienable possessions in the context of the ABS anticommons is that it describes the behaviour of participants in declaring that biodiversity resources, including the resources of whole countries, are in effect inalienable possessions. As a description of strategic behaviour in an anticommons (i.e. the effective declaration that the biodiversity of a country is off limits), declarations of inalienable possessions draw our attention to the fact that in ABS declarations of inalienable possessions refer to attempts to capture and control *potential* value. Seen from this perspective efforts by ABS realists to capture and control potential value by grasping ever more tightly around inalienable possessions can be likened to grasping at sand. As most children familiar with sand will know, grasping sand will lead to it rapidly disappearing through ones fingers, leaving almost nothing. The most effective means to capture sand is to cup it in the palm of ones hand.

This suggests that what is required in the increasing efforts to seek a way out of the ABS anticommons is a suitable cup, or framework, to allow value to accumulate and grow in order that the potential values of genetic resources and traditional knowledge can be realised to serve human purposes. This is of course an accurate description of the emerging international regime as it might be. The argument here is that rather than focusing on potential value and attempts to grasp potential value, a middle ground approach represented by the use of ABS commons licences will be possible by focusing on the actual values of genetic resources. Specifically, it would be based on the systems of reciprocal exchanges of biological resources evident in many human societies. This requires attention to customary laws and the principle of reciprocity.

---

[92] See for example, Danchin, A (2009) 'Bacteria as computers making computers', *FEMS Microbiology Reviews* Vol. 33 (1) 3-26. On issues raised by electronic sequence data for ABS see Op. cit. Oldham (2004). Notwithstanding advances in synthetic biology it is however a long, long way from sequence data to a partly or wholly characterised compound for use in a pharmaceutical or other product and probably not, in fact, the appropriate starting point in the many cases. See Op. cit. Newman, Cragg and Snader (2003) and Newman and Cragg (2007) on the role of natural compounds in pharmaceutical approvals.

**Actual Values, Customary Laws and Reciprocity:**

The actual values of genetic resources and traditional knowledge are social, economic, cultural and spiritual in nature. In considering the actual values of genetic resources and traditional knowledge we are forced to recognise the multiple dimensions of the values that are placed on genetic resources and traditional knowledge and the multiplicity of human societies holding these values. Thus, there are an estimated 6,703 spoken languages on this planet, with many of those languages spoken by societies of less than 10,000 speakers, that serve as a proxy for the diversity of human societies.[93] For ABS this presents the problem of conceptualising the multiplicity of the ways in which human societies may value genetic resources and knowledge in such a way that it becomes possible to facilitate the sharing of knowledge and resources.

In recent debates on the ABS regime indigenous delegates have argued for recognition of the customary laws of indigenous peoples in access and benefit-sharing arrangements. In particular recognition of customary laws, institutions and practices developed by indigenous peoples around the world will give form to the exercise of the right to self-determination of indigenous peoples enshrined in the United Nations Declaration on the Rights of Indigenous Peoples.[94] The common principles embedded in indigenous peoples customary law based systems will also provide the foundation for the ABS commons and give effect to respect for these principles.

In the recent study prepared for the Secretariat by indigenous scholars on compliance with customary laws our attention is drawn to the definition of customary law in the Akwe: Kon guidelines as "law consisting of customs that are accepted as legal requirements or obligatory rules of conduct; practices and beliefs that are so vital and intrinsic a part of a social and economic system that they are treated as if they were laws."[95] Customary law systems also include property and ownership that contrasts with property law in dominant legal systems. As the authors describe it, law in "dominant legal systems" is utilitarian and focuses on private property rights focusing on "bundles of rights", "that typically includes the rights to include, exclude, use, sell, transfer, purchase and encumber". [96]

In contrast indigenous customary law based property systems are said to be "commonly characterized by collective ownership (where the community owns a resource, but individuals may acquire superior rights to or responsibilities for collective property)."[97]

---

[93] Based on the total of 6,703 languages within the world's largest catalogue of languages, the *Ethnologue* catalogue. Data are indicative see Maffi, L (1999) 'Language and the Environment', in Posey, D (ed.) (1999) *Cultural and Spiritual Values of Biodiversity*. London: Intermediate Technology Publications.

[94] For the purposes of the present paper, and with due regard to Article 46 of the Declaration, the assumption here is that as a practical matter self-determination is exercised in the context of the state in which indigenous peoples are located.

[95] Alexander, M and Hardison, P & Ahren, M (2009) Study on Compliance in Relation to Customary Law of Indigenous and Local Communities, National Law, Across Jurisdictions, and International Law. UNEP/CBD/WG-ABS/7/INF/5

[96] Ibid. at 5 citing Tsosie, R (2007) 'Cultural Challenges to Biotechnology: Native American Genetic Resources and the Concept of Cultural Harm,'*Journal of Law, Medicine and Ethics*, Vol. 35: 396-411.

[97] Ibid. at 5

Furthermore, “Although some property is alienable within and outside of communities, indigenous property systems emphasize duties and obligations to objects and resources. Many objects and resources are considered to be inalienable, fundamental to the identity and collective survival of the community, or having obligations and duties attaching from time immemorial to time infinite.”[98]

An important feature of indigenous customary law property systems is that they “commonly emphasise the sacred, spiritual and relational values of resources rather than the utilitarian or economic”. This emphasis arises from a “kincentric” (kinship centric) view of nature that expands the boundaries of kinship and the social beyond the physically human to encompass plants, animals and other organisms within a wider landscape.[99] As the authors point out “Kincentric relationships define core collective values of reciprocity and respect linked to cooperation and dispute resolution necessary for the continued survival of small-scale indigenous communities dependent on biodiversity for their livelihoods”.[100]

These observations are confirmed by at least 100 years of anthropological research with indigenous peoples that explores indigenous customary laws, institutions, value systems and economic systems. The terminology in which these systems are described within this literature (such as primitive, archaic and so on) may appear antiquated or even offensive to sensibilities informed by advances in respect for the rights of indigenous peoples. However, in practice they lend strong support to advocates of recognition of indigenous customary law systems within the ABS regime.

The challenge that recognition of customary law based systems for exchanges and circulation of resources and spheres of exchange present for ABS is complexity. Customary law based systems as elaborated by indigenous societies around the world, and as major features of resource exchange in many non-indigenous societies, are diverse.

Customary law systems commonly establish *regimes* for the management and administration of particular resources (such as forests, lakes, and riverine resources) and for the exchange and circulation of particular types of resources.[101] These regimes may include spheres of exchange for particular types of resources (i.e. certain types of resource may only be exchanged for other types of resource) and commonly display ‘mixed’ models, i.e. where highly ritualised exchanges of gifts of particular types between trade partners may be accompanied by barter, cash transactions, inter-marriage and a range of other types of exchanges.

One of the most famous examples of this type of human behaviour is the Kula ring as developed in the islands of Melanesia through which, over the course of generations,

---

[98] Ibid. at 5 citing Tsosie.

[99] Ibid. citing Martinez, D (1994) Karuk Tribal Module for the Main Stem River Watershed Analysis: Karuk Ancestral Lands and People as Reference Ecosystem for Ecocultural Restoration in Collaborative Ecosystem Management. Karuk Tribe of Northern California.

[100] Ibid. at 6 citing Argumedo, A and Stenner, T (2008) Association ANDES: Conserving Indigenous Biocultural Heritage. London: International Institute for Environment and Development.

[101] Attention to these regimes is closely linked with the work of Ostrom, E (1990) *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.

shell necklaces were exchanged for shell arm bands travelling in the opposite direction between men in the Trobriand Islands of Papua New Guinea and surrounding islands participating in the ring.[102] Exchange of Kula valuables occurs between thousands of participants operating as trade partners over large distances and acquisition of Kula valuables is competitive, giving considerable, if temporary, prestige and status to their holders (who become desirable trade partners). While Kula valuables circulate widely within the ring only certain persons are owners of the valuables themselves and these items eventually (over prolonged periods) return to their owners.[103] Many other forms of exchange, such as barter (*gimwali*), take place around the circulation of these Kula gifts, but are maintained as separate spheres of exchange. The central point of this example is that the circulation of Kula gifts facilitates other forms of relationships that are social, cultural, economic and political in nature.

In recognising the multiplicity and complexity of customary law based systems in the context of the ABS regime this raises the question of how this complexity might be recognised without doing violence to such systems (i.e. through requirements for detailed codification)? A related question is how such systems, and the values they embody, might be made visible in the context of wider regimes of property and value? The answer to the first of these questions is through analysis of the principle of reciprocity. The second, through consideration of the components of commons licensing models that might be developed under the regime articulated around the promotion of particular forms of reciprocal exchange.

**The spectrum of reciprocity:**

The principle of reciprocity refers to the obligation to reciprocate in an exchange of goods or services.[104] In practice it can be said to cover a spectrum ranging from generalised reciprocity to balanced reciprocity and negative reciprocity.[105] The different types of reciprocity are best understood as a function of social distance. To assist the reader in this discussion a simplified model of the spectrum of reciprocity is provided in Figure 1 with additional notations on issues of relevance to ABS. The important point at present is that types of reciprocity refer to relationships between people rather than to the 'things' involved.

---

[102] See Malinowski, B (1922) *Argonauts of the Western Pacific*. London: Routledge. Mauss, M (2008) [1950] *The Gift*. London: Routledge. Weiner, A (1976) *Women of Value, Men of Renown: New perspectives in Trobriand Exchange*. Austin, London: University of Texas Press. Strathern, M (1988) *The Gender of The Gift*. Berkeley: University of California Press.

[103] A decent and accessible summary of the Kula ring is available in a Wikipedia entry. http://en.wikipedia.org/wiki/Kula_ring

[104] For a summary of work in economic anthropology informing this discussion see, Wilk, R and Cliggett, L (2007) *Economies and Cultures: Foundations for Economic Anthropology*. 2nd edition. Boulder: Westview Press.

[105] This discussion is based on Sahlins, M (2004)[1974] *Stone Age Economics*. London: Routledge

**Figure 1: The spectrum of reciprocity[106]**

Generalised Reciprocity ----------Balanced Reciprocity----------Negative Reciprocity

Close----------Social Distance----------Distant

| | | | |
|---|---|---|---|
| Inalienable Possessions | Gifts | Barter | Markets/ Commodities |

Circulation of Goods and Services
Generation of New Knowledge and Resources

Generalised reciprocity typically takes place between close and extended family members with no expectation of immediate, eventual or equivalent reciprocation by the recipient. Examples include feeding and clothing children, housing relatives, sharing food, remittances of foreign currency to relatives by foreign workers, and gifts. The key feature of generalised reciprocity is that reciprocation is not necessarily expected, may not be equivalent in form or value, and may be delayed for extended periods (delayed reciprocity). Generalised reciprocity tends to suppress the value of a 'good' involved in exchange, and the expectation of reciprocity, in favour of an emphasis on the social relationship involved, including maintaining existing relationships or establishing new relationships.[107]

Balanced reciprocity refers to direct exchange and is characterised by the immediate, or almost immediate, reciprocation of an accepted equivalent. Examples include gift giving, barter, payments and trade.[108] The point about balanced (or direct) reciprocity is that social distance is greater than in generalised reciprocity and more obviously economic from the point of view of observers.[109] Failure to reciprocate in the expected form within the expected time frame will generally sever the relationship.[110] An important issue here is that relationships of balanced reciprocity depend on the two way flow of goods for their maintenance.[111]

In contrast negative reciprocity "is the attempt to get something for nothing with impunity".[112] Examples of negative reciprocity may include barter, haggling, gambling (where the gambler is in a negative relationship with other gamblers - winner takes all), theft, markets (because they are indifferent to the welfare of participants), raiding and war.

---

[106] This model is reproduced from Sahlins (2004), see Chapter 5 On the Sociology of Primitive Exchange. Additional information relevant to ABS has been added from Weiner (1992) and Appadurai, A (ed.) (1986) *The Social Life of Things: Commodities in Cultural Perspective*. Cambridge: Cambridge University Press. See in particular Appadurai's introduction entitled 'Introduction: commodities and the politics of value'.

[107] Ibid. Sahlins 2004: 194

[108] Ibid. Sahlins 2004: 195

[109] Ibid. Sahlins 2004:195

[110] As pointed out by Thomas one does not pop into a shop on a busy high street to establish a social relationship. Thomas, N (1991) *Entangled objects: Exchange, materialism and colonialism in the Pacific*. Cambridge, Mass.: Harvard University Press.

[111] Ibid. Sahlins 2004: 195

[112] Ibid. Sahlins 2004: 195

Biopiracy (misappropriation) through the submission of a patent application can be considered to be an example of negative reciprocity in that it is indifferent to the origins of the resource, and the rights and interests of the original resources providers. That is, it is *indifferent* to underlying social relationships that exist with respect to the resource in question and the impacts that the actions of the applicant may have on those relationships and values.

The principle of reciprocity is a central animating principle in human affairs, is found in every human society, and is a major feature of everyday relationships and economic behaviour.[113] Fundamentally, reciprocity describes the *relational* status between people in exchanges of 'goods' and the rights, obligations, duties or expectations that these exchanges involve. Customary law based systems provide complex elaborations of the principle of reciprocity across the broad spectrum of reciprocal exchanges provided above. The value of this general model in economic anthropology is that it allows diversity to flourish along the spectrum and accommodates the complex arrangements of reciprocity developed in human societies.

The question for ABS is what kinds of relationships does the ABS regime seek to establish between people and how might such relationships be enabled? The second question concerns the nature of the 'goods', including knowledge goods, 'in themselves' that circulate across this spectrum in an ABS context.

In considering these two questions we will begin with social relationships and the question first posed by the French social scientist Marcel Mauss in relation to the category of gifts. "What power resides in the object given that causes its recipient to pay it back"?[114] His answer was that *the gift carries something of the giver with it, including the obligation to reciprocate to maintain the relationship for which the gift stands*. While gifts may appear to be 'free' they carry social relationships with them and obligations to reciprocate. In stronger terms, they involve a *social* contract between the giver and recipient expressed in accordance with the customary laws of a given society.[115] Problems occur where recipients in an exchange relationship do not recognise, or refuse to recognise, that contract or deliberately seek to avoid its terms.

The problem here, in the author's view, is that biodiversity and the knowledge of indigenous peoples and local communities have been treated as if they are *free gifts*. That is they have been treated in the ordinary sense as involving "a voluntary act which does

---

[113] One of the most obvious examples of the economic importance of reciprocity through gift giving is the annual outbreak of mass gift-giving known as Christmas in many societies. The Christmas period is a critical economic period for retailers in countries where Christmas is an important event.

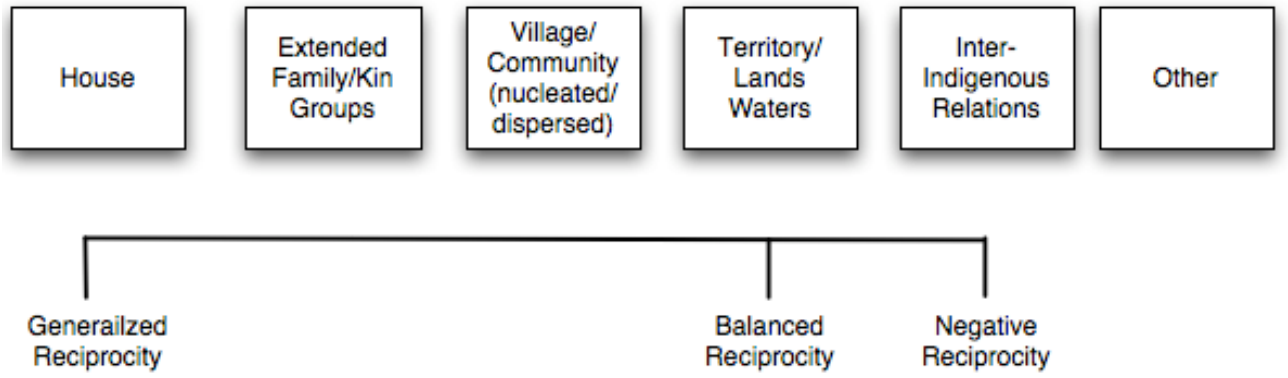
[114] Mauss, M (2008) *The Gift*. London: Routledge. First published 1950. Mauss's answer to this question famously involves an exploration of the Maori concept of the *hau* of a thing given that generates obligations to reciprocate in exchange relationships.

[115] The contractual nature of these relationships is central to the discussion by Mauss who frames the question regarding the gift in terms of "What rule of legality and self-interest... compels the gift that has been received to be obligatorily reciprocated" (Mauss 2008: 4). It is interesting to observe that modern open source projects frequently employ a social contract setting out the basis of participation and expectations. See for example the social contract for the long standing Debian operating system project http://www.debian.org/social_contract

not require anything in return" or as "a thing given willingly to someone without payment; a present".[116]

Drawing on the author's experience living and working with indigenous peoples in Amazonas State in Southern Venezuela we can say access to traditional knowledge and genetic resources *in situ*, typically involves acts of collection by one or more researchers.[117] Where collection is occurring in indigenous territories, or the vicinity of local communities, this typically involves a range of social acts and exchanges around the acts of collection themselves. These social and economic exchanges can involve residence with a family in a community for short or extended periods, employment of assistance (typically as guides, with transport and other services), accompaniment in research, interviews, recordings and other activities that involve exchanges (of both non-monetary and monetary kinds).

**Figure 2: Reciprocity, Social Distance and Acts of Collection**




Viewed from the perspective of the schematic diagram presented in Figure 2, collection activities typically take place in the zone that is characterised by generalised reciprocity.[118] Even where collections are taking place with limited social contact with local people, it will very generally be the case that these collections are taking place on lands, territories (or waters), owned, occupied or otherwise used by indigenous peoples (or local communities) and in which they have rights and interests under both customary law and wider codified legal instruments.

Viewed from the perspective of the researchers involved, particularly if they have not been trained in participatory approaches, the relationship may be judged terminated upon the

---

[116] http://en.wikipedia.org/wiki/Gift and the Compact Oxford English Dictionary.

[117] The author lived and worked in Piaroa (Wothïha) communities in Amazonas State for a two year period between 1991 and 1993 while attached to the Ministry of the Environment. Additional work was conducted at various times between 1995 and 2005 in coordination with the Regional Organisation of Indigenous Peoples of Amazonas (ORPIA).

[118] Adapted from Sahlins 2004 model for the Siuai of Bougainville at 199. Kin terms have been generalized to reflect the diversity of possibilities in wider human societies (lineages, clans etc.) and the language has been updated.

completion of research.[119] It is far from clear however that this is necessarily how indigenous peoples and local communities, as the providers of access to genetic resources and knowledge, view this situation. In so far that acts of collection occur in the zone of generalised reciprocity (within a given society) there may be an expectation of an ongoing relationship of reciprocity, even where reciprocity is significantly delayed. Typically, this involves an increasing demand (at a minimum) for copies of research results and publications that may be used for internal purposes. As anthropologists, including the author, have learned this is generally deeply appreciated not entirely for the contents of the results, which may simply sit of on a shelf, but for the act of reciprocation itself.[120] Increasing trends towards explicit recognition of indigenous contributors and co-authorship are stronger forms of expression of generalised reciprocity in a delayed form through the co-production of published work.[121] In more advanced form the 2007 guidelines of the Canadian Institutes of Health *CIHR Guidelines for Health Research Involving Aboriginal People* set out detailed guidance on expected conduct that could be said to oblige researchers to engage in an enduring social contract.

This brief discussion serves to highlight the point that while acts of collection involved in research activity occur in zones typified by generalised reciprocity they may rapidly be transformed into perceptions of negative reciprocity by a combination of the effects of physical distance and failure to maintain the relationship. This is exacerbated, as indigenous peoples have learned to their cost, where researchers subsequently seek commercial gain from research results generated i.e. through patent applications. While examples of this appear limited, they reverberate very heavily because of what they say about social relationships between categories of persons. That is, the actions of one category of person, the "researcher", in entering into relations of negative reciprocity may have impacts on all other persons falling within that category.

Acts of collection are also important by virtue of the transformative work that they perform.[122] Typical research activities such as establishing transepts, soil sampling, collections, note writing, photography, recordings and mapping provide the basis for representing and transporting a place and its materials to the herbarium and laboratory for further classification and analysis prior to publication. What these acts do is render places, knowledge and resources *mobile* in order that they may be shared and disseminated with others. Increasingly, these tools and techniques, such as the use of

---

[119] Participatory approaches constitute best professional practice for research with indigenous peoples and local communities. In the case of biodiversity research see for example Laird, S (ed.) (2002) *Biodiversity and Traditional Knowledge: Equitable Partnerships in Practice*. London: Earthscan. In the ethnobotanical community these approaches are also reflected in the work of the International Society for Ethnobiology, see http://ise.arts.ubc.ca/

[120] Sharing publications and research facilitates community ownership of research results, corrections to misunderstandings that improve understanding and new directions in research in collaborative work with indigenous peoples.

[121] There are circumstances in which ethical issues, such as privacy and confidentiality requirements, and anticipation of harms such as human rights abuses, may limit such opportunities but require direct discussion with research participants.

[122] This discussion draws extensively on the work of Bruno Latour (1999) *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, Mass.: Harvard University Press. See in particular the essay entitled 'Circulating Reference: Sampling the Soil in the Amazon Forest'.

GPS handheld devices, are used by indigenous peoples themselves in mapping their lands and territories demonstrating their wider positive utility.[123]

A key condition of these processes of transformation into notebooks, maps, images, diagrams and so on is that they take multiple forms but must be traceable back to their origins (in time and space) to have validity as scientific or legal evidence (i.e. in land demarcation cases). As such, they must be reversible over time.[124] However, in considering these processes of transformation in relation to ABS and the principle of reciprocity, we must also consider that the process of making knowledge and resources mobile involves combinations of *reduction* of complexity of a given locality and *amplification* in terms of compatibility and standardisation with the norms of a particular scientific field. This process of amplification (standardisation) is also characterized by the generalisation of observations, rendering into text, and circulation.[125]

The objective of these exercises is not sinister in itself, in so far that the results contribute resources in terms of wider human knowledge of places, species, and the diversity of human societies and their values. However, for ABS and the spectrum of reciprocity outlined above it is important to pay attention to what happens in the process of reduction and amplification (standardisation and circulation). These can be characterised as processes of editing and privileging of particular forms of knowledge constitutive of a resource for a particular community of researchers. A range of examples can assist with illustrating this point.

Editing:

In a three year study of the involvement of amateur naturalists in biodiversity conservation in the UK it was discovered that understandings and expectations of reciprocity and recognition were complex and not always fully apprehended by institutions responsible for capturing biological record data from contributing amateur naturalist communities.[126] On the one hand the statutory conservation agencies were exploring new ways of recognising the 'authorship' of biological records contributed to national digitized biodiversity datasets (e.g. the National Biodiversity Network). However, the methods envisaged, such as codified data sheets on data origins, did not address the complex and subtle 'contractual' relationships amateur naturalists had with each other or with nature itself (e.g. human commitment to conservation of a particular site as a result of their production of species data). Ultimately, many naturalists felt distanced or alienated from the products of their labour rather than being able to recognise themselves in the

---

[123] See for example the recent Amazonia 2009 map, a collaborative effort including indigenous peoples organisations to compile existing mapping work on indigenous territories and protected areas. Spanish only at present. Location: http://www.raisg.socioambiental.org/node/106

[124] Latour 1999: 69. Examples of the problem of the lack of reversibility include large volumes of sequences in GenBank - the main public online sequence database and debates within the taxonomy community regarding the relationship between DNA barcodes and voucher specimens. That is, in the absence of provenance (reversibility), in the terms used in ABS debates, a resource becomes delinked.

[125] Latour 1999: 71

[126] For further details see Ellis, R. and Waterton, C. (2005), "Caught between the cartographic and the ethnographic imagination: the whereabouts of amateurs, professionals and nature in knowing biodiversity", *Environment and Planning D: Society and Space*, Vol. 23/5, pp. 673-693 Ellis, R. and Waterton, C. (2004), "Environmental citizenship in the making: the participation of volunteer naturalists in UK biological recording and biodiversity policy", *Science and Public Policy*, April 2004, Vol. 31/2, pp. 95-101.

data or the uses to which it was being put. Part of the disgruntlement concerned the way in which data processed for policy decision making are ultimately disembedded from their original source and the human-natural contractual relationships which are implied in their production. As one amateur naturalist put it: "It's quite hurtful as an amateur to do a load of work and send in your records and then for some institution to take them off you and then that information comes out as the institution's records and that is quite offensive. You know, I think that's really hurtful. It really hurts."[127]

It can be seen that the state agency that had sought the cooperation of UK amateur naturalist communities and individuals, had entered into a relationship of ambiguous and, for some, negative reciprocity with those communities by not valuing or recognising the full dimensions of their contributions. On this basis the Amateurs as Experts team, with participatory research led by an anthropologist with long experience working with indigenous peoples in the Bolivian Amazon, recommended that recognition of contributions should: a) be explicit, and; b) as far as possible take the form which means most to the data contributors.[128] For our purposes this example from the UK highlights that enduring recognition, and recognition that is meaningful to contributors, can be said to be central to maintaining relationships of generalised and balanced reciprocity in access and benefit-sharing relationships.

Editing and Scale:

The amateur naturalist example draws attention to problems of scale in the maintenance of relations of generalised and balanced reciprocity in ABS arrangements. A second example will move this onto the global scale.

The *e-Biosphere 09* Biodiversity Informatics conference held in London in June 2009 brought together members of the taxonomy community from around the world to consider a possible road map for making taxonomic data more widely available.[129] Taxonomic information was estimated to involve approximately 100 million pages of material from around the world.[130] The conference included presentations on large scale initiatives to make biodiversity information from collections around the world available online using open source tools and licensing arrangements in which enduring recognition of contributions emerged as a key issue.[131]

One of the opening presentations made reference to the problem of "dirty names" in taxonomy. "Dirty names" appeared to be a category involving multivariant spellings and mixups of the Latin names that are an 'expert' taxonomist's stock in trade. However, it became clear that "dirty names" included common names in multiple languages that have been collected along with the specimens. The importance of "dirty names" was rapidly defended by a speaker, believed to be from an African research institution, who proclaimed his love for dirty names (as did others who intervened). At issue here is the

---

[127] Natural History Museum (2005) *Nature: Who Knows?* citation at 15.

[128] Ibid. Natural History Museum 2005: 15.

[129] *e-biosphere 09*. International Conference on Biodiversity Informatics. 1-3 June 2009, London. http://www.e-biosphere09.org/

[130] See for example the Biodiversity Heritage Library. http://www.biodiversitylibrary.org/

[131] The Catalogue of Life, the Global Biodiversity Information Facility, the Encyclopedia of Life. The Biodiversity Heritage Library.

way in which different communities of researchers may edit out and privilege particular forms of information (Latin names) and dismiss or denigrate others (common names) constitutive of the resource in question and representing underlying values. Indeed, common names express the many voiced values of biodiversity to humanity over historical time.

One peculiarity of some existing taxonomic databases highlighted during the conference is the difficulty of searching for common names. One must know, for example, that potato is *Solanum tuberosum*. What this points to is the way in which particular communities (in this case taxonomists) privilege particular forms of knowledge and edit out others. This problem is not peculiar to taxonomists. Taxonomists are facing their own challenges as taxonomy based on morphology is challenged by the rise of genetic taxonomy enabled by genomics, cladistics (classification by evolutionary relationships) and DNA Barcoding. Rather, in more general terms we observe a tendency in which one community's valued knowledge and resources may readily become the raw "data" for another. This is not a conspiracy: it reflects processes through which knowledge production takes place through the combination and recombination of existing knowledge to produce new knowledge and thereby resources that may be privileged by particular communities as "new" and "valuable". The challenge, as participants in the e-biosphere conference were highlighting, was how to ensure recognition including through the recuperation of common names and origins. In other words, of moving from an enclosed reified position of negative reciprocity (*vis a vis* non-speakers of Linnean taxonomic categories or *everyone else*) to one characterized by relationships of generalised and balanced reciprocity.

The challenge, in the author's view, is how to ensure enduring recognition of contributions in ABS in the pursuit of relations of generalised or balanced reciprocity (to the extent possible) in order that the actual values of resources might be recognised and potential value generated by combination and recombination in conditions of sufficient certainty regarding rights. However, as we move towards more commercial realities, processes of editing also tend to involve processes of separation.

Change of Use and Separation:

The nature of this problem in relation to ABS and the customary laws of indigenous peoples can be illustrated in the following quote from an elder of the *Jivi* (Guahibo) people from Amazonas in Southern Venezuela at a seminar in 2002:[132]

> "Knowledge is my territory, knowledge is the river, knowledge is the tree, knowledge is the water, knowledge is the stone that speaks to the interrelation of man with nature. This is my knowledge, knowledge is the cosmovision, knowledge is the stars, the moon, the clouds, the air we breath, that is knowledge, that is my concept of knowledge, particularly as an elder. Knowledge is the same essence of

[132] Consejo Nacional Indio de Venezuela (2002) 'Consejo de Ancianos: Opiniones sobre la base de datos Biozulua'. Transcript of statements at the *Seminario sobre el desarrollo de un sistema sui generis de propiedad intelectual para la protection de los conocimientos traditionales indigenas* organised by the Servicio Autonoma de la Propriedad Intelectual (SAPI), Tobogon de la Selva, Amazonas 9 November 2002.

> the life of the people. Why do you have to transmit this knowledge and take it and sell it as if it was just anything (*un coroto*)?" [133]

The *Jivi* elder was speaking as a member of the council of elders of the indigenous peoples of Amazonas State in responding to the creation of a traditional knowledge database known as Biozulua, without the prior knowledge or consent of the traditional indigenous authorities. The database project, established by a non-governmental scientific organisation (FUDECI) in Caracas, was directed towards documenting indigenous peoples knowledge with a view to protecting knowledge from biopiracy, "adding value" through scientific research, and establishing possible benefit-sharing agreements with third parties through the medium of FUDECI. A draft national law was developed in 2003 proposing that the database be at the heart of national efforts to protect knowledge where indigenous peoples would have retained rights in relation to *knowledge*, and FUDECI, acting on behalf of the nation, to the resources in the form of compounds, metabolites and properties "of real or potential economic value".[134]

For our purposes the *Jivi* elder's criticisms of the Biozulua database draws our attention to the underlying regimes of value and understandings of biodiversity highlighted in the report on compliance with customary law. Specifically, the elder's criticisms extended to the perceived arrogance of research as "studying" in contrast with "knowledges" as a multiple: "Many times studying makes that one is better than the other, the knowledges no, the knowledges, better put, develop a sense of value in ones self. It is of value for us that this database stays with the same authors, in those who made this, that is, the indigenous peoples." He concludes by arguing that "…this is spiritually patented by our ancestors and God our creator, we are authorised to use it and for this we have used it, but he who does not have this authorisation what could happen is that he destroys himself."

Reference to "knowledges" as a multiple draw our attention to indigenous peoples' cosmologies and, in Amazonia and the Guianas, the common understanding that the plants, animals and other beings with whom indigenous peoples share their worlds are, or once were, human.[135] In common with humans, these beings have homes in the

---

[133] According to an online blog operated by Juan Carlos Chirinos the colloquial expression *coroto* has been described as "a universe in itself", and may be of indigenous origin. It may variously mean a thing that is not useful, something that is rotten, an unknown thing, or the goods within a house i.e. pots and pans. Location: http://juancarloschirinos.blogspot.com/2005/12/coroto.html

[134] The relevant portions of the failed draft law are as follows: "The BIOZULUA database is the patrimony of all the Venezuelan people and FUDECI, in the name of the Venezuelan people, is the custodian of this patrimony, subject to the following conditions… b) The traditional knowledge contained within the Biozulua database relative to the use of biological resources in relation to food, medicines and other practical uses are the property of the indigenous peoples who created it. The indigenous peoples who hold traditional knowledge should be identified with precision in the BIOZULUA database. c) All data within BIOZULUA, collected or made by FUDECI, or in its name, in relation to the traditional knowledge inventoried in the same, such as molecules, metabolites, properties and other elements of real or potential economic value, are the property of FUDECI. d) FUDECI, in its capacity as custodian of the BIOZULUA database, and while an effective international system for the protection of the traditional knowledge associated with biodiversity has not been established, should maintain in the most rigorous secrecy the information contained within the database…" (author's translation). Unpublished draft law entitled "Law Project for the Protection of the Traditional Knowledge of the Indigenous Peoples of the Bolivarian Republic of Venezuela and commentary on the principle dispositions" Dated July 2003.

[135] See for example, Descola. P (1994) *In the Society of Nature: A Native Ecology in Amazonia*. Cambridge: Cambridge University Press.

mountains, hills, waterfalls and stream ways falling within and beyond indigenous peoples present day territories. From Amazonian perspectives (which are multiple) the ability to interact with their kin, who may possess a variety of powers, in order to cultivate, hunt, eat and live in the world is critically dependent on compliance with customary law based rules. Views of the world in which biodiversity stands in various relationships of kinship are not 'nice' in the romantic sense of 'closeness to nature'. Rather 'Nature' cannot be approached with impunity but requires close attention to customary rules, practices and procedures mediated through institutions, established practices, and specialists such as shamans.

In his criticism of Biozulua the *Jivi* elder also argued that: "A seedling that is pulled from its roots, from its environment, dies in the middle of the journey". Understanding of "knowledges" in terms of "persons", who take modern form as plants, animals and other organisms is linked to understandings of appropriate places of residence grounded in understanding of the history of relationships between families in an ever present 'before time'. Those homes are generally located in the hills, mountains, waterfalls and streams within indigenous peoples historical territories. The creation of the database implied not only the movement of "specimens" and 'notations' of knowledge, but also it seems of the grandparents of the animals and plants themselves. [136]

The important point here, is that while a plant may simply be a plant from the perspective of both indigenous peoples and researchers, on a more profound level it may also be something else embedded in customary laws that refer to sets of social relations and *social contracts* with 'nature', that humans violate at their peril.[137] In this example, the communities and authorities appear to have been relatively happy to contribute to collections which had taken place over many years. The relationships with the researchers were also clearly valued by a number of the participants who regarded the researchers as family friends. The organisation's wider work in areas such as agriculture was also clearly appreciated. What is key here is that this changed when the communities and community authorities became aware of the change of use and purposes to which the collections and their knowledge were being turned. Specifically, this experience shifted the relationship to one of negative reciprocity that was perceived to violate underlying social contracts under customary law between people and 'nature' that are important to the peoples concerned in terms of the maintenance of appropriate relations with 'nature' and their cultural identities.

This extended example thus points to the importance of promoting understanding of the relationships of reciprocity between people and biodiversity that researchers might regard simply as objects. It also highlights the violence that can be done in research relationships by the failure to understand customary law systems and in particular the pursuit of the commercial imperative in transforming relationships into negative reciprocity.

---

[136] It may be assumed that the cosmological and historical landscapes of indigenous peoples are confined to their territories. This is incorrect. In the case of Amazonian indigenous peoples in Venezuela their understanding of these landscapes extends to places such as Caracas where the Pico Neblina that dominated the skyline is the historical home of a creator goddess. Discussion of the extensive trade networks that stretched from Amazonia through to the Caribbean is beyond the scope of this discussion but relevant to understanding the scale of indigenous peoples exchange networks and cosmologies.

[137] This has been explained with considerable success in the case of the *warime* increase ceremony among the Piaroa (Wothïha) with the permission and participation of shamans and community members in work by the French anthropologist Jean Chiappino and Venezuelan anthropologist Alexander Mansutti-Rodriguez.

This example also points to a difficulty in ABS relationships that relates to the diversity of cosmologies, belief systems and values that inform customary law systems. While the principle of reciprocity helps us with conceptualising the common elements of customary law systems, it will not be possible to simply take on the belief systems present throughout all human societies (including "scientific" beliefs and values). What is sacred for one people may in fact be profane for another.

What can be achieved however, drawing on international human rights law, is to recognise those values and do what can be done to ensure that particular values are respected rather than violated. That involves combining enduring recognition of contributions with choices on the terms and conditions under which knowledge and resources are made available. In particular, it seems possible that indigenous peoples may be willing to share knowledge and resources where they are able to set terms and conditions respectful of underlying social contracts and values and where they are able to specify the appropriate purposes for which knowledge and resources are made available. The question here is how might that be achieved? An answer to that question is emerging in Canada.

DNA on Loan:

In the 1980s a medical researcher from the University of British Columbia collected blood samples from 800 members of the *Nuu-chah-nulth* first nation on the understanding that this was destined for health research. In practice, the samples were used for mitochondrial DNA research in ancestry studies.[138] The Havasupai of the Grand Canyon in the United States have also endured a similar experience in a case where researchers were invited to conduct research and collect samples for diabetes research, a significant health problem for the Havasupai, but the researchers instead conducted research on schizophrenia and did not conduct the diabetes work.[139]

Best practice in health research among indigenous peoples in Canada, the United States and other countries (notably Australia and New Zealand) is participatory, subject to ethical review by formal ethical review boards, and guided by codes of ethics, protocols and supporting materials developed directly with or by indigenous peoples and tribal governments themselves.[140] The proposals advanced by the International Indigenous

---

[138] Arbour, L & Cook, D (2006) 'DNA on Loan: Issues to Consider when Carrying out Genetic Research with Aboriginal Families and Communities'. *Community Genet* 2006; 9:153-160. The discussion in this section draws on debates during a workshop on Genomics, Governance and Indigenous Peoples held at Arizona State University in November 2008 organised by Kim TallBear (Berkeley), Rebecca Tsosie (ASU) and Jenny Reardon (UCSC) http://nature.berkeley.edu/tallbear/workshop/

[139] Dalton R, (2004) When two tribes go to war: *Nature* 430, 500-502. See also Bommersbach, J (2008) Arizona's Broken Arrow. *Phoenix magazine*, November 2008, Vol. 43 No. 12. 134-153. Location: http://www.phoenixmag.com/lifestyle/200811/arizona-s-broken-arrow/ . Accessed 17/06/2009. The author thanks Carletta Tilousi for the opportunity to discuss this case.

[140] A full review of these practices is beyond this discussion paper but the 1999 *Model Tribal Research Code With Materials for Tribal Regulation and Checklist for Indian Health Boards* developed by the American Indian Law Center is one relatively early example of indigenous specialists initiatives in this area. http://www.ihs.gov/medicalprograms/research/pdf_files/mdl-code.pdf Other examples include the Australian *AIATSIS Guidelines for Ethical Research in Indigenous Studies*. http://www.aiatsis.gov.au/__data/assets/pdf_file/10534/GERIS_2007.pdf

Forum on Biodiversity in the context of the international regime are in fact very similar and constitute sensible building blocks for the governance of ABS relationships.

An important focus of the development of best practice in participatory health research in the realm of genetics relates to indigenous peoples understandings of the person and biological samples. As Native American geneticist, Dr. Frank Dukapoo has put it: "To us, any part of ourselves is sacred. Scientists say it's just DNA. For an Indian, it's not just DNA, it's part of a person, it is sacred, with deep religious significance. It is part of the essence of a person."[141]

In recognition of these values emerging best practice in Canada focuses on classifying "biological samples" as "on loan" to the researcher as set out in Article 13 of the 2007 edition of the Canadian Institutes for Health Research *CIHR Guidelines for Health Research Among Aboriginal People.*[142]

> "Article 13 Biological samples should be considered "on loan" to the researcher unless otherwise specified in the research agreement.
>
> Subject to the terms of the research agreement with their community, biological samples from Aboriginal participants should be considered "on loan" to the researcher, analogous to a licensing arrangement, and this should be detailed in the research agreement."[143]

The emphasis within these guidelines for the establishment and maintenance of constructive relationships with indigenous peoples (oriented towards the delivery of health care), is upon clarifying that possession of a blood sample is not equivalent to its ownership. In effect, a sample is not a "free gift" but carries with it something of the essence of a person and stands for the need to maintain a respectful relationship with that person and the wider community of which they are a part.

The key problem that the DNA on loan concept can be said to address is directed to the need for medical research to address health problems in a context of differing values and expectations. Thus, for researchers who have received classical medical training a sample is a thing to be "recruited" from people that can then, subject to conditions and protocols such as anonymization, be turned to wider scientific purposes i.e. ancestry studies. Access to samples and 'data' is a key driver of scientific research and a key

---

[141] Ibid. Arbour & Cook 2006: 155

[142] The provisions of the guidelines merit fuller consideration than can be provided in this paper. Other ABS relevant provisions include: requirement for respect of Aboriginal peoples' world views (Art 1); community jurisdiction over research, community consent prior to individual consent (Art 4); respect for privacy and confidentiality (Art 5); establishment of a research agreement (Art 6); retention of inherent rights by the community (Art 7); explicit clarification of expectations regarding intellectual property to be specified in the research agreement (Art 8); benefit-sharing (Arts 9-11); respect for cultural protocols, the rights and proprietary interests of participants and requirements, inter alia, for renewed consent and ethical review for secondary use (Art 12); opportunities to participate in interpretation of data and review of conclusions (Art 14); decision-making regarding acknowledgement of contributions, due credit, participation in dissemination of results and recognition in publications subject to confidentiality requirements (Art 15).

[143] The guidelines are applicable to research projects in Canada funded by the Canadian Institutes of Health Research (CIHR). Location: http://www.cihr.ca/e/29134.html . Accessed 17/06/2009.

focus in initiatives such as the Science Commons.[144] At the same time 'free' data may become the object of privatisation in the pursuit of commercial development. However, as the above discussion makes clear, in the process underlying values, social contracts, and expectations regarding appropriate reciprocity embedded in customary laws may be discarded. The relationship of reciprocity moves into negative form that may be justified through vague reference to promissory benefits such as "benefits to humanity" at the expense of respect for actual values and actual benefits for research participants.

The question this raises in the ABS context is how customary laws, and the principle of reciprocity embedded in customary laws might be made visible in a way that:

a) does not violate the flexible and adaptive nature of customary laws through requirements for detailed codification;
b) allows for enduring recognition of contributions and respect for the terms and conditions under which resources are made available in the context of wider regimes such as the intellectual property regime.

These are problems that could be addressed through the development and use of ABS commons licenses.

[144] Wilbanks, J and Boyle, J (2006) Introduction to Science Commons. http://sciencecommons.org/wp-content/uploads/ScienceCommons_Concept_Paper.pdf

## 5. Recognition and Visibility: Schematic Models

In the discussion above it has been argued that reciprocity is a key articulating principle within customary law systems. Indigenous peoples delegates have argued that recognition of customary laws should be a key feature of the access and benefit-sharing regime. An important part of securing recognition of customary laws is making them visible without requiring detailed codification that would transform customary laws into something they are not.

Visibility is also central to the ability of other regimes and commons, such as the public domain and the intellectual property regime, to recognise customary law systems. At the same time, as noted earlier, in moving beyond the customary laws of particular indigenous peoples and local communities we are confronted by the problem of scaling up and potential global level circulation of knowledge and resources under an ABS regime.

Figure 3 brings together the components of an international regime relating to indigenous peoples and local communities identified by indigenous representatives (and featuring in the negotiating text) and adds the access and benefit-sharing commons licenses outlined in section 3. The components are arranged in a flow that moves from the United Nations Declaration on the Rights of Indigenous Peoples, to customary laws and community protocols through to the access and benefit-sharing licenses as forms of contract.

**Figure 3: Making Choices Visible through Licenses**

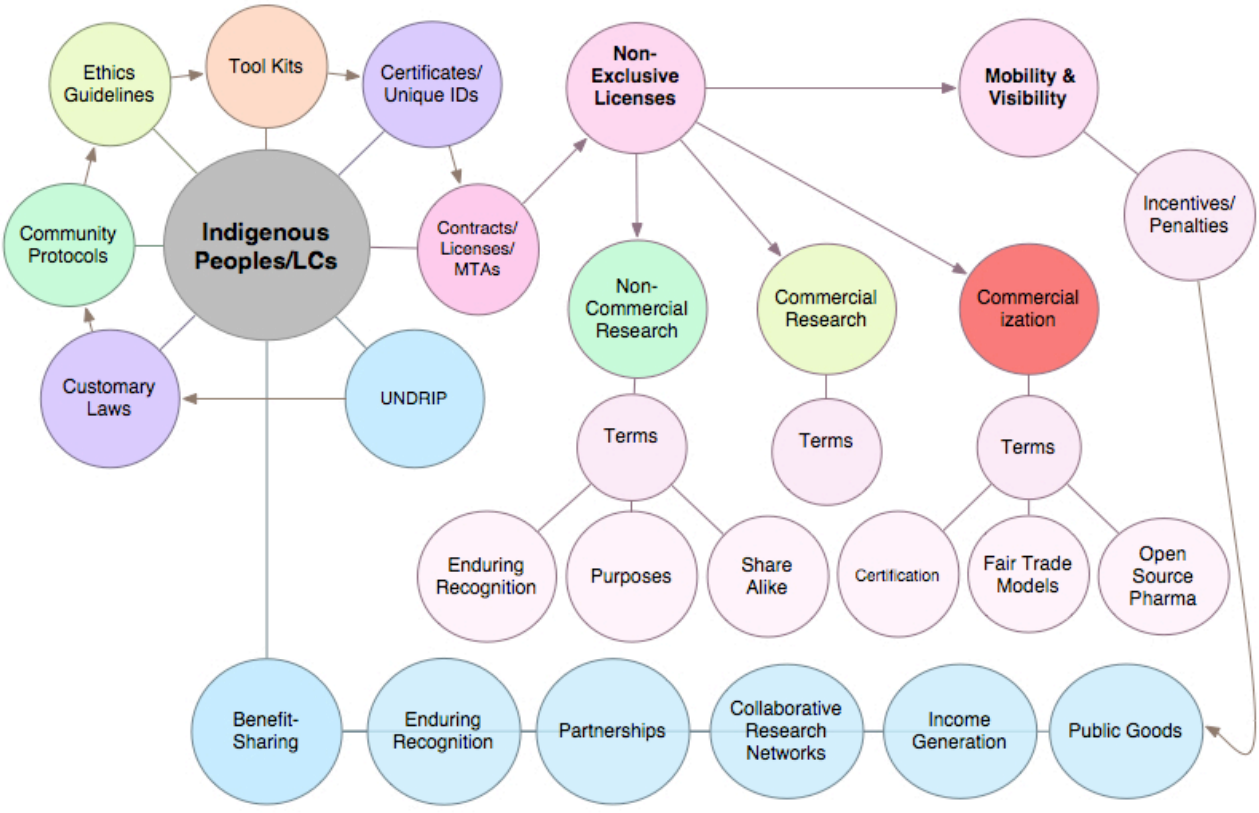
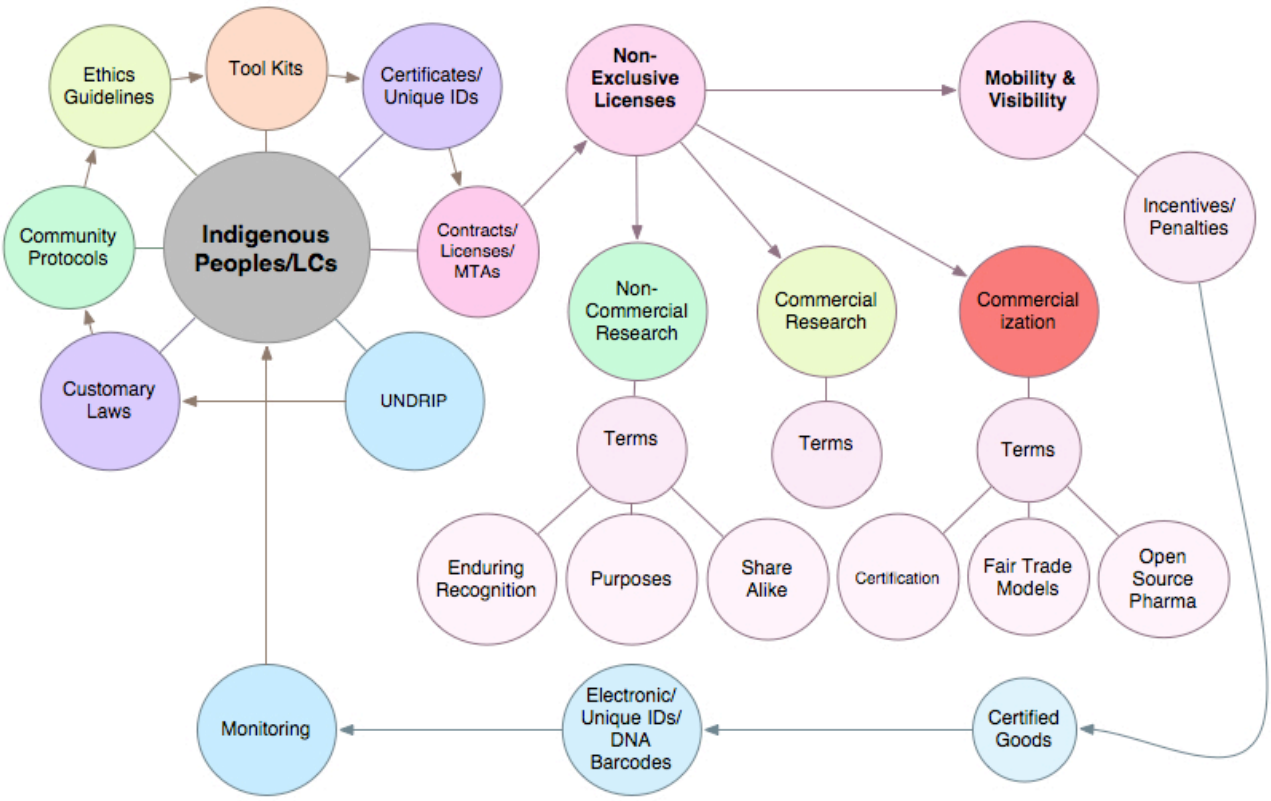


Figure 3 also shows the three categories of licenses based on the three categories of utilization of genetic resources and traditional knowledge in the existing negotiating text. The schematic diagram is intended to convey options when knowledge, innovations, practices and resources of indigenous peoples and local communities go mobile based on the choices made by indigenous peoples and local community authorities. In particular, Figure 3 shows the kinds of monetary and non-monetary benefits that might be generated under this approach.

Figure 4 focuses our attention on the creation of a trusted system based on requirements for monitoring and the means through which this might be achieved to ensure, as far as possible, that the terms of access and benefit sharing commons licences are respected. Again, this draws on existing components of the negotiating text for the international regime. It is assumed that monitoring will be conducted by a competent indigenous peoples/local community authority (CIPLCA) in cooperation with the competent national authority (CNA) and others engaged in public monitoring of access and benefit-sharing.

**Figure 4: Closing the Loop in Reciprocal Exchanges**




In considering these figures, the key component is the addition of modular licenses to the existing 'ABS toolkit' for indigenous peoples and local communities. These licenses are directed towards:

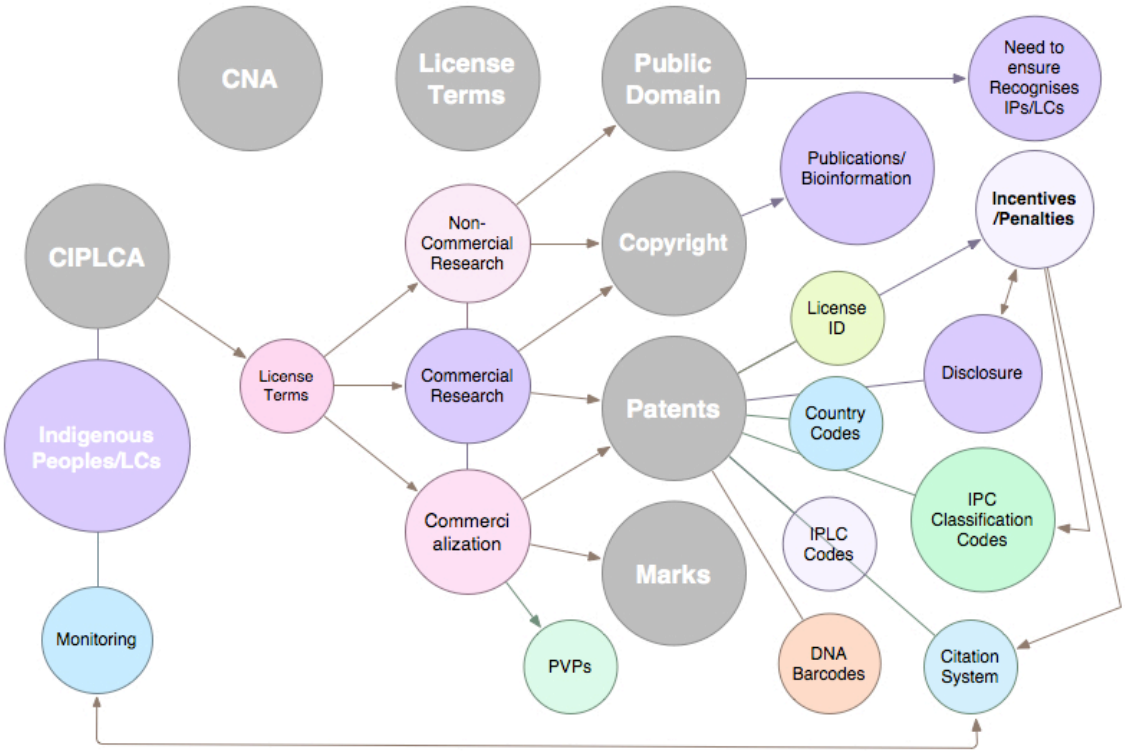
1. Providing for enduring recognition of the contributions of indigenous peoples and local communities in making knowledge and resources available (attribution);
2. Enabling choices regarding the terms and conditions under which knowledge and resources (i.e. non-commercial research use with specific additional terms, commercial research use with specific additional terms, and commercialization i.e. in relation to commercial outcomes and products);

3. Setting out the purposes for which knowledge and resources are shared under these terms.

The outline model in Figure 3 is directed towards maintaining access and benefit-sharing in the realms of generalised and balanced reciprocity while flagging (through the use of green, yellow and red 'traffic lights') the main points of exposure to negative reciprocity (a potential in each area) as knowledge and resources go mobile and begin to circulate based on the choices made by indigenous peoples and local communities.

The key to shifting the balance towards generalised and balanced reciprocity in the context of concerns regarding biopiracy and abuse of the terms under which knowledge and resources are made available is provided in Figure 4. The key focus here is upon the ability to track the knowledge and resources made available under the terms and conditions set out in the licences and the linkage of unique identifiers, such as codes for indigenous peoples names (i.e. based on languages and autodenominations), unique identifiers and DNA barcodes.[145] The ability to 'yank back' in cases of non-compliance through the use of relevant licensing clauses is also important here.[146]

**Figure 5: Articulation between Licenses and Intellectual Property[147]**




[145] For fuller discussion of tracking options see G.M. Garrity, L.M. Thompson, D.W. Ussery, N. Paskin, D. Baker, P. Desmeth, D.E. Schindel and P.S. Ong (2009) Studies on Monitoring and Tracking Genetic Resources. Available via https://www.cbd.int/doc/programmes/abs/studies/study-regime-05-en.pdf
For discussion in relation to the patent system and coding of indigenous peoples names (IPLC codes) see Op. cit. Oldham 2007 and Oldham & Hall 2009.

[146] Op. cit. Hope 2008:163.

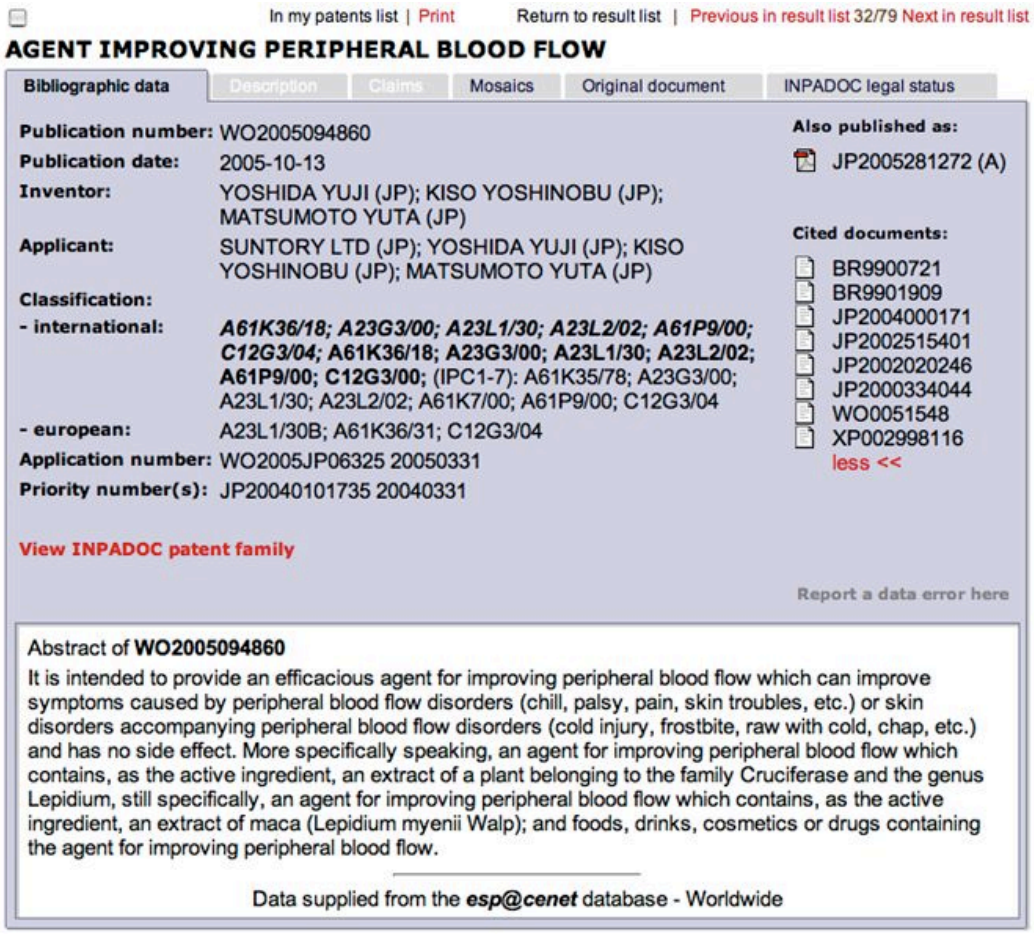
[147] CIPLCA refers to Competent Indigenous Peoples Local Community Authority. CNA refers to the Competent National Authority. PVPs refers to Plant Variety Protection under the International Union for the Protection of New Varieties of Plants (UPOV). Database rights are also relevant in some jurisdictions.

As noted elsewhere in the discussion the proposed access and benefit-sharing commons licences occupy the space between secrecy and the wider intellectual property regime. Figure 5 (above) sets out the basic points of articulation between the proposed licences and the wider intellectual property regime.

In considering Figure 5 in relation to the public domain it is important to note that the proposed licences will facilitate a protected commons within the public domain by rendering the contributions of indigenous peoples and local communities visible, through licences, within that domain. The same is also true of copyright where licensing terms may include pre-conditions for use on "share alike" terms.

Drawing on underlying research in relation to patents, patent indicators and biopiracy/ misappropriation the main focus of Figure 5 is placed on making the knowledge and resources of indigenous peoples and local communities provided under the licenses visible within the global patent information system.[148]

**Figure 6: Sample Patent Application showing Key Fields**




[148] Op. cit. Oldham (2007), Oldham & Hall (2009)

In focusing on the patent system Figure 5 draws attention to and exploits the standardised metadata fields used in the global patent information system. An example is provided in Figure 6 (above) from a patent application for extracts from the Peruvian plant *Lepidium meyenii* (maca).

Under this proposal indigenous peoples and local community licenses would be made visible and transparent to the patent system through inclusion in the cited document field by a patent examiner or (in cases where an applicant possesses a valid commercial license to submit an application) by the applicant themselves. The important point here is that cited documents refer to prior art that limits the scope of what may be claimed in applications for patent rights. In cases where a patent applicant possessed a valid license from indigenous peoples to submit an application (with additional terms that may be determined as part of mutually agreed terms i.e. co-application, open licensing) the application would proceed as usual or under a reduced fee schedule.

However, in cases where the applicant did not posses a valid license, but material in an application was covered under the terms of an ABS licence, the applicant would be invited to enter into compliance through an additional separate agreement within a set period. During this period the application would be placed on a higher fee schedule to encourage compliance and with a view to providing a compensation mechanism. In the event of lack of compliance the application would be discontinued but the published application would not enter into the public domain but be incorporated within the issued licence terms. This would be recorded in the citation field. To facilitate searches for such licences in relevant fields by examiners the standard International Patent Classification (IPC) in use by patent offices worldwide would be built in to licence generation. Guidance in this area for examiners could be built in to the emerging WIPO toolkit for traditional knowledge.[149]

The practical effect of these measures would be that knowledge and resources provided by indigenous peoples and local communities would be made visible to the patent information system in a way that makes sense to that system with minimal additional effort. An additional advantage to this approach is that the use of unique identifiers and classification codes will facilitate the development of statistical indicators to facilitate monitoring and analysis of the use of licenses. An example of statistics for medicinal preparations from plants (in which the patent application above is classified) under International Patent Classification code A61K36 is provided in Figure 7 for the purpose of illustration.[150] At issue here is that it would become possible to readily distinguish patent activity with licenses from activity without licenses in areas of the patent system concerning biodiversity and traditional knowledge.[151]

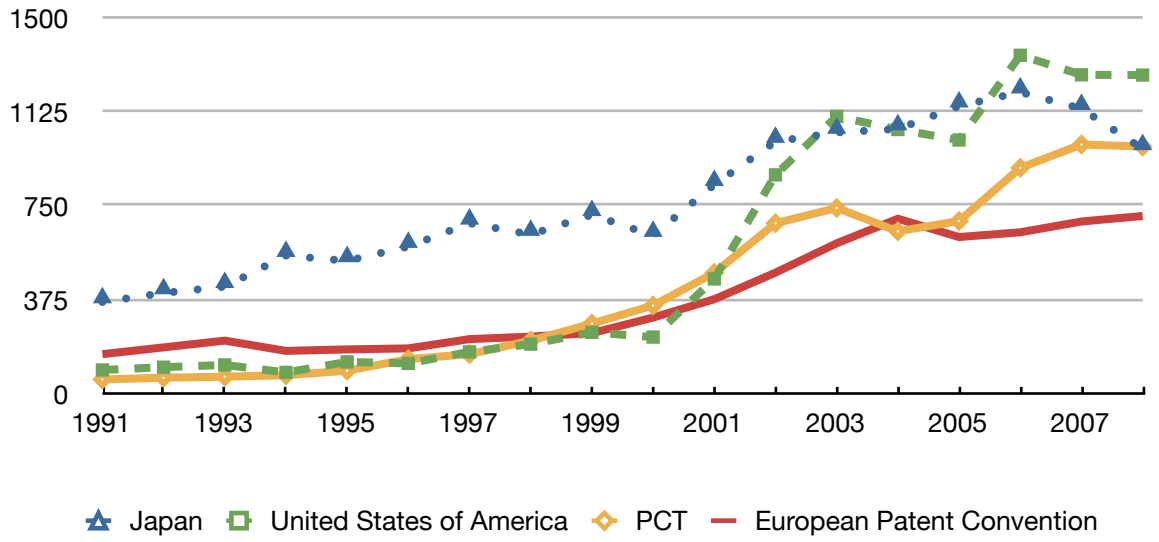
---

[149] The WIPO Intellectual Property Management Toolkit for the Documentation of Traditional Knowledge and related guidance is expected to be completed by the end of 2009.

[150] Figure 7 refers to patent publication trends for medicinal preparations from plants and is confined to the new classification code A61K36. A fuller statistical picture is provided by the use of the historic code A61K35/7/8 in combination with A61K36. Counts are publication counts (applications, grants, republications) from the Thomson Micropatent Aureka Gold database.

[151] Relevant areas of the patent system have been identified in a detailed indicator study conducted for the European Environment Agency provided in Op. cit. Oldham & Hall 2009. See also Oldham 2007.

**Figure 7 Patent trends for traditional medicines (A61K36) (Micropatent)**




Note: refers to patent publication counts. Prior to 2001 the United States only published patents when they were granted. As a result a sharp spike is created from 2001 onwards. Data confined to A61K36.

Using this type of approach it will also be possible to engage in independent monitoring of compliance through analysis of corresponding patent applicants.

**Table 1: First Patent Applicants for traditional plant medicines (A61K36)**

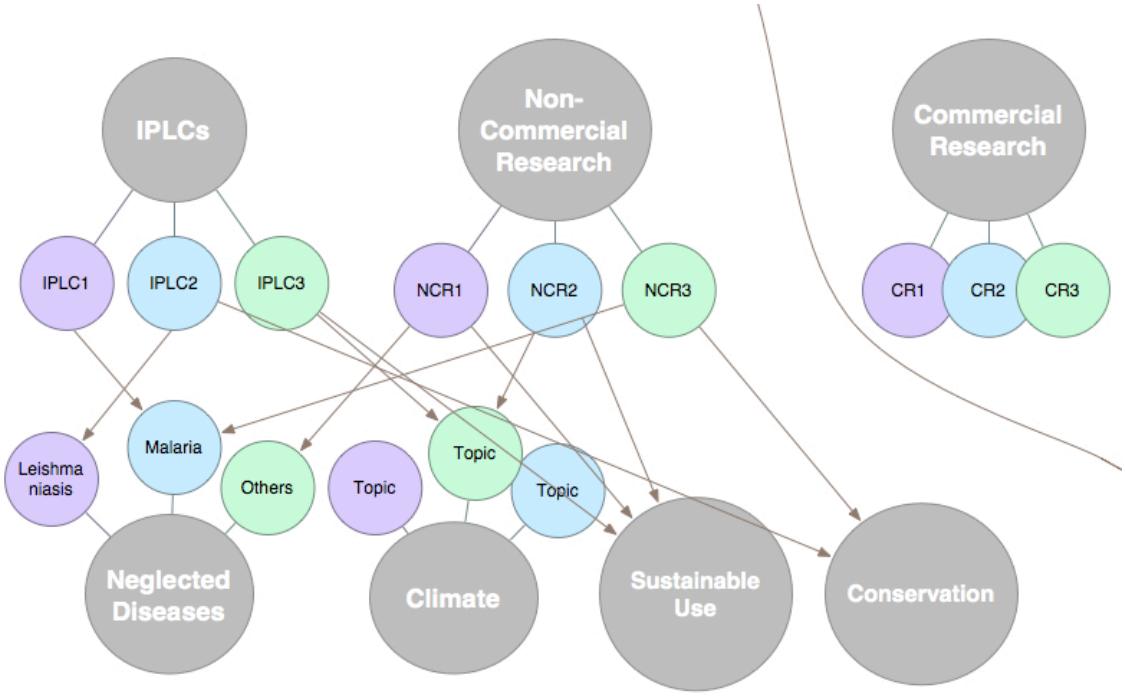
| 1st Applicant/ Assignee | Japan | USA | PCT | EPO | Germany | France | UK |
|---|---|---|---|---|---|---|---|
| SHISEIDO CO LTD | 403 | 23 | 31 | 53 | 8 | | |
| COUNCIL SCIENT IND RES (India) | 11 | 168 | 109 | 89 | 30 | 1 | 13 |
| L'OREAL | 48 | 64 | 32 | 108 | 38 | 76 | |
| KAO CORP | 227 | 50 | 15 | 51 | 13 | | |
| NOEVIR KK | 323 | | 12 | | | | |
| INDENA SPA | 16 | 61 | 65 | 120 | 58 | 1 | 1 |
| POLA CHEM IND INC | 262 | | 1 | | | | |
| PROCTER & GAMBLE | 4 | 69 | 67 | 64 | 21 | | 1 |
| MARUZEN PHARMA | 209 | | | | | | |
| TOYO SHINYAKU KK | 146 | 11 | 28 | 18 | | | |
| TSUMURA & CO | 160 | 4 | 6 | 11 | 1 | | |
| LION CORP | 167 | 1 | 3 | 4 | 1 | | |
| TAISHO PHARMA CO LTD | 164 | 2 | 6 | 3 | 1 | | |
| LVMH RECH | 4 | 34 | 32 | 48 | 18 | 31 | 1 |
| ICHIMARU PHARCOS INC | 165 | | | | | | |
| SUNTORY LTD | 83 | 11 | 29 | 38 | 3 | | |
| SCHWABE WILLMAR GMBH & CO | 5 | 14 | 36 | 61 | 40 | | |
| Sub-Total | 2,397 | 512 | 472 | 668 | 232 | 109 | 16 |
| Total | 13,907 | 9,863 | 7,598 | 6,881 | 2,257 | 949 | 278 |

On a wider level, if combined with the use of International Standardised Industrial Classification (ISIC) codes as operated by the United Nations Statistics Division, along with geographical coding systems, it will become possible to generate statistics on the industrial sectors and geographical locations of applicants and users of licences within and outside the patent system.[152] This would contribute to monitoring of the use of the licenses in relation to compliance and allow measurement of the wider uses of the licenses. The effect would be to increase certainty.

**Facilitating Collaborative Research Networks:**

The ability to specify the terms and purposes under which knowledge and resources are made available through licenses could facilitate collaborative research networks within a protected commons between license holders agreeing to the same terms (i.e. non-exclusive, non-commercial research) to address problems identified by providers. An outline schematic for such networks is provided in Figure 8 for possible clusters of projects around particular public goods.

**Figure 8: Non-commercial collaborative research networks**




Drawing on lessons from open source projects, participation in collaborative research networks could as necessary be enabled through the use of social contracts (specifying agreed purposes and expected outcomes), group leadership, relevant guidance and training materials.

[152] The OECD has recently pioneered this approach for patent data using the Nomenclature of Territorial Units for Statistics (NUTS). OECD (2008) Compendium of Patent Statistics 2008. Organisation for Economic Cooperation and Development. http://www.oecd.org/dataoecd/5/19/37569377.pdf

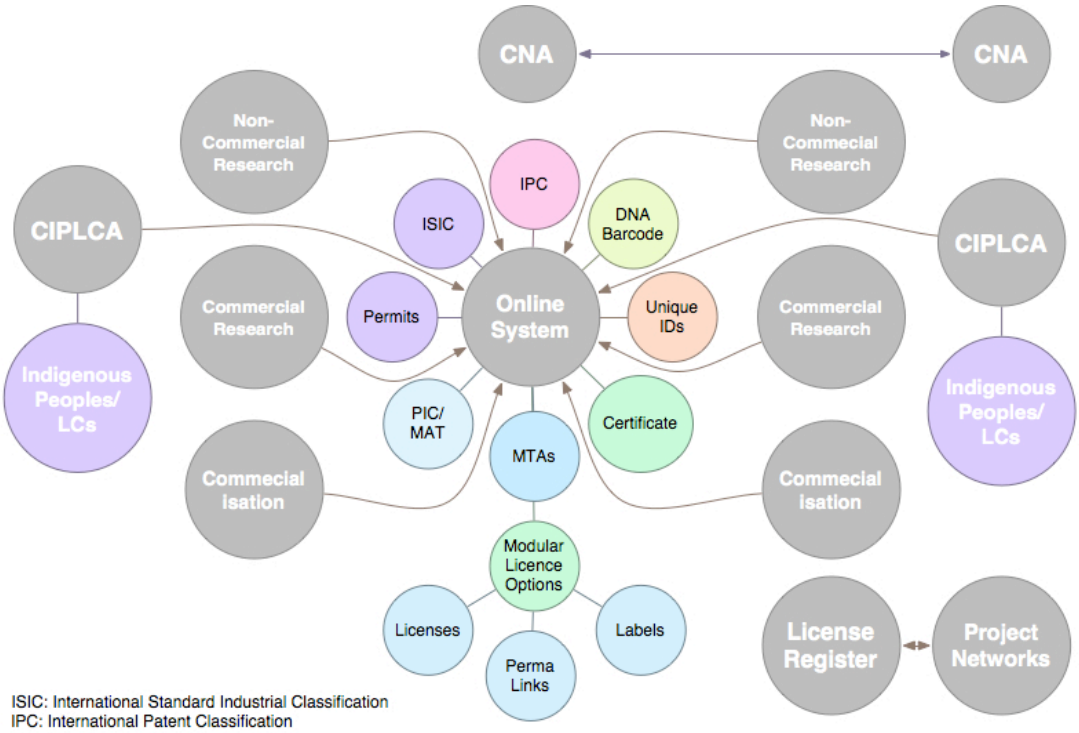
As discussed in Section 3, one purpose of access and benefit-sharing commons licenses would be to permit the creation of collaborative research networks, in which indigenous peoples and local communities would be direct participants in establishing and directing the research and determining expected benefits. As can be seen in Figure 8, the effect is to create a protected commons between participants relative to commercial research.

A primary purpose of non-exclusive and non-commercial licenses is to create conditions of certainty for providers. However, it is important to note that in the realm of open source projects, programmers and others working for companies frequently make contributions (i.e. of time and expertise) to projects of interest for non-commercial purposes. The importance of the licenses is that the licenses would clarify the terms of participation for those concerned in a manner that is verifiable through tracking and monitoring systems.

Furthermore, as discussed in section 3, there are circumstances in which unforeseen changes of use may arise (i.e. for commercial applications). Under the outline model the use of knowledge and resources would require a separate additional agreement to the original licence based on new PIC and MAT with the contributing providers. In some circumstances, such as moving a potential treatment for a neglected disease from basic R&D through trials, approval, manufacturing and distribution, this could well involve more than one public and private entity as in existing public private partnership models (PPPs).[153] At issue here is that the access and benefit-sharing commons licenses would enable choice for providers and options for the pursuit of desired purposes and outcomes.

**Enablement and Scaling Up:**

**Figure 9: Outline Schematic of an Online ABS Commons Clearinghouse**




[153] Op. cit. Moran et al (2005)

Figure 9 provides an outline schematic for an ABS clearinghouse containing the key components identified in the negotiating text and seeking to enable those components through the use of an online system. It is clearly a work in progress and intended to stimulate thinking.

As noted in the introduction to this paper the key role for Parties to the proposed ABS commons would be in providing enablement and oversight of the operation of the commons. This is reflected in the positioning of the Competent National Authority (CNA) above the system itself with the linkage reflecting lines of communication between Competent National Authorities in more than one country. Competent National Authorities are of course likely to be directly involved in establishing the system, permitting, and other relevant areas of authority subject to arrangements preferred by a particular Party.

The reference to indigenous peoples and local communities and their Competent Indigenous Peoples and Local Community Authorities (CIPLCA) is intended to capture the idea in the negotiating text for competent indigenous peoples and local community authorities (determined by them) entering the system to generate licenses for knowledge and resources they choose to make available. The system assumes that providers would register for issuing licenses.

The system also anticipates non-commercial providers (such as public collections) entering the system to generate licenses for materials they choose to make available (i.e. for non-exclusive, non-commercial purposes) in electronic or material form. The use of such licenses could have the advantage that material does not become amenable to appropriation in the public domain.

As noted in section 3, an important potential function of such a system would be to allow a potential non-commercial user (such as members of the research community) to signal a willingness to accept the terms of a non-commercial license in a particular jurisdiction in advance. This would contribute to generating trust and reduce transaction costs. This could potentially be linked to facilitating the permitting process and signalling to potential partners including indigenous peoples and local community authorities.

Potential users of the system for commercial research or commercialisation are likely to use this system to gain access to information to initiate negotiations on PIC and MAT (including with indigenous peoples and local communities). The system could perform the useful function of providing contact points, guides on best practice, relevant codes of conduct and model clauses determined appropriate under the terms of the international regime. A willingness to signal compliance with terms could generate reputational benefits for companies and institutions (such as universities) concerned with pursuing commercial research or commercialization. Options include registration of companies and institutions as preferred partners etc. or the use of Fair Trade certification schemes signalling compliance with expectations under the international regime.

An important additional feature of the outline clearing house would be a license register (based on searches for material identified as covered under a license). This would allow users to locate materials made available under the specified licensing terms by providers for the specified purposes. This in turn would form the backbone for the collaborative research network projects discussed above and the creation of clusters of projects based on the common interests of providers and users. The open source project repository sourceforge.net which requires license conformity as a condition of listing with the repository provides a useful working model for this type of initiative. Experience in Europe

with the pan-European Framework research programme (presently Framework 7) might also provide insights into facilitating collaborative research networks across multiple countries.

**Will it Work?**

Arguably, the kind of arrangements discussed in this paper already exist in the form of the Creative Commons (for creative works) and the Science Commons (for Biological Materials Transfer Agreements) and emerging work to create a health commons. Two examples will suffice in closing this discussion paper. The first relates to licence selection for creative works under copyright. The second to BMTAs.

**Figure 10: Selecting a Creative Commons Licence**

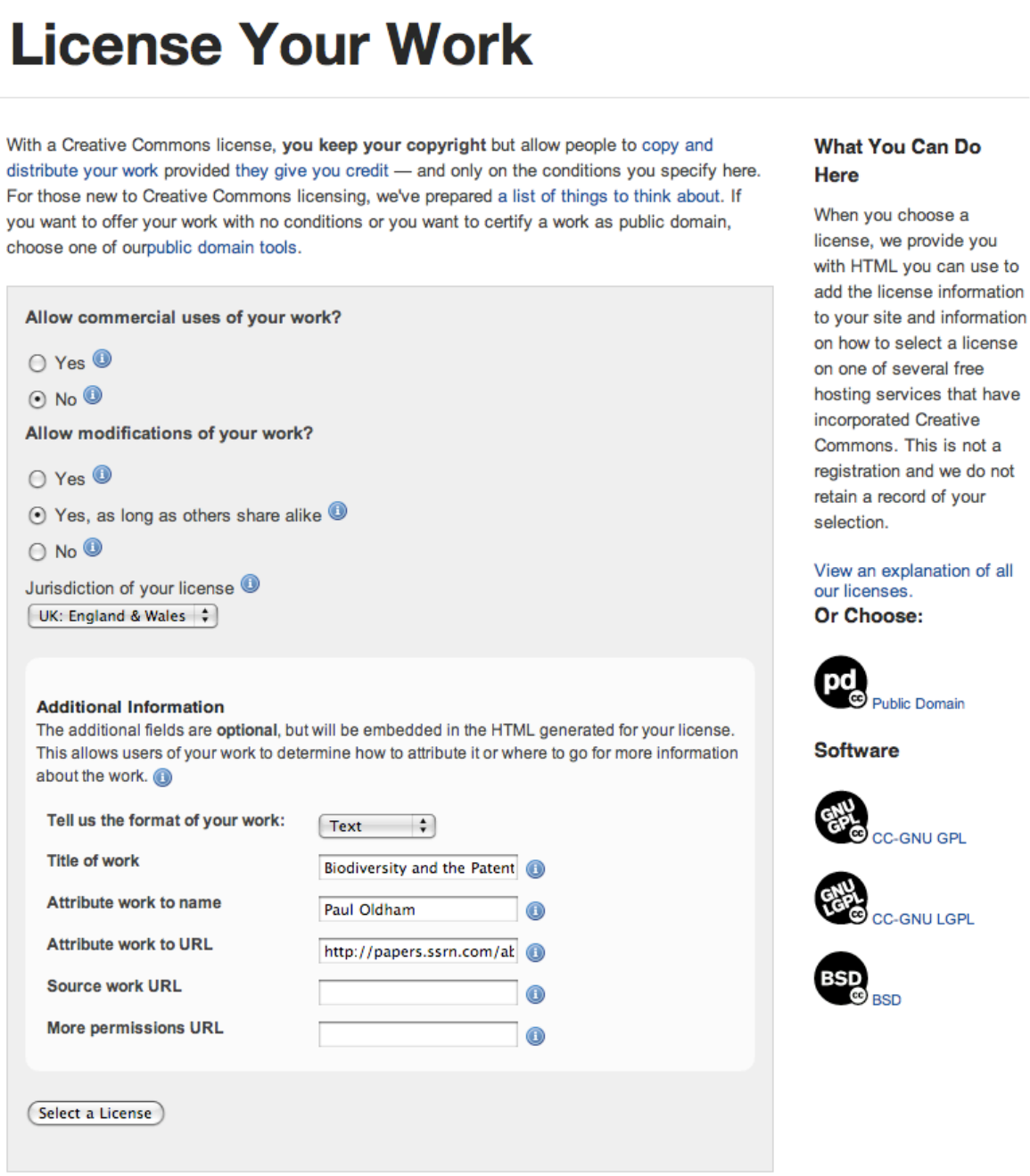
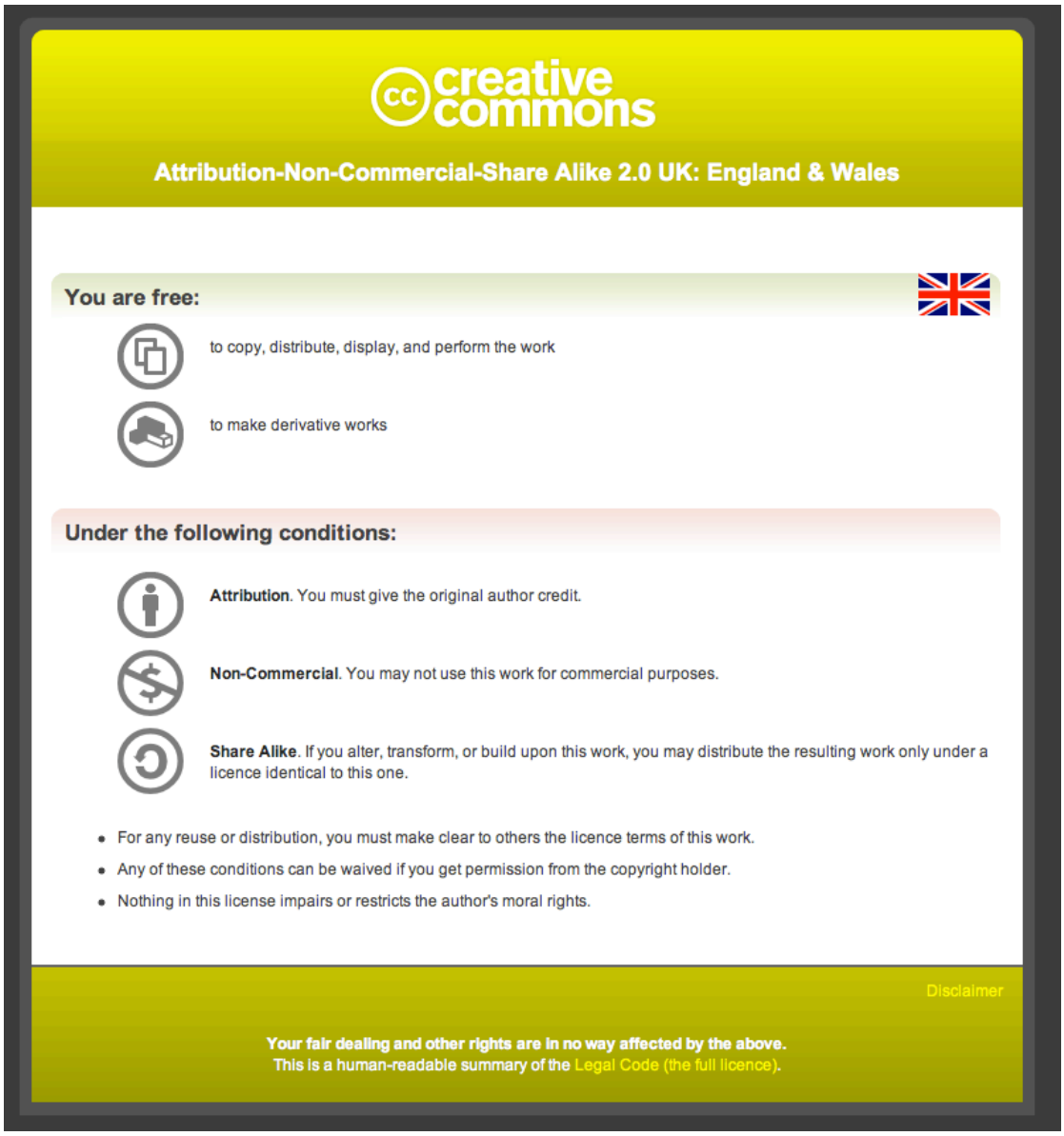


**Figure 11: Human Readable Version linked to Full Licence**

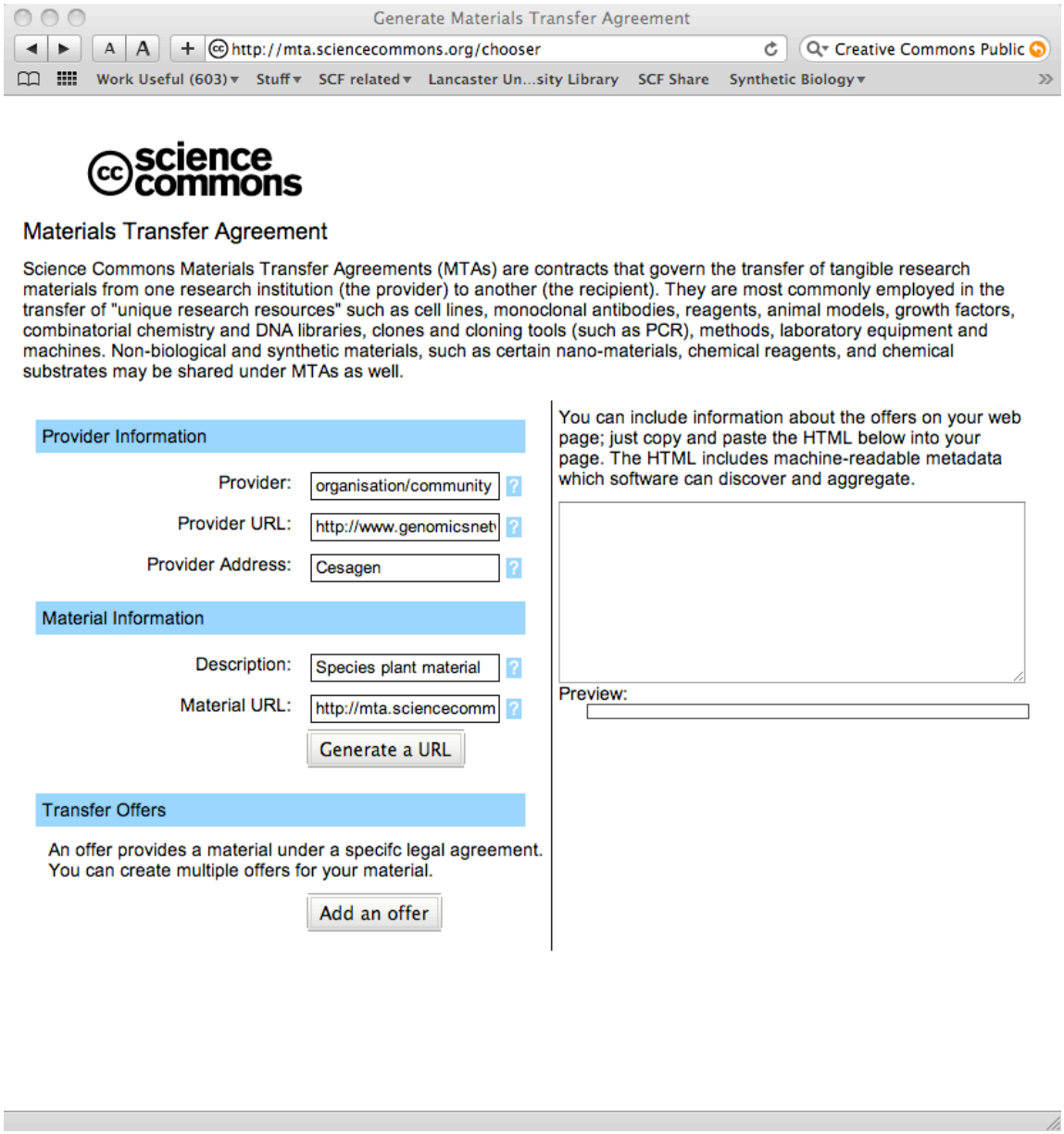



In these examples a provider has chosen a modular creative commons licence to make material available for non-commercial purposes, including derivative works, on the condition of attribution and share alike. The second image shows the human readable licence with a link to the full legal code (the full licence, not shown). html is also provided for displaying the licence with symbols for terms on a website.

Using the creative commons search tool enabled for popular search engines a user can then find material available under licence terms of interest. A search for creative commons material that can be modified, adapted or built upon including the simple term “biology” returned a raw 422,000 results. A search for commercial use produced 136,000 results. In the non-commercial category the top result was MITs free online OpenCourseWare material for biology. This is part of a wider and very valuable initiative that offers free access to lecture notes, exams and videos for 1,890 courses offered at MIT.

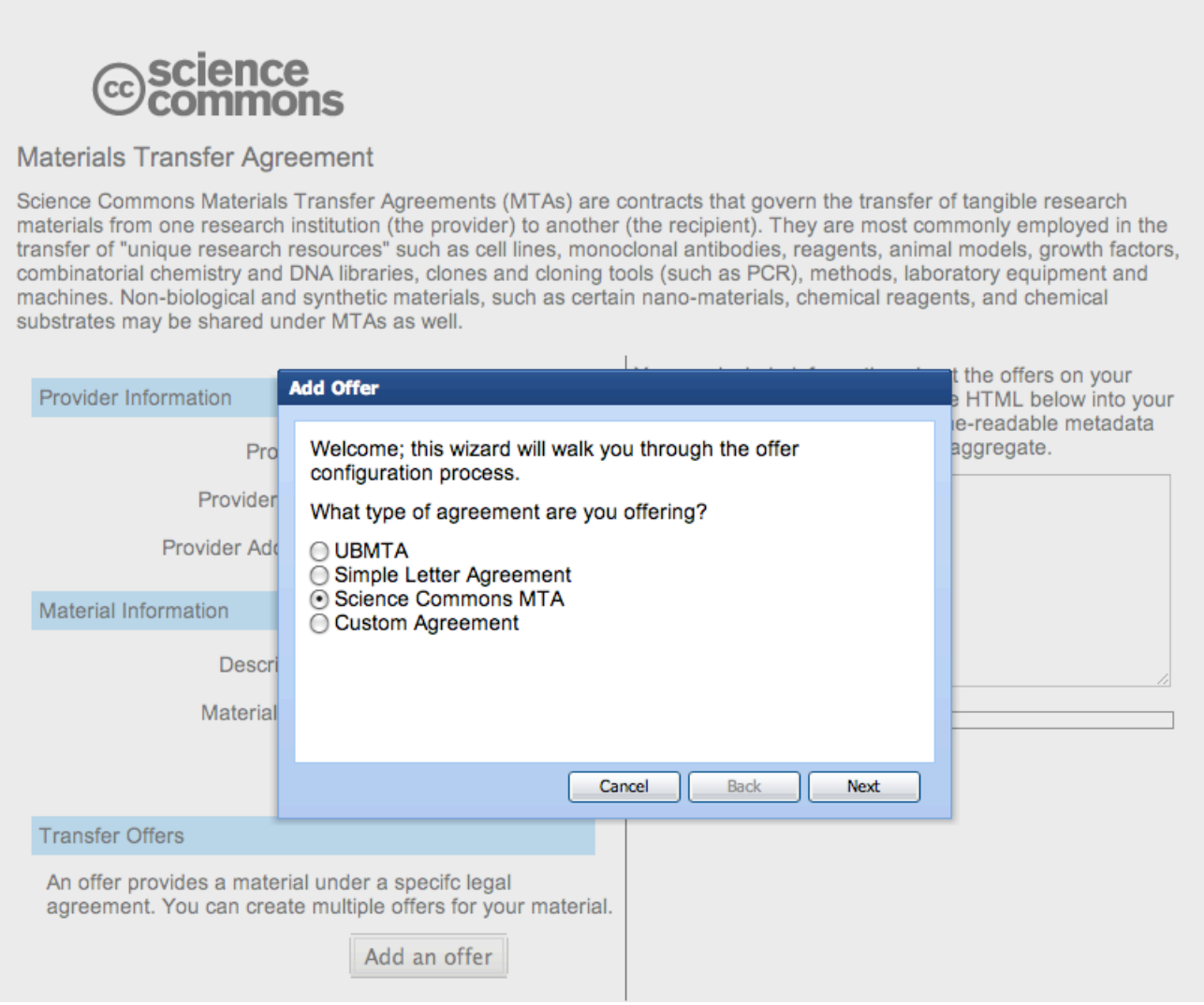
The second example is from the Science Commons Biological Materials Transfer Agreement. This is much more recent as a functioning initiative and this is a dummy example for illustration.[154]

**Figure 12: Entering Data for a BMTA**




[154] To test this approach visit http://mta.sciencecommons.org/chooser

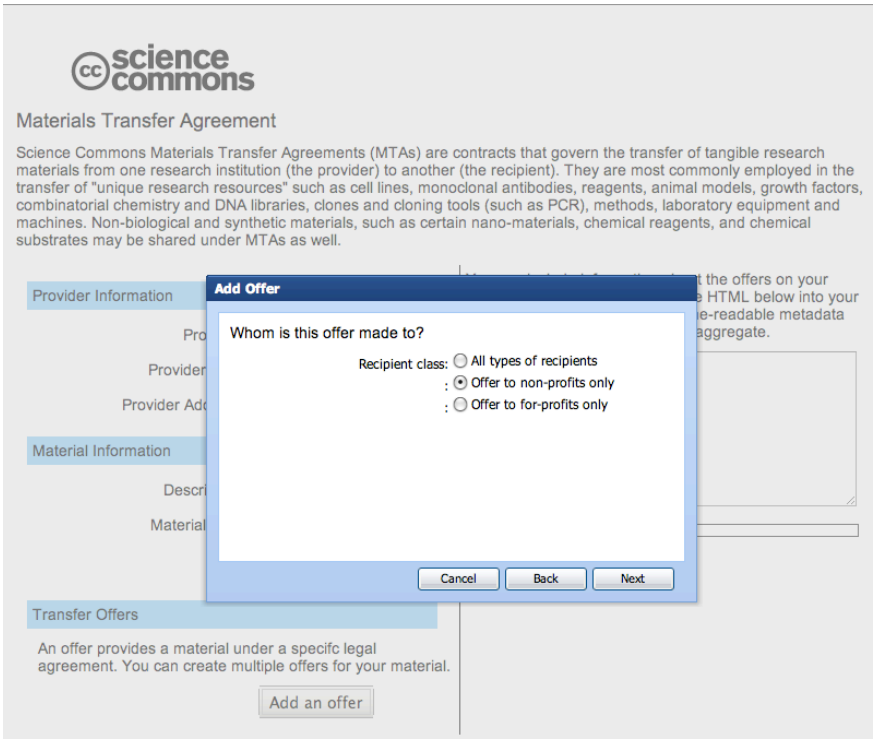
**Figure 13: Selecting an MTA Type**




A range of MTA options are available including the Uniform Biological Materials Transfer Agreement (UBMTA), a simple letter of agreement, a Science Commons MTA (including a variety of modular options) and a custom agreement.

The next steps in the process involve specifying whether the material is available for non-commercial or commercial use or both. The provider is also given an opportunity to restrict uses in various ways. In this dummy example the provider restricts the research purposes under which the material is offered to Dengue but does allow scaling up of the material (where possible) and retention by the user. Additional steps involving setting termination dates for the transfer offer and specifying any transmittal fee are not shown here.

**Figure 14: Select Non-Commercial/Commercial or Any**




This option demonstrates the offer of material for non-commercial purposes only.

**Figure 15: Select Any Restrictions (Restricted to Dengue)**

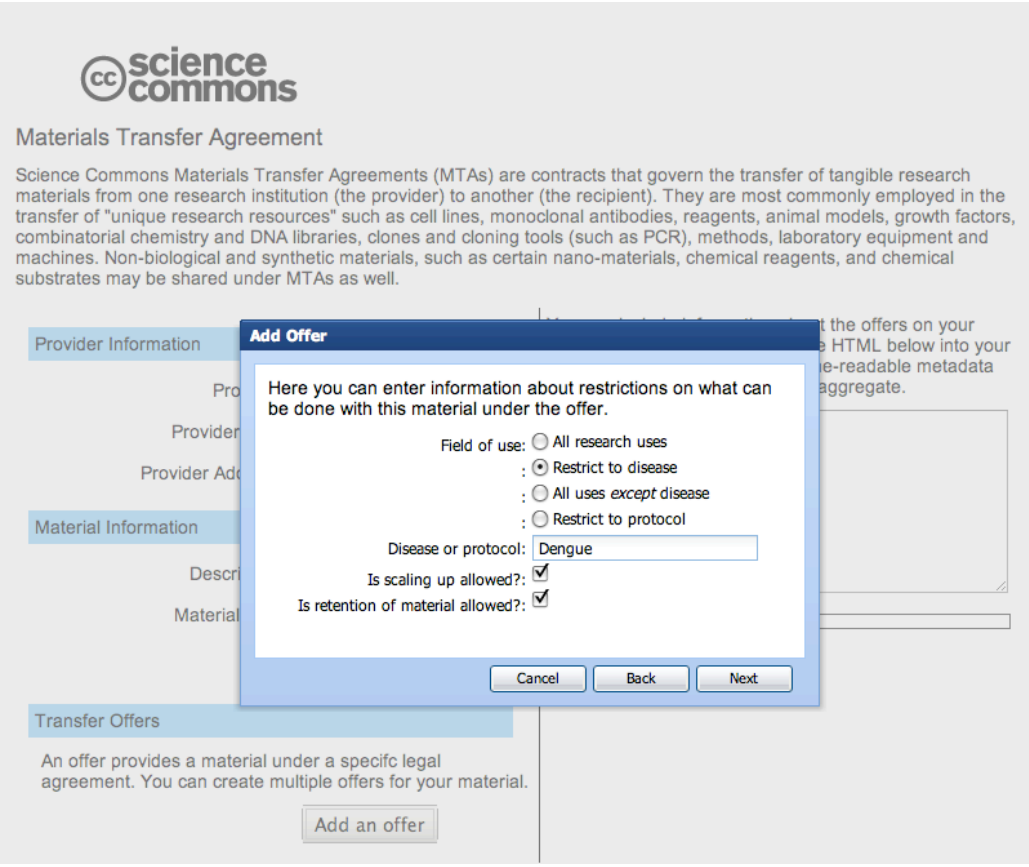
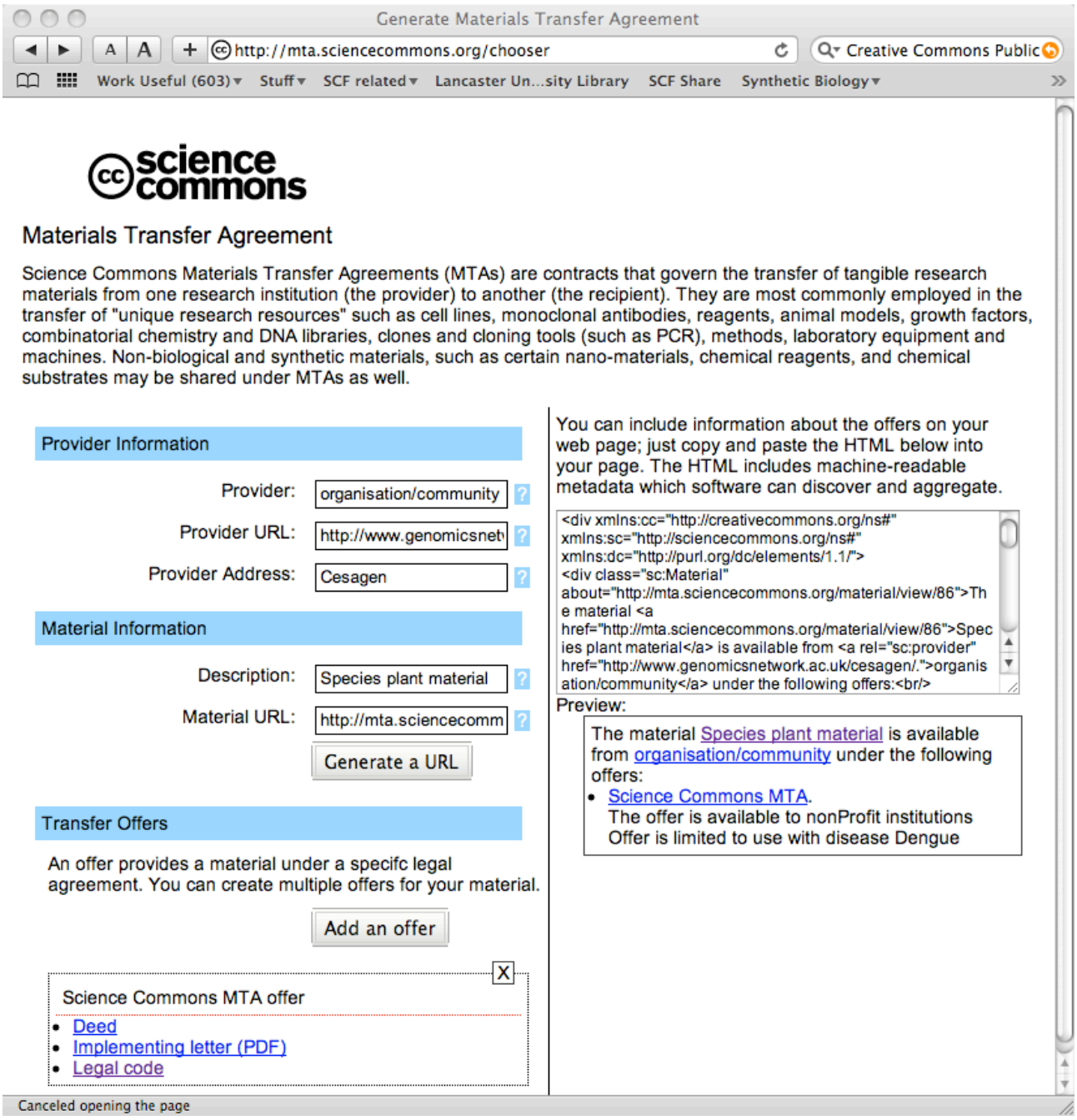
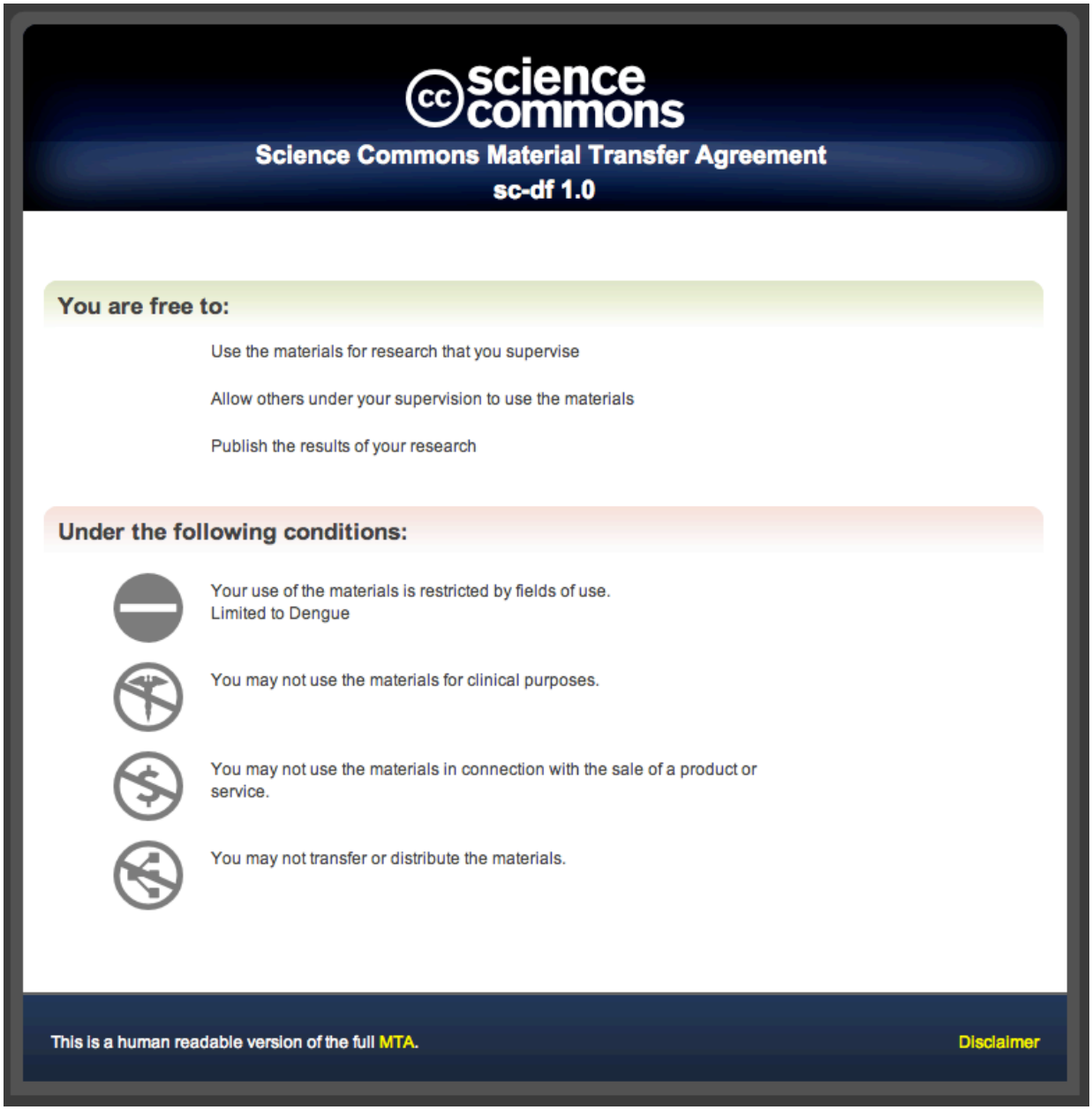


**Figure 16: Machine Readable (html) Human Readable (Deed) and Legal Code (Lawyer Readable)**




The MTA generation process produces a machine readable version with html code and links that can be pasted into a website. In addition there are embedded links to the Human readable deed. The implementing letter (requiring signature) and the full Legal Code.

**Figure 17: Human Readable (Deed)**




The human readable deed uses symbols and short descriptions to provide a snapshot of the MTA with a link to the full MTA.

**Figure 18: Partial text of the Full MTA**

**Science Commons Material Transfer Agreement**

**Legal code for sc-df agreement.**

Science Commons Material Transfer Agreement
(SC DF 1.0)

NOTICE: CREATIVE COMMONS CORPORATION IS NOT A LAW FIRM AND DOES NOT PROVIDE LEGAL SERVICES. DISTRIBUTION OF THIS AGREEMENT DOES NC

1. Introduction

This Science Commons Material Transfer Agreement and any attachment that references it (collectively, the "Agreement") is entered

This Agreement may be released in multiple versions. Only the version expressly referenced by the parties shall apply, even if su

2. Definitions

Capitalized terms used in this Agreement have the meaning defined below. Plural and singular forms may be used interchangeably.

"Clinical Use" means use in humans to treat or diagnose any disease or condition, including, but not limited to, use in clinical t

"Commercial Use" means selling or offering for sale: (i) a product that contains the Materials, (ii) a service that involves usin

"Investigator" means the principal investigator employed by Recipient who is responsible for controlling and supervising research

"Materials" means tangible materials that are transferred subject to the Agreement, as may be more specifically described in an at

"Modification" means a change to the Materials resulting in novel properties or a combination of the Materials with other material

"Provider" means the Party that provided the Materials.

"Recipient" means the Party that received the Materials.

"Research Use" means experimental activities directed to discovery or development, but excluding any Commercial Use or Clinical Us

"Scale Up" means to produce substantial additional quantities of the Materials.

"Specified Field of Use" means the field of use as defined in the attachment to this Agreement.

"Unmodified Product" means: i) the progeny (if an organism, including a virus) or subclone of the Materials, ii) a product express

3. Authorized Uses and Limitations

The Recipient agrees to use the Materials only in accordance with the following terms and conditions.

a) Use Limitations

i) The Recipient shall not permit or engage in any Clinical Use or Commercial Use of the Materials.

ii) The Recipient shall not use the Materials in manufacturing products for sale.

iii) The Recipient shall permit use of the Materials only under the control and direction of the Investigator.

iv) The Recipient shall not permit or engage in any use of the Materials for any purpose other than a Research Use within

At present the Science Commons Material Registry is limited to test examples that reflect the newness of the system.[155] What this simple walkthrough of these two approaches does demonstrate is that it is increasingly possible to generate standard modular licenses that cover a range of materials and to direct the terms under which those materials are made available to desired users and purposes.[156]

[155] To access the registry visit the MTA section. Options are also available to embed the MTA chooser in a provider's own web pages. See http://mta.sciencecommons.org/

[156] There are also clear similarities between this system and the SMTA system operating under the International Treaty on Plant Genetic Resources for Food and Agriculture.

**Conclusion:**

This discussion paper has been concerned with exploring the possible application of commons/open source licenses to the enablement of the provisions of the international regime on access to genetic resources and benefit-sharing under the Convention on Biological Diversity. In the process it has presented an outline for what those licenses might look like and the purposes they might serve based on the inspiration provided by creative commons and science commons approaches.

In particular, this discussion paper has argued that the international regime should enable choices for ordinary providers of knowledge and resources under the regime in conditions of sufficient certainty regarding respect for their rights to facilitate wide participation. The discussion has also argued that licenses provide opportunities to create collaborative partnerships and networks between providers and users directed towards addressing provider needs and generating public goods.

In the course of the discussion we have seen that the principle of reciprocity, and the spectrum of reciprocal exchanges to which attention to customary laws direct us, is central to understanding access and benefit-sharing relationships. The proposed access and benefit-sharing licenses are directed towards promoting reciprocal exchanges and relationships of particular types within a trusted ABS commons system backed by legal certainty, monitoring capacity, incentives and penalties.

In considering this discussion paper, what will be clear to participants in ABS debates is that more work would be needed in generating a trusted system to meet the needs of both providers and users if the proposal for access and benefit-sharing commons licenses is taken up. For that reason the discussion has proposed that provision for such licenses should be included in the text of the regime on the understanding that the licenses would be developed following the adoption of the regime in 2010. In making this proposal the aim has been to enable an international regime that would serve constructive purposes in addressing the common challenges confronting humanity in the 21st century and enjoy wide public support and recognition. That would be an international regime, including a protocol, that is worth having. It is in that constructive spirit that this discussion paper is offered for consideration.