Scenario planning on the future of intellectual property: Literature review and implications for human development

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Introduction

This article summarizes scenario planning relating to intellectual property (IP). Future scenarios are stories created to describe alternative future outcomes, each a plausible example of what might happen under particular assumptions (see Millennium Ecosystem Assessment 2005). Participants in scenario planning develop these stories of possible outcomes through a process of identifying the driving forces and uncertainties existing today (McNeely 2005, p. 62). The intention of scenarios is to consider a wide variety of possible futures rather than to focus on the accurate prediction of a single outcome (Evans et al. 2006, p. 6). Thus, future scenarios are not predictions, forecasts or projections. Projections need to be grounded in empirical evidence and accepted assumptions about trends.[2] Since IP comprises such a broad spectrum of legal rights, each subject to trends of uncertain duration and consistency, few credible projections relating to the future of IP exist. Given the complex driving forces and multiple stakeholders shaping IP and human development, scenario planning may present an interesting alterative tool for exploring the future.

Section 1 introduces scenario planning as a tool for planning processes pertaining to IP and development. Section 2 discusses the most ambitious scenario planning process so far in the IP arena, conducted by the European Patent Office on 'Intellectual Property in the Year 2025', along with other scenario work addressing IP globally. Sections 3 and 4 explore how scenario planning has been used to address particular themes on IP and human development, such as the future of the public domain and the implications of new technology. Other potential themes for scenario planning are suggested along the way. Section 5 describes the World Intellectual Property Organization (WIPO) Development Agenda and suggests how scenario planning might help the multiple stakeholders clarify future directions for this agenda.

1. Scenario planning and intellectual property

Any discussion of IP rights inevitably involves a tension between the interests of right holders in creative works who want to control access to their works, and other people who want to gain access to these works, including those creating new innovations. The tension between exclusivity and access cannot be resolved without a fair and balanced system of IP laws to provide limited exclusivity and sufficient access consistent with the public interest (Gollin 2009). The requisite

[1] Invaluable text and comments have been received from Claire Comfort, Graham Dutfield, Hans Haugen Morten, Fred von Lohmann, Savita Mullapudi Narasimhan, Manuel Ruiz and Matt Spannagle towards sections of this article.

[2] Quite in contrast to future scenarios, projections have been defined as 'estimates of future conditions based on the study of recent ones' (McNeely 2005, p. 62).

balance is dynamic and unstable and is tested and retested with each new technology, along with continued economic shifts and global development. Any new tool to help find that balance should be welcome. Scenario planning may be such a tool.

Scenario planning has its origins in military and corporate strategic planning (Evans et al. 2006, p. 11). However, it has increasingly been applied by international organizations and non-governmental organizations (NGOs) to help convey a longer-term vision in their strategic planning processes. In their publication *What If: The Art of Scenario Thinking for Nonprofits*, Scearce and Fulton (2004, p. 8) outline the scenario planning process and its potential:

> The scenario thinking process begins by identifying forces of change in the world, such as new technologies or the shifting role of government, that may have an impact on the people served by a nonprofit organization, as well as on the strategic direction of the nonprofit itself. These forces are combined in different ways to create a set of diverse stories about how the future could unfold. Once these futures have been created, the next step is to try to imagine what it would be like for an organization or community to live in each of these futures. The exercise may sound simple – and in many cases it is. But the results are often surprising and profound. In the process of adding detail and color to each future, new issues or strategic concerns rise to the surface, and old issues get reframed.

Our literature survey suggests that scenario planning is still at its nascent stages in IP-related areas, but it has great potential for encouraging forward-thinking and creative solutions to some of the complex debates about IP. Apart from a handful of notable exceptions which are discussed and analysed in this chapter, the scenario planning approach remains quite new to IP-related organizations and professionals. Although there are many published positions and recommendations about IP, there are few attempts to use future scenarios to inform these recommendations or to visualize their consequences. In the following sections, we highlight existing scenario plans produced by organizations and commentators in relation to IP, and address some gaps in the current literature. Along with other themes discussed, a scenario planning process could be helpful for clarifying future directions for the WIPO Development Agenda.[3]

2. Intellectual property in the year 2025

Our literature survey identified two future scenario plans relating explicitly to IP in the year 2025. These plans highlight geopolitical trends and ambitiously try to map the future role of IP within these larger, tectonic shifts. The first plan resulted from the European Patent Office (EPO)'s scenario planning process completed in April 2007, the most extensive and innovative process of its kind in the IP sector. The other scenario plan consists of alternative stories on IP in the year 2025, by Halbert (2001). While not the outcome of an institutional scenario planning process, the latter scenario plan nevertheless presents a useful comparison with the EPO scenario plan.

[3] Searce and Fulton (2004, p. 20) discuss a 'decision tree' for determining 'whether scenario thinking is an appropriate tool' for addressing a particular challenge.

2.1. European Patent Office scenarios on the future of IP

The EPO scenario planning took three years and involved interviews with approximately 100 academics, patent office officials, activists and practitioners in the field. The EPO's goal was to listen to a cacophony of voices from all over the world in order to find ways to ensure that the IP system 'remains fit for its purpose in support of innovation, competitiveness and economic growth for the benefit of the citizens of Europe' (Introductory letter from EPO President Alain Pompidou). The EPO paid particular attention to transformative innovation in biotechnology, nanotechnology, robotics and the patent system. However, they also pursued interconnections between multiple areas of IP, including the intersection between IP and ethics and the proper balance between the rights of developed and developing countries.

A 124-page report was completed and presented in April 2007 by the EPO. The report is entitled *Scenarios for the Future: How Might IP Regimes Evolve by 2025? What Global Legitimacy Might Such Regimes Have?* ('EPO Report').[4] Based on the extensive interviews it conducted, the EPO decided to identify several plausible holistic long-range IP scenarios. These scenarios are complex stories about the potential consequences of the decisions countries and organizations are being asked to make today.[5] A simplistic scenario – a world without any IP laws at all – was not analysed in detail because it was seen as not plausible in view of the history of IP law and practice as it has evolved over the past several centuries. Some of the current pressures shaping the future of IP systems, as identified in the report, include new technologies, territorial expansion, increased desire to protect even minor innovations with IP rights, and fears about the risks of new technologies.

The EPO identified five particularly influential driving forces that may shape the future of IP. First, power relationships are in flux – due in part to globalization and cross-cutting alliances formed between and among multinational corporations, global networks of civil society, special interest organizations and international bodies and trade blocs – such that it is not clear who will have authority over the IP system in the future. Second, a global jungle of competition emerges among local communities and countries, companies and industry groups and market sectors and workforces, making it hard to predict which ones will survive and which will not. Third, a faster rate of change in technology and economics contrasts with slower changes in human psychology, culture and the environment. Fourth, interdependence creates massive systemic risks and poses a threat of regional, ethnic and cultural conflicts. Fifth, a paradox exists between the increasing use of IP rights to restrict innovation and the increased availability of knowledge around the world. The EPO refers to this fragmented but

[4] EPO 2007, *Scenarios for the Future: How Might IP Regimes Evolve by 2025? What Global Legitimacy Might Such Regimes Have?*, EPO, Munich [hereinafter 'EPO Report']. See also EPO 2006.

[5] According to the EPO Report: 'Scenarios are challenging, relevant and plausible stories about the future, used as tools to generate policy dialogue. They do not attempt to predict the future, but set out the landscape of a wider environment…By taking a long-term view, it is possible to examine a range of possible realistic outcomes that might have to be faced and therefore make more informed decisions …Scenarios are concerned with the external driving forces over which an organisation or system has little or no control: the political, economic, societal, ethical, technological, environmental and historical pressures that could impact the system and the way it functions. The issues at stake and the most likely driving forces that might force change on the system are identified by a team of scenario builders as a collective brainstorming process' (ibid., p. 13).

interconnected world with dramatic demographic shifts as a 'Kaleidoscope Society', one in which no trends dominate and accurate predictions are impossible. These five influential driving forces are said to affect both the legal systems and the practices organizations use to operate within them.

Based on its view of the present situation and the five driving forces, the EPO imagined four separate scenarios that could result from these driving forces. The assumptions in each scenario overlap. However, projecting the analysis in each case over a twenty-year period results in very different futures. The following is a summary of key points drawn from the EPO scenarios:[6]

(1) **Market Rules**: Here, business has its way. This is the most familiar scenario.[7] Projecting forward, new forms of technology are patentable, and more people seek patent protection. Corporations use patent portfolios to dominate particular technologies. Patents are traded as financial assets. Given the sheer volume of patent applications, a global patent treaty is finally implemented. Market forces dominate, with anti-competition laws as the principle tool for curbing abuse of the system and correcting problems such as boom-bust economic cycles. Successful business lobbying would signal a trend in this direction, where success would be defined by speed and efficiency.

(2) **Whose Game**: In this scenario, geopolitics dominates the IP agenda. Players in wealthy countries fail to maintain technical superiority with strong IP rights, and some developing countries catch up, while others migrate to a communal use paradigm. Differences among IP systems are increasingly used as weapons in trade wars between nations and trade blocs. Global enforcement becomes more difficult in an increasingly fragmented world. A trend in this direction would be signalled by assertiveness by new entrants (such as China, Brazil and India), and success would be defined in terms of a mindset of 'my society wins'.

The EPO Report discusses genetic resources and traditional knowledge (TK) in this scenario, observing that developing countries are asserting new forms of IP protection for these innovation assets (ibid., p. 55). Under the scenario, the expansion of IP rights under the TRIPS Agreement and more protective TRIPS-plus bilateral agreements has not satisfied the demand for technology transfer to developing countries for medicine and seeds, leading to tensions about compulsory licensing of drugs and other controversial initiatives for 'catch-up' development (ibid., pp. 59–63). Drugs are meanwhile freely available under this scenario. Projecting forward in this scenario, weak economies in the developed countries and low investment in research lead

[6] The synthesis and analysis of the EPO scenarios was contributed by Michael Gollin.

[7] But other scenarios are becoming increasingly plausible with more stakeholders ready to fight for their alternative approaches. 'This transition has happened so quickly that it has been hard for many inside the world of patents and intellectual property to recognise all the changes and adapt to the very different environment in which they now operate' (EPO 2007, p. 13).

many scientists to move to intermediate countries like China and India. This scientific emigration dramatically increases the levels of innovation in intermediate countries. This shift in innovation eventually leads to a bipolar world: a bloc of North America and Europe and an Asian-South American bloc. Africa is not highlighted in this scenario.

(3) **Trees of Knowledge**: Social groups are the dominant force in this scenario. Heightened criticism and distrust lead to an erosion of the IP system. In an increasingly kaleidoscopic society, fleeting alliances form around specific issues and crises, such as health, knowledge, food and entertainment. Popular movements and the media drive towards dominance an A2K (access to knowledge) approach, with reward for innovation being secondary. A rise in political impacts on the IP system would signal a move in this direction, where success is measured by broad social acceptance. The tension between private property and public good is emphasized in this scenario. The open access movement is examined in more detail than in the first two scenarios, as an example of conflicting and overlapping licensing practices, technological innovation and copyright and patent law restrictions. Tensions among artists, studios and media consumers polarize to a point where the debate becomes dominated by civil society interest groups (such as anti-IP pirates and copy-left advocates of freedom) who do not support IP for media. This change pushes the entertainment industry to explore new models. Similar tensions exist among scientific researchers who are not only pushing for open access to scientific information (like genetic sequence data) but also operating in collaboration with industry (e.g. under the US Bayh-Dole Act) and therefore pursuing patent protection. Technology causes tension because of its environmental, economic, philosophical and religious implications, and IP becomes a topic in resulting debates, for example, over medicine and whether strong patent protection promotes innovation or, instead, simply creates inappropriate incentives for incremental inventions.

Projecting forward to 2025 in this scenario, a flood of trivial patents leads to patents becoming available only for mechanical and chemical inventions, not for genetics and software. An open access political movement results in a weaker copyright regime for books and digital media. However, this weaker and highly digitized copyright regime is potentially advantageous because it supports widespread dissemination and sharing of information. Politicized patent offices evolve to serve as knowledge agencies implementing various incentive programmes. A global pandemic results in a ‘patents kill’ movement, and leads to demands for limitations on patentability and the expansion of compulsory licensing. Prizes, grants and advance purchase commitments are used in an attempt to fill in gaps in private research. Likewise, a global blight in maize and soybeans leads to a public model for agricultural research, in contrast to a concentration of the global seed market among very few multinational corporations (a situation which could have resulted in reduced research). Secrecy and branding become the primary protectors of innovation,

and some areas like biotechnology wither in importance. Politics comes to dominate research and innovation, rather than science and market forces.

(4) **Blue Skies**: In this scenario, technology is the main driver in a fragmented world. Incremental innovations are protected under a legal system that is essentially the same as the current one. However, with fast-moving technology, patents become less important. Meanwhile, special IP practices apply to integrative technologies in biotechnology, information technology and nanotechnology. Integrative technologies are crucial to overcoming challenges like disease and hunger. Novel licensing practices such as pooling and compulsory licensing prevent blockage and profiteering, and promote collaboration and diffusion of these critical technologies. Looking ahead to 2025, a soft IP system (with access in exchange for mandatory payments) is applied to most technologies, including environmental technology addressing climate change and technologies in the telecommunications sector. Patent offices use technology to become more efficient, but are burdened by the need to administer complex licensing systems. An international IP court resolves some disputes. Soft patents work to foster collaboration in the pharmaceutical and other similar industries. Open source approaches become integrated into the international IP system. The Report predicts growing tension between the new and classic technology sectors, with success being measured in terms of technology diffusion and resilience.

The EPO Report concludes that dramatic change in the future of IP is likely, and that the results will resemble some hybrid of the aforementioned scenarios. The EPO Report furthermore invites readers to form workshops to develop their own scenarios (ibid., p. 111).

2.2. Analysis of EPO scenarios

In summary, the EPO's set of four challenging, relevant and plausible scenarios describes four possible future worlds. Each of the possible scenarios was defined in accordance with a strong driving force – the business market ('Market Rules'), geopolitics ('Whose Game'), civil society ('Trees of Knowledge') and technology ('Blue Skies') – that could come to dominate the future of IP and its role in our world.

The EPO Report is an excellent and inspiring example of creative thinking by a regional intergovernmental agency and the first large-scale effort applying scenario planning to the IP field. The success of the end product demonstrates the value of scenario planning in IP policy. However, the EPO Report has gaps that limit its usefulness for developing countries and future non-profit interventions. First, it operates at a level of abstraction which renders it difficult to apply towards concrete paths and strategic solutions for most organizations whose work overlaps with IP. Future scenario planning on IP should focus instead on closely defined themes in order to yield practical results to which stakeholders can both relate and contribute. It might be more helpful in some cases to conduct scenario planning according to innovation sector instead of by societal driver/political influence groups. For example, scenario planning on the future of traditional knowledge (TK) protection would be more useful for informing policies and strategies

in TK-related areas than a general scenario planning study is. The EPO Report gives uneven amounts of attention to different sectors. Open source issues, science and entertainment were given much attention. In contrast, agriculture was only dealt with in a few places. Of the sectors of interest to developing countries and marginalized groups, only health was singled out for separate treatment. Areas such as TK and biodiversity were only treated nominally.

Second, because of its European focus, the EPO report only deals with emerging economies peripherally and all but ignores dynamics within the least developed countries. For example, while the 'Market Rules' scenario envisions active participation by China and Korea in future patenting, it is largely silent about the impact of Brazil and other developing countries. It is notable in the 'Whose Game' scenario that the continent of Africa is not highlighted in the new bipolar world envisaged. Therefore, there is a need for scenario planning that more prominently brings to the fore the voices and concerns of developing and least developed countries, especially those of marginalized stakeholders within national borders. Such a process could visualize future scenarios from a perspective not only of economic development but also of sustainable human development, and might be helpful in informing future initiatives, for example, as background for the WIPO Development Agenda.

Third, while the EPO Report recognizes the power of politically active NGOs to shape the IP regime, it does not sufficiently highlight the dynamics and capacity building required of these players and developing country stakeholders to act effectively in this respect. The crucial role of technical assistance and capacity building of stakeholders in IP-related decision-making and management is dealt with only tangentially in the EPO report. In reality, the ability of developing countries, non-profit organizations and marginalized stakeholders to participate in or modify the IP system depends heavily on ready access to information about the IP system and professional expertise by these parties. Marginalized stakeholders, who are in greatest need of technical assistance and capacity building to tap into the decision-making processes in an informed manner, are precisely those who currently lack access to such information and expertise. Such access, as facilitated by Public Interest Intellectual Property Advisors (PIIPA) and others, could help to promote a more balanced system than one in which inequalities in the bargaining positions of stakeholders are accentuated by differential levels of access to legal support.

Despite these shortcomings, the EPO report stands alone as a uniquely detailed and creative evaluation, based on extensive research and a wide range of viewpoints on the options facing society and their potentially fateful consequences. Future scenario planning projects relating to IP will benefit greatly from the pioneering effort reflected in the EPO report.

2.3. Other scenarios on IP in the year 2025

In an article predating the EPO scenarios, Halbert (2001) describes the following three possible scenarios for the future in relation to IP:

- The first scenario, 'Chinese and Indian Hegemony – the Rise of the East', describes the rise of Asia as a hegemonic force in IP and technology.

- The second scenario, 'When Corporations Rule the World – Globalization and Western Hegemony', envisions a future where multilateral corporations and their Western hosts retain power over IP.
- The third scenario, 'The Open Source Revolution and the Demise of Intellectual Property', elaborates on parallel systems of protection and sharing that do not rely on property ownership to protect creative work.

According to Halbert, the third scenario is a desirable one in that it describes collaborative projects and hybrid models which attempt to balance protection for innovators and creators with the public interest. In contrast to the two earlier scenarios, the third scenario envisions the decentralization of rights over new creations and an accentuation of the value of the public domain (ibid., p. 45). Under this scenario, parallel systems of protection for work conventionally understood as IP would evolve to acknowledge the importance of creative work and reward the creators, while avoiding IP ownership and the centralization of IP assets implied by the other two scenarios mentioned earlier. Open source software is discussed as an example of such parallel systems (ibid., pp. 45–47).[8] The author comments that:

> The idea that open source software is based on helps to provide an alternative way to think about creative work and collaboration. Open source software can serve as an excellent model for overcoming the problems inherent in traditional copyright law by creating a true public domain where information is free to use and everyone contributes what they have created…It has created an alternative framework to understand creative work in an era dominated by private ownership. (Ibid., p. 52)

Other examples of scenario thinking on IP are discussed in the following sections. The future of the public domain, for example, is a common theme in scenario plans and other literature relating to IP. This largely reflects growing concerns over the privatization of IP assets and a perceived 'second enclosure' of the commons, as discussed in various sections of this study. At the same time, the discourse on the public domain has its own conceptual challenges, and the perspectives of different stakeholders are explored in Section 3. The challenges and opportunities posed by new technologies are then discussed in Section 4.

3. The future of the public domain: Scenario analysis

The 1994 TRIPS Agreement did much to rouse public awareness and debate over the relationship between intellectual property rights (IPRs) and the public interest, by inserting IPRs into the international trade agenda. Wallis (2006) notes, for example, that no consensus exists on the critical point at which protection of private interests ceases to be a gain and starts to become a loss for innovation and the public interest, let alone a methodology for computing it.

Changing social values are meanwhile reshaping the public's perception of IPRs. Much public as well as academic debate has focused on the need for balance between protecting private

[8] Halbert (2001, p. 47) notes of this scenario: 'The Open Source movement and the free software movement [have become] strong examples of the capabilities of innovation despite a clear lack of proprietary ownership over the [source] code. For computer programmers this brought back the good old days of programming before copyright got in the way…'.

IPRs and cultivating a robust public domain (Litman 1990; Boyle 2008). The interested public is not a passive recipient in the equation, but is increasingly active in defining this balance. This is visible from such developments as the Creative Commons and Open Source movements, as well as the growth of civil society representation and engagement in IP-related issues.

In a paper called 'The Public Domain: Why WIPO Should Care', the International Federation of Library Associations and Institutions (IFLA), Library Copyright Alliance (LCA) and Electronic Information for Libraries (eIFL) observe that the public domain is 'under threat' from extending terms of copyright protection and the increasing use of technology protection measures (TPMs) which lock up content without time limit.[9] Given that the public domain is often defined as that which is not protected by IPRs, the future of the public domain is closely intertwined with the future of IP.[10] Some scenario work relating to IP at an organization promoting scenario planning ('scenariothinking.org') is worth a brief mention here. Although it is titled more broadly as scenario planning on the future of IP, it touches on issues pertaining to the future of the public domain:[11]

> **Scenario I:** Every fact becomes 'privately' owned, and everything on the web becomes IP by 2011.
>
> **Scenario 2:** Everything on the web is freely available, with no IP, and Creative Commons replacing rigid IP rules by 2011.
>
> **Scenario 3:** IP will be customized in each country and at every level by 2011, leaving it 'always up to the individual/ business to indicate what they want to share and what not'.

Future scenarios are intended to be creative though 'plausible' stories, reflecting combinations of alternative futures which take into account existing trends and important driving forces for change. It should be observed that the first scenario in the immediately aforementioned exercise does not account for the historical development and workings of IP regimes, where principles (albeit not fool-proof) exist to limit the subject matter of IP. These include, for example, the requirement of 'originality' and the 'idea/expression' dichotomy for copyright protection, and principles of fair use/fair dealing. Trademarks must be distinctive as to the source of the goods or services, and trade secrets must remain secret. Requirements such as 'novelty', 'inventive step' or 'non-obviousness' exist to limit patentable subject matter even though there are debates over whether the thresholds are set optimally. It is true that the extension of IP protection in some jurisdictions to databases may in cases be arguably extending IP protection to 'facts'. But, it is not plausible that future developments would bring into existence a scenario where all facts are privately owned.

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[9] IFLA, LCA, and eIFL, 2007, 'The Public Domain: Why WIPO Should Care', presented to the Provisional Committee on Proposals Related to a WIPO Development Agenda, Third Session, Geneva, 19 – 23 February 2007.

[10] There are in fact many definitions of the 'public domain' (see Suthersanen 2008), and some scholars have explored whether it is more appropriate to speak of 'public domains' in the plural (see Samuelson 2006; Waelde & MacQueen 2007; Boyle 2009).

[11] The scenarios can be found at the ScenarioThinking.org website, 'Future of Intellectual Property', available at: http://scenariothinking.org/wiki/index.php/Future_of_Intellectual_Property (accessed 20 March 2009).

In the second scenario, the Creative Commons movement eventually takes over IP rules. This perhaps reflects a common misconception about the nature of Creative Commons. Creative Commons is ultimately a system of flexible licensing for copyrights. The system provides IP owners with a standardized set of licence agreements to facilitate the sharing of content with others. As with most licence agreements, Creative Commons licences allow the IP owner to retain ownership while permitting uses of the copyright-protected work in a manner consistent with the terms of the licence.[12] As noted by Coates (2007), taking inspiration from open source licences, the Creative Commons founders decided to create a 'free culture' by developing a set of licences that creators could use to make their creative material more freely usable without giving up their copyright. Creative Commons licences build on the 'all rights reserved' model of traditional copyright to create a voluntary 'some rights reserved' system.[13]

The third scenario – that all IP protection gets customized at the national and individual levels – echoes the 'Whose Game' scenario in the EPO Report and is opposite to trends witnessed historically towards the harmonization of protection for various types of IP through the multilateral framework (such as under the TRIPS Agreement, and earlier IP instruments including the Berne Convention, in place since 1886), as well as bilateral and regional free trade agreements and investment agreements. Some 'customization' may occur during the implementation and annual review of bilateral agreements; a CIEL paper outlines the opportunities for developing countries to 'claw back' policy space through diverse implementation options (Roffe 2007; see also Abbott 2006). Meanwhile, discussing the accession process for new members to the WTO, Abbott and Correa (2007) observe that accession negotiations have been used in certain cases to secure commitment to obligations in the field of IPRs that are more extensive than those established by the TRIPS Agreement.

Formulations of the public domain which emphasize the latter as the opposite of property may not be able to accommodate different worldviews about knowledge creation and ownership claims.[14] As Worsley (1997) points out in his work *Know-ledges*, challenging conventional Western ways of thinking about science and culture, one need not approach knowledge in the singular but could instead think of coexisting knowledge systems around the world. The diversity of knowledge systems, and forms of innovation accompanying these different systems, has not been fully addressed in the current literature relating to IP and the public domain. For example, TK and customary practices of indigenous peoples contribute to an 'informal' knowledge economy increasingly brought into interaction with the formal knowledge economy through global trade and new information technologies..

By self-referentially defining the 'public domain' as that which is 'not IP-protected', for example, IP law treats many aspects of the TK of indigenous peoples by default as part of the

[12] For more on Creative Commons licences, see Lessig 2004; Merges 2004; OECD 2008.

[13] See Coates 2007, p. 73; Lessig 2004, p. 285. Coates (2007, p. 72) provides a description of the features of the six most commonly used or 'core' licences, and examines how and by whom the licences are being used. By identifying trends in how licence use has changed over time, Coates attempts to 'rebut arguments that Creative Commons is a movement of academics and hobbyists, and has no value for traditional organizations or working artists'. For further discussions on trends and visions relating to the Creative Commons movement, see Fitzgerald et al. 2007.

[14] For example, some may not view what is 'in the public domain' as necessarily 'devoid of any property interests' (comment from Graham Dutfield).

public domain. This treatment works as if to deny any property interests, rights or duties that indigenous people may have in their knowledge. It thus remains to be seen how the 'public domain' discourse can be reconciled with a framework of promoting cultural diversity, generally, and protecting indigenous peoples' TK, in particular. As indicated in the UNDP Human Development Report 2004, many indigenous groups maintain that their rights over their TK are perpetual and do not dissolve simply because of a classification within the 'public domain'. For example, the *Saami* Council of Scandinavia challenges formulations of the 'public domain' that ignore obligations to the community where knowledge is publicly known (UNDP 2004, p. 93; UNDP 2005, pp. 13–14). While themes such as the future of the public domain have shown up significantly in the few scenario plans identified in our literature review, there has in fact been little scenario planning relating to the themes of interest, for example, to TK holders.

Critics have furthermore pointed out that notions of 'public domain' are not necessarily in the 'public interest'. A project relating to 'Access to Knowledge/Creative Commons Movements' at the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) in Australia invites 'critical reflection upon the cultural agendas produced through networks of power and imaginary politics within the commons movement'; it asks 'what or where is the public interest in the production of an information commons and whether there is scope for recognizing that the public is not all of one kind?'[15] Dutfield (2006, pp. 8–9) moreover notes that: 'The public domain is being promoted in opposition to privatization as part of a debate about intellectual property rights, a discussion that does not easily accommodate the specific interests and claims of non-Western societies.'[16] Debates over the digitization of TK encapsulate the clash of ideological viewpoints relating to the public domain and TK. While there have been some initiatives to digitize and place indigenous cultural heritage on the Internet, these have been met with public controversy (Kawooya 2006; Britz & Lor 2004).

Are all stakeholders with potential IP claims – big and small, corporate and non-corporate – being swept under one umbrella in the process of safeguarding the public domain? In 'The Romance of the Public Domain', Chander and Sunder (2006, p. 1335) suggest that public domain advocates resist 'each and every new claim for property rights as an encroachment on the public domain'. They observe that this may '(1) legitimate the current distribution of intellectual property rights, (2) mask how current constructions of the public domain disadvantage and subordinate indigenous and other disempowered groups globally, and (3) impair efforts by disempowered groups to claim themselves as subjects of property…' (ibid.).

Under the Convention on Biological Diversity of 1992, access to TK and associated genetic resources is framed in terms of the 'prior informed consent' (PIC) of TK custodians, with

[15] The research emphasizes that 'the "common" ground upon which the access to knowledge movement (A2K) seeks to tread, that is, the notion of humanity sharing a commons, is actually a fault line of significant proportions that involves colonial and post-colonial conflict, politics, power, economics and histories of human relationships'. See the AIATSIS website, 'Completed Research Projects', available at: http://www.aiatsis.gov.au/research/past.html (accessed 15 April 2010).

[16] Dutfield (2006, pp. 8–9) writes that: 'Disclosed TK has from the distant past to the present been treated as belonging to nobody. Consequently, many indigenous peoples' representatives are concerned that the pro-public domain rhetoric, sympathetic as many of them are about the sentiments behind it, may inadvertently threaten their rights.'

emphasis on arrangements for 'access and benefit-sharing' (ABS).[17] The UN Declaration on the Rights of Indigenous Peoples, adopted by the UN General Assembly in September 2007, refers in its Article 31(1) to the rights of indigenous peoples to 'maintain, control, protect and develop their *intellectual property* over such cultural heritage, traditional knowledge, and traditional cultural expressions' (emphasis added). The struggles of indigenous peoples over control of intangible resources have been expressed as an extension of their historical struggles to retain tangible resources including land and minerals, along with their cultural and political identity as peoples (WIPO 2009). Discussing the interplay between identity politics and IP in the realm of TK, Sunder (2006) notes that: 'These new claims for intellectual property understand rights not just in the familiar terms of incentives-for-creation, but also as tools for both recognition and redistribution'. At the same time, some are concerned that the application of property concepts to TK and TCEs, in the course of 'protecting' such material from third-party exploitation, may transform the very social relations and processes underpinning the creation of such knowledge and expressions (Leach 2003).

These otherwise complex and nuanced relationships are lost to a binary analysis of IP ownership and public domain. The latter approach homogenizes the diverse stakeholders claiming some form of IP and simplifies the idea of the 'public domain' as somehow seamless and even. One challenge is in viewing the latter as a textured landscape, more bumpy for some than for others. Chander and Sunder (2004, p. 1331) observe that:

> [S]cholars obscure the distributional consequences of the commons. They presume a landscape where every person can reap the riches found in the commons. This is the romance of the commons – the belief that because a resource is open to all by force of law, it will indeed be equally exploited by all. But in practice, differing circumstances – including knowledge, wealth, power, access, and ability – render some better able than others to exploit a commons.

Gollin (2008, pp. 48–51) tries to 'map' the public domain according to the extent to which people can access particular information. This approach recognizes that increases in proprietary rights do not necessarily diminish the accessible public domain, which may have expanded due to the explosion of media and knowledge in recent years. Gollin argues that, from a practical perspective, the issue is not so much whether there are IP rights in particular information or innovations, but whether individuals and organizations in society have access to the latter on acceptable terms (ibid.).

It is interesting to note in the meantime that some *sui generis* laws have provided for 'economic' compensation to particular right-holders for access by third parties to material technically within the public domain. The legal underpinnings of such provisions need to be clarified. Noting that various model laws relating to TCEs contain provisions for a *domaine public payant*, a 'system of fees for the use of traditional cultural expressions that are outside the

[17] While 'prior informed consent' (PIC) is the term used under the Convention on Biological Diversity, the term 'free prior informed consent' (FPIC) is reflected in recent instruments referring to indigenous rights. See, for example, Indian Treaty Council 2008, 'Indigenous Peoples and the Right to Free, Prior and Informed Consent', available at: http://www.treatycouncil.org/PDFs/FPIC_ENG_110908WEB.pdf (accessed 28 April 2010); see also Article 32 of the UN Declaration on the Rights of Indigenous Peoples of 2007.

scope of intellectual property rights', Belder (2007, p. 50) queries how this relates to the 'concept of a public domain where access is free'. She adds that: 'A system of fees would suggest that in the process of refining property rights into a sui generis right on the protection of cultural expressions, parts of the public domain have been shielded from access' (ibid.).

Other commentators suggest that more focus could be placed on governing access to intangible material falling technically in the public domain. Kneen (2004) notes, for example, that a commons need not be 'free for all' simply because it is 'open to all'.[18] He points out that 'access may be denied to those who refuse to play by the rules governing use of the public space and "property"' (ibid.).[19]

Future scenario planning work may help to bring these parallel discussions into intersection, so that lessons can be shared. An underlying question is whether the public domain discourse can ultimately accommodate the concerns of different stakeholders in debates relating to IP and human development. Can we, for example, 're-imagine' the public domain away from a dichotomy with IPRs, with potential spaces outside both exclusive IPRs and the public domain?[20] From a human development viewpoint, another important challenge is in clarifying which individuals and groups ultimately comprise the 'public' in these 'public domain' discussions. Indeed, Halbert (2003) explores the evolution of different conceptions of the 'public' and the need to further apprehend the 'plurality' of 'publics' in the multifaceted world in which IP operates. As Samuelson (2006, p. 783) explores in her essay entitled 'Enriching Discourse on Public Domains', is there in fact 'one public domain, or are there many'?

Like the public domain, the concept of piracy has generally been understood as a counterpoint or derivative of IP. However, Johns (2010) provides a detailed history from the time of Gutenberg to support his view that piracy of books, ideas and things, not only predated but, has continually reshaped IP law, doctrine, policy and practice. Many useful insights can be gained by reframing old concepts such as the public domain and piracy in a new light, and scenario planning can help use such insights to evaluate the impact of present decisions on future generations.

4. Challenges and opportunities from new technology

The UNDP Human Development Report 2001 notes that technological innovation 'can directly enhance human capabilities' (UNDP 2001, p. 28). It adds that: 'Many products – drought-tolerant plant varieties for farmers in uncertain climates, vaccines for infectious diseases, clean

[18] Page numbers not available on electronic newsletter.

[19] Kneen (2004) suggests that the public domain is often misconstrued as the commons: 'The term "commons" is wrongly used to describe what is considered as public…In reality, commons historically referred to property and space that was "owned" communally – by a group of fisher folk or a village, for example – and managed for the long-term good of the group, including succeeding generations. Access to the property and space – fields, fishing grounds, forests – was limited to the group "owning" and managing it. It was not open to exploitation by outsiders, though limited use of the space could be extended by the group to "outsiders"'. Contrast Kneen's theory with Hardin 1968, pp. 1243–1248.

[20] Lange (2003, p. 474) asserts that: 'Intellectual property can go on being intellectual property, reformed or otherwise. Meanwhile, the public domain certainly can and should be envisioned as a thing apart, and strengthened accordingly'.

energy sources for cooking, Internet access for information and communications – directly improve people's health, nutrition, knowledge and living standards, and increase people's ability to participate more actively in the social, economic and political life of a community' (ibid.). At the same time, the report emphasizes that 'technological change, like all change, poses risks…the more novel and fundamental is the change, the less is known about its potential consequences and hidden costs' (ibid., p. 1).

New technologies bring about a recalibration of stakes among different individuals, entities and communities, including their stakes in IP. In health, there is a question of whether IP incentivizes the kinds of inventions needed by persons with less purchasing power, including poor sectors in both developing and developed countries. In agriculture, there are concerns that farming models based on intensive use of biotechnology, often patent protected, are crowding out traditional farming practices and landraces which might be more suited to local conditions. The following sub-sections first look at some literature on 'alternative futures' for IP and agricultural technology. We then examine the implications of IPRs for climate change technology before moving on to a discussion of information and communication technologies (ICTs).

4.1. Alternative futures: Biotechnology and agricultural systems

Several scenarios outlined by Tansey (2008, pp. 214–216) address how current rules shape our future food systems, encouraging or discouraging 'different kinds of roles for small farmers, different approaches to biodiversity, and different approaches to the distribution of wealth and power' (ibid., p. 214). He first summarizes two conflicting visions of the future presented by Lang and Heasman (2004). One, the 'life sciences integrated paradigm', envisages a 'highly technological, highly controlled, broad application, wide adaptation approach to the future of food, with large production units and professionalized supply systems from inputs and seeds to final consumer' (Tansey 2008, p. 215). This future is 'more monocultural, industrial, corporate-dominated and dependent on IP' (ibid.). The life sciences paradigm leaves little future for smaller farmers. The displacement and migration of such farmers 'could cause major social and political upheaval in countries still with large farming populations' (ibid.). The second approach, the 'ecologically integrated paradigm', aims to preserve ecological diversity:

> This approach sees biodiversity and diversity in general as a strength and says humans must live within ecological realities and work with them rather then dominate and ignore them. It wants to build on the millennia of experimental empirical work by farmers in diverse environments that have led to a huge range of agricultural biodiversity and to promote connection between producers and consumers; favours the micro, small and medium-sized enterprises, rather than the transnational; and sees a local to global hierarchy, where the local goes first. It promotes organic, integrated pest management, low external inputs, more skilled, open systems of exchange, family-farm-based biodiverse farming, healthy diets, and keeping cooking and farming skills alive from farm to flat. (Ibid.)

Tansey notes other possibilities. One is collapse, 'be it economic, physical or a descent into violent conflict over resources or beliefs' (ibid.; see Diamond 2005). Another scenario

involves extreme genetic engineering, synthetic biology, nanotechnology and the technological enhancement of human beings (see Tansey 2008, p. 215). Practices that support biodiversity may help avoid collapse, but a 'technologically triumphalist' vision that 'treats everything as a resource, able to be owned and patentable' may not (ibid.).

Tansey expresses concern that the current trend in IP rules is not facilitating and encouraging R&D toward the ecological approach, which he believes has the best chance of success over the long term (ibid., p. 216). He asserts that:

> Ultimately, there is a basic tension between IP and biodiversity that those in favour of global IP standards have failed or refused to discuss. IP owners do best (in terms of profit) if they have a global standard or product (Windows, Viagra, Roundup and so on) that is protected globally by high IP standards. Yet innovation in food and agriculture does best if it can draw on a rich biodiversity, a biodiversity that depends on fragile variables such as TK, local farming systems and free exchange of materials. By building a property rights system that rewards standardization and homogeneity, we almost certainly risk affecting those variables that underpin our systems of biodiversity. (Ibid.)

The climate change dimension remains to be fully explored in scenario planning on IP. While Strauss (2008, p. 59) queries whether there is a 'global warming of patents' from the 'nearly exponential global growth in numbers of patent applications', legal literature is only beginning to tackle the real linkages between IP and climate change. Climate change debates will further accentuate many existing issues and tensions relating to IPRs and food security while bringing up new challenges. Since food security depends on the conservation of agro-biodiversity (and animal genetic diversity) to which climate change poses real and increasing threats, IPR issues in relation to genetic resources and agriculture will become all the more pertinent. The requirements of climate change mitigation and adaptation will also further highlight questions of control and access to genetic information as scientific data, along with the implications of new technologies including genomics, bio-informatics and synthetic biology.

Scenario planning may be helpful to tease out some of the implications of climate change on IP and agriculture. Incremental improvements in agro-technology, incentivized by IPRs, such as drought resistant strains of maize, may enable monocultures to remain productive in regions with declining, but relatively predictable climates, such as North Africa and inland Australia.[21] However, until anthropogenic greenhouse gas emissions are dramatically reduced, greenhouse gas concentrations in the atmosphere will continue to rise, and continue to drive warming. Even under the most ambitious targets of the Copenhagen Accord,[22] climate stabilization is unlikely before 2100. Crops will not need just a single technological improvement; instead they will require frequent enhancement just to maintain the same level of productivity. Intellectual property rights may facilitate advancements among agribusinesses that can afford the R&D investment or royalties, but people in developing countries (who are generally much more reliant

[21] This paragraph was contributed by Matt Spannagle, Environment and Energy Group, UNDP.

[22] Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC), Copenhagen Accord (Draft Decision –/CP.15) (18 December 2009), UN Doc. No. FCCC/CP/2009/L.7 (2009), available at: http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf (accessed 19 March 2010). For the latest updates on the Copenhagen Accord, see the UN Framework Convention on Climate Change (UNFCCC) website, available at: http://unfccc.int/2860.php (accessed 5 March 2010).

on agriculture) will be obliged to pay for the technologies, or risk food insecurity and the volatile politics that go with it. Free or conditional transfer of IP may alleviate this problem, but would leave recipients reliant on the ongoing goodwill of IP owners. An alternative scenario that could work to better serve the interests of those who do not own IP is, for example, to forego drought resistant maize and continue to grow some traditional maize with lower yields, while switching part of the land to other productive purposes such as growing wheat, timber or grazing. Approaches which require the abandonment of current farming practices will not be easily accepted by local communities. While probably less productive on an annual basis, this higher diversity approach avoids the complete 'collapse' scenario discussed earlier, and is therefore likely to be a more stable system in the medium-term.

4.2. Climate change and clean energy technology

The role of IP in relation to the development and diffusion of clean energy technology is another area of uncertainty and increasing debate, particularly within the context of climate change. On the one hand, an article published by WIPO on the subject suggests that: 'The intellectual property (IP) rights system makes no distinction between environmentally friendly and other technologies. IP contributes to the development and diffusion of new technologies for combating climate change much as it does in any other innovative technology field…' (WIPO 2008, p. 3). Derclaye (2008) holds the view, on the other hand, that IP laws could be interpreted or reformed to discourage environmentally unsound technologies:

> If a particular state has chosen to implement the *ordre public* and compulsory licensing provisions found in international treaties, courts if they wish can already use these provisions to prevent the protection of inventions and works emitting (too much) CO_2…But international, regional, and national intellectual property laws could be honed further if governments wish to decrease levels of CO_2 even more. A specific public policy and morality provision prohibiting patenting inventions and copyrighting works generating above a certain level of CO_2 should be enacted, preferably internationally. Similarly, states should be forced to enact compulsory licenses, but the latter should only be used when the patent or copyright owners have a dominant position.

A different approach would be to make it easier to obtain patents on green technology. This is the intent of a recent programme in the US to accelerate patent prosecution for eligible green technology applications.[23] Meanwhile, the impact of IP rules on access to clean energy technology is a concern being raised by both developed and developing countries, notably within the context of the UN Framework Convention on Climate Change (UNFCCC).[24] Parties to the UNFCCC have, for example, debated on whether the current provisions within the TRIPS Agreement provide sufficient flexibilities to ensure a rapid and widespread transfer of clean energy technology (see ICTSD 2008, pp. 6–8). A European Parliament report includes a proposal to look into the feasibility of amending the TRIPS Agreement to allow for the compulsory

[23] 'Pilot Program for Green Technologies Including Greenhouse Gas Reduction', 74 Fed. Reg. 64666 (7 December 2009).

[24] United Nations Framework Convention on Climate Change (New York, 9 May 1992), 1771 U.N.T.S. 107, 31 I.L.M. 849, UN Doc. A/AC.237/18 (Part II)/Add.1 (*entered into force* 21 March 1994) [hereinafter 'UNFCCC'], available at: http://unfccc.int/resource/docs/convkp/conveng.pdf (accessed 19 March 2010).

licensing of 'environmentally necessary' technologies.[25] While a preliminary research paper by the late John Barton (2008) suggests that IP rules do not presently prevent developing country access to relevant technology in the solar, biofuels and wind energy sectors, these are areas necessitating further research. Transfer of technology has been one of the five main themes in the climate negotiations, facilitated by the Contact Group on Enhanced Action on Development and Transfer of Technology.[26]

Scenario planning may help to flag the different options for the future in this area. Some options that have been debated so far by stakeholders are: the full use of flexibilities contained in the TRIPS Agreements including compulsory licensing; steps to ensure sharing of publicly funded technologies and related know-how; the creation of a 'global technology pool for climate change' with potential access to technologies on low-cost or royalty-free terms; or the exclusion of certain technology from patents.[27] It has been argued, at the same time, that the exclusion of climate-friendly technology from patenting would remove the incentives for investors to put research dollars into areas such as solar technology, wind turbines and hybrid engines for vehicles. Other suggested alternatives are to reduce the protection period for patents on climate-friendly technologies (although this might currently raise issues with the non-discrimination of technological fields required by the TRIPS Agreement, Article 27), or to exempt LDCs, for example, from royalty payments.[28]

4.3. Information technology and the Internet

Meanwhile, new information technology has significantly altered the relationship between private rights and public interest (especially digital and Internet technology). The digital communications revolution is putting stronger tools directly into the hands of creators, consumers and civil society for expressing the changing social values on IP. New developments in information technology have brought rapid changes to modes of accessing as well as distributing knowledge products. As discussed in various sections of this study, ICTs have enabled the collaborative production of global knowledge goods (an example is the Wikipedia online encyclopaedia) and provided new opportunities for peer production and distribution of information. They have democratized the creation and distribution of video content, by facilitating the rapid growth of user-generated content (which has now dwarfed, for example, the production of the Hollywood film industry). Ownership of the majority of global knowledge and cultural goods has been concentrated in several industry organizations. Now the creation and ownership of knowledge and cultural goods is becoming far more diffuse. IPRs may thus have a

[25] European Parliament (EP) resolution of 29 November 2007 on trade and climate change (2007/2003(INI)), available at: http://www.europarl.europa.eu/sides/getDoc.do?Type=TA&Reference=P6-TA-2007–0576&language=EN (accessed 28 April 2010); see further WIPO 2008.

[26] Although the issue of IPRs as applying to this technology was not addressed in the Copenhagen Accord, the Declaration establishes a 'Technology Mechanism' (Copenhagen Accord, para. 11), consisting of a 'Technology Executive Committee' and a 'Climate Technology Centre and Network'. See UNFCCC Ad Hoc Working Group on Long-term Cooperative Change Under the Convention, 'Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action Under the Convention', UN Doc. FCCC/AWGLCA/2009/L.7/Rev.1 (16 December 2009), para. 43, available at: http://unfccc.int/resource/docs/2009/awglca8/eng/l07r01.pdf (accessed 28 April 2010). Update provided by Hans Haugen Morten.

[27] Comment from Savita Mullapudi Narasimhan.

[28] Comment from Matt Spannagle.

diminishing role in incentivizing the creation of these new technologies and user-generated content.

While publishing houses, recording companies and other business intermediaries have until recently controlled the means of production as well as distribution channels for many knowledge and cultural goods, lowered production costs through digital technology now make creators less dependent on producers for production capital. The Internet greatly facilitates self-distribution by creators, for example, in the music industry where new ways of downloading and purchasing music (e.g. through iTunes and Napster), along with the growing number of Internet users, may have expanded the market for musical creations (but note Towse 2008 on some limitations).

At the same time, there is a trend towards the use of digital rights management (DRM) and licences to expand IP rights. IP rights holders have used legally enforced technological protection measures (TPMs) and end user licence agreements to expand their IP rights beyond those granted by copyright and patent law, and to impose post-sale use restrictions on a range of goods, including printer cartridges, software, music compact discs, books and model legislation codes.[29] This has overridden existing exceptions and limitations to copyright and patent laws that protect consumers and innovators, and impeded libraries from providing services. Because TPMs increasingly rely on devices to enforce technological restrictions, this may increase technological lock-down and exclusion of free and open source software technologies. As more and more information goods are covered by TPMs and licence agreements, this can restrict access to knowledge. Some scenario planning relating to IP has highlighted the potential impacts of restrictive DRM on access to knowledge and users' experience of digital media.

The Berkman Center for Internet & Society at Harvard Law School has published scenarios relating to information technology. These scenarios are featured in their joint white paper with GartnerG2 on 'Copyright and Digital Media in a Post-Napster World: 2005 Update'.[30] According to the white paper, digital technology and the Internet are 'altering many industries and changing the way people use and enjoy electronic products, media and entertainment (ibid., p. 2). Although 'beneficial in many respects', this evolution also 'exacerbates the tensions among copyright holders (individual creators and corporate content

[29] Electronic Frontier Foundation (EFF) report, *Unintended Consequences: Ten Years Under the DMCA*, October 2008, available at: http://www.eff.org/files/DMCAUnintended10.pdf (accessed 16 April 2010); EFF 'Briefing Paper on Technological Protection Measures' to WIPO Development Agenda meeting delegates, April 2005, available at: http://www.eff.org/files/filenode/dev_agenda/EFF_WIPO_briefing_041205.pdf (accessed 16 April 2010); *UMG Recordings, Inc. v. Augusto*, 558 F. Supp. 2d 1055 (C.D. Cal 2008) (order granting counter-defendant's motion for summary judgment as to counter-claim), available at: http://www.eff.org/files/filenode/umg_v_augusto/LA07CV03106SJO-O.pdf (accessed 16 April 2010); Electronic Frontier Foundation White Paper, 'Dangerous Terms: A User's Guide to EULAs', February 2005, available at: http://www.eff.org/wp/dangerous-terms-users-guide-eulas (accessed 16 April 2010).

[30] See Berkman Center for Internet & Society and GartnerG2 2005a. These scenarios seem to have evolved through the Center's analytical work on the white paper rather than through an extensive scenario-planning process. The white paper is available at: http://cyber.law.harvard.edu/media/wp2005 (accessed 15 April 2010).

providers), technology companies and consumers' (ibid.). The paper identifies the following five scenarios as possible outcomes of technological, business, legislative and legal developments.[31]

1. The **No-Change** scenario assumes that confusion remains about doctrines like fair use and first sale as the DMCA and copyright law continue to guide digital media distribution.

2. The **Speedbumps** scenario predicts that technological restrictions like encryption will create small barriers to users' access and control of digital content.

3. The **Technology Lockdown** scenario projects that restrictive Digital Rights Management (DRM) schemes will unilaterally determine users' experience of the content they purchase.

4. The **Alternative Compensation System** scenario imagines that users access digital content through a state-run system that taxes consumers according to use and rewards creators according to the popularity of their work.

5. The **Entertainment Co-op** scenario envisions that voluntary associations emerge within the existing copyright structure to allow distribution of digital content between subscribers and creators.

The increased use of DRM technologies to limit users' conduct poses notable constraints on the public's access to and use of digital media. DRM technologies also frequently limit legitimate exploitation of exceptions and limitations to copyright, such as in terms of 'fair use' in the US, and the operation of the doctrine of 'first sale'. These technologies impose privacy issues and may potentially be used by copyright holders and DRM standards creators to 'lock out' disfavoured digital media devices and software creators (ibid., pp. 47–48). The third scenario of 'Technological Lockdown' is thus one which would raise serious public interest concerns.

The fourth and fifth scenarios explore future strategies that might compensate copyright holders while also encouraging innovation. The 'Alternative Compensation System' scenario emphasizes state and private party mechanisms and imposes levies on consumers as a solution. In terms of ways forward under the Entertainment Co-op Scenario, the Electronic Frontier Foundation has published a white paper called 'Let the Music Play' where it envisages a voluntary collective licensing system for music downloads and peer-to-peer sharing. In exchange for consumers paying a reasonable regular amount, rights holders would agree to license downloading and sharing of music files on the Internet. A collective management organization or organizations would distribute payments to artists based on the popularity of their music. This

[31] Ibid., pp. 53–54. According to the Berkman Center, these scenarios will be analysed in a series of publications as potential models for distribution of digital content (ibid., p. 54). Another Berkman Center white paper deals with international legal and regulatory issues, but does not mention scenarios. See Berkman Center for Internet & Society and GartnerG2 2005b.

compensation and licensing system would avoid the current lawsuits and copyright enforcement problems visible on the Internet.[32]

Meanwhile, the presence and power of collecting societies has risen, corresponding with a noticeable international movement towards collective licensing arrangements. This will move copyright towards an opt-in or opt-out compensation regime, and increase the relative importance of the role played by collective management organizations in the administration and enforcement of copyright. This is a cross-sector phenomenon, but it is most visible presently in the music industry, where collective management organizations have moved towards blanket licensing in various contexts.

The recent Google Book Search lawsuit settlement proposes to create a similar regime for books to which it applies.[33] The settlement agreement, which still must be approved by the courts, creates an independent, non-profit Book Rights Registry to administer royalties collected by Google for access to the collection of over 10 million books that Google has already scanned in the US.[34] If approved, the settlement (and recent re-settlement) may radically expand access to books for US readers, depending on how many publishers choose to remove their works from the Google collection, particularly for public domain books. The settlement would particularly expand access to 'orphan works' – books which are in copyright but out-of-print and whose right holders are unknown or cannot be located – which may comprise as much as 50% of Google's scanned collection.[35] Subject to contrary instructions from rights holders, the Google Book Search settlement would authorize Google to allow US readers to view up to 20% of each book in a free preview mode, and to make the entire full-text available through public library terminals. Full-text access on a paid fee basis would be made available to US universities and other entities on a blanket basis as part of an institutional subscription, or to individuals on a title-by-title basis. Google will split the revenue it receives from providing access to digital copies with the Book Rights Registry, which would then disburse royalties to the appropriate rights holder.[36] It is anticipated that the Book Rights Registry, in the course of locating rights holders in order to pay royalties, will also negotiate with rights holders for the right to license digital book vendors other than Google. It therefore offers, over time, the possibility of a central

[32] Electronic Frontier Foundation, 'A Better Way Forward: Voluntary Collective Licensing of Music File Sharing', April 2008, available at: http://www.eff.org/wp/better-way-forward-voluntary-collective-licensing-music-file-sharing (accessed 28 April 2010). See also Digital Media Project, Entertainment Co-op Scenario, available at: http://cyber.law.harvard.edu/media/scenario5 (accessed 28 April 2010).

[33] See Google Book Search Litigation US Settlement Agreement, available at: http://books.google.com/googlebooks/agreement/ (accessed 28 April 2010). See also Settlement FAQ, available at: http://books.google.com/googlebooks/agreement/faq.html (accessed 28 April 2010).

[34] See Google Book Search Litigation US Settlement Agreement, ibid.; Fred von Lohmann, EFF Senior IP Attorney, 'Google Book Search Settlement: A Reader's Guide', EFF Blogpost, 31 October 2008, available at: http://www.eff.org/deeplinks/2008/10/google-books-settlement-readers-guide (accessed 16 April 2010); Jonathan Band, 'A Guide for the Perplexed: Libraries and the Google Library Project Settlement', American Library Association and Association of Research Libraries paper, available at: http://www.arl.org/bm%7Edoc/google-settlement-13nov08.pdf (accessed 16 April 2010).

[35] The books scanned by Google from US and European library collections include a number of works from non-American authors; some estimate as many as 3 million of the 7 million scanned books. See Peter Hirtle, 'Google Book Settlement, Orphan Works and Foreign Works', LibraryLaw Blog, 21 April 2009, available at: http://blog.librarylaw.com/librarylaw/2009/04/google-book-settlement-orphan-works-and-foreign-works.html (accessed 28 April 2010).

[36] Google will retain 37% and pay 63% to the Book Rights Registry.

rights clearance mechanism for most digital book access licences, at least within the US. Critics of the proposed settlement argue that the settlement effectively gives Google a monopoly over access to orphan works, and that the Book Rights Registry poses an antitrust threat because it is tasked with setting the prices for digital book access.[37]

Initiatives such as Google books will have an immense impact on future models for disseminating digitized works (including copyright-protected works). The current Google settlement applies to all US works, as well as works first published in the UK, Canada and Australia, unless rights holders have opted-out of the settlement prior to its approval. If the settlement agreement is approved, rights holders will still be entitled to 'remove' their works from the Google collection for a period of years. Thereafter, rights holders will still have the ability to block many uses, but they will not be able to demand complete removal of their work from the Google collection. Given that the Google Settlement is over a US class action, it will only cover US-based viewers – that is, US institutions and libraries, along with individuals attempting to view from within the US. Readers outside the US will continue to be able to see only books that are presumptively in the public domain in the US. However, it is possible that Google may seek to make agreements for copyrighted books on similar terms with authors and publishers in other countries in the future, and the US settlement agreement may form the model for such licensing agreements in some other jurisdictions.

Scenario planning approaches might help to evaluate the consequences of variations on the Google settlement. Scenario planning could address questions like: What are the plausible impacts of the settlement on particular communities? Would other approaches result in a more favourable outcome?

5. Scenario planning and the Development Agenda

Many of the themes discussed so far in this article are being considered within the ongoing work at WIPO on the Development Agenda. In September 2007, WIPO member states adopted a series of recommendations to enhance the development dimension of the organization's activities.[38] The member states agreed to establish a Committee on Development and Intellectual Property to develop a work-programme for implementation of the adopted recommendations, as well as to monitor, assess, discuss and report on its implementation. The Development Agenda proposals are intended to require WIPO to take a broader approach to promoting creativity and innovation, instead of focusing solely on the creation of exclusive IPRs. As the adopted recommendations under this 'Development Agenda' are broadly worded, some scenario planning focusing on the overlap between IP and development may help to clarify alternative visions and options for mainstreaming human development concerns into WIPO's future agenda and activities.

This section first provides some background on the Development Agenda, before outlining the adopted proposals under the Agenda and some challenges in their implementation.

[37] Critics also argue that the settlement effectively gives Google a monopoly right to deal with digital copies of orphan works since currently only Google possesses the scanned copies of orphan works and would have a first-to-market advantage. See Grimmelmann 2009.

[38] See the WIPO website, 'Development Agenda for WIPO', available at: http://www.wipo.int/ip-development/en/agenda (accessed 28 April 2010); see further Halbert 2007; de Beer (ed.) 2009; New 2009.

Some ideas for scenario planning in this area are then explored. Such planning will need to be complemented by the collection and exchange of baseline information relating to IP and the public interest, as well as attention to the long-term capacity building of stakeholders.

5.1. Some background on the Development Agenda

In October 2004, Brazil and Argentina proposed that WIPO should establish a Development Agenda. Along with the thirteen developing countries in the Group of Friends of Development who joined them in pressing for this Agenda, Brazil and Argentina expressed concerns that WIPO has historically focused on creating exclusive rights for IP rights holders at the expense of other important public policies (see Musungu & Dutfield 2003, sec. 4.6).[39] A purpose of the Development Agenda would be to mainstream development concerns into WIPO's work. This would accord with the promotion of development being a key element of the UN's founding purpose as stated in the 1945 UN Charter[40] and with the UN's continuing commitment to development as embodied in the UN Millennium Development Goals (MDGs)[41] and with the work of other UN development agencies such as the United Nations Conference on Trade and Development (UNCTAD), United Nations Educational, Scientific and Cultural Organization (UNESCO) and UNDP. Although WIPO has been a specialist agency of the UN since 1974 and has an agreement with the World Trade Organization (WTO) to provide member states with technical assistance on TRIPS implementation, proponents contended that this commitment has not been evident in WIPO's work.

The proposal to establish a Development Agenda was also influenced by factors outside of WIPO. Since the adoption of the TRIPS Agreement in 1994 as part of the Uruguay Round of negotiations that established the WTO, many developing countries have argued that the heightened IP standards required by TRIPS have restricted or removed policy options available to them to address national development priorities (Drahos & Braithwaite 2003; Sell 2003; Gervais 2007). These restrictions are said to be exacerbated by bilateral trade agreements with the US and the European Union (EU) incorporating 'TRIPS-plus' provisions which further limit domestic policy-making (Musungu & Dutfield 2003; Vivas-Eugui 2003).

The three years of negotiations, including seven formal meetings, leading to the adoption of the forty-five Development Agenda proposals, were marked by various disagreements among countries, including disagreement over the meaning of the term 'development'. As noted by Barbosa, Chon and Moncayo von Hase (2008), many developed countries tended to view development in terms of economic growth. For instance, the US delegation submitted a proposal calling on WIPO to conduct baseline national surveys for economic growth to identify weaknesses in national IP regimes and studies to analyse the relationship between the rates of

[39] See also UK Commission on Intellectual Property Rights (CIPR) 2002.
[40] Charter of the United Nations (San Francisco, 26 June 1945), 3 Bevans 1153, 59 Stat. 1031, T.S. No. 993 (*entered into force* 24 October 1945) [hereinafter 'UN Charter'], available at: http://www.un.org/en/documents/charter/ (accessed 3 February 2010). The 1945 UN Charter states that 'the United Nations shall promote: (a) higher standards of living, full employment, and conditions of economic and social progress and development' (ibid., Art. 55).
[41] See United Nations Millennium Declaration (8 September 2000), G.A. Res. 55/2, UN Doc. A/RES/55/2 (2000) [hereinafter 'UN Millennium Declaration'], available at: http://www.un.org/millennium/ (accessed 22 June 2009).

piracy of IP and technology transfer, foreign direct investment and economic growth.[42] By comparison, a significant number of developing countries at the negotiations conceptualized development in terms of capability expansion following a human development approach (Sen 2000; Fukada-Parr & Shiva Kumar 2005) and recognized that development determinants are country specific.[43] The divergence of views manifested in a series of supplementary proposals and counterproposals from the group of African countries, the group of Arab countries, Colombia, Chile, the Group of Friends of Development, Mexico, the US and the UK. This resulted in 111 (sometimes countervailing) proposals; from which the forty-five final proposals were adopted.

The Group of Friends' Development Agenda proposal and subsequent Elaboration on Issues Raised in the Development Agenda was endorsed by thousands of leading scholars, citizens and public-interest NGOs through the Geneva Declaration on the Future of WIPO 2004.[44] The Geneva Declaration summarized the public policy concerns raised by the expansion of the scope and duration of IP regimes in recent decades. It called on global policymakers at WIPO to consider alternative incentive regimes for the creation of global knowledge goods and to take account of the needs of all the world's citizens. It stated:

> Humanity stands at a crossroads – a fork in our moral code and a test of our ability to adapt and grow. Will we evaluate, learn and profit from the best of these new ideas and opportunities, or will we respond to the most unimaginative pleas to suppress all of this in favor of intellectually weak, ideologically rigid, and sometimes brutally unfair and inefficient policies? Much will depend upon the future direction of the World Intellectual Property Organization (WIPO), a global body setting standards that regulate the production, distribution and use of knowledge.

5.2. The New Development Agenda

The forty-five adopted proposals are grouped in six clusters, reflecting the broad scope of the agenda: Cluster A: Technical Assistance and Capacity Building; Cluster B: Norm-Setting, Flexibilities, Public Policy and the Public Domain; Cluster C: Technology Transfer, Information and Communication Technology and Access to Knowledge; Cluster D: Assessments, Evaluation and Impact Studies; Cluster E: Institutional Matters including Mandate and Governance; and Cluster F: Other Issues (Enforcement of Intellectual Property Rights). Amongst other things, the proposals require WIPO to:

[42] See Proposal submitted by the United States of America to the First Session of the Provisional Committee on Proposals Related to a WIPO Development Agenda, Doc. PCDA/1/4, 17 February 2006, available at: http://www.wipo.int/edocs/mdocs/mdocs/en/pcda_1/pcda_1_4.pdf (accessed 28 April 2010).

[43] See Proposal submitted by Chile to the First Session of the Provisional Committee on Proposals Related to a WIPO Development Agenda, Doc. PCDA/1/2, 9 January 2005, available at: http://www.wipo.int/edocs/mdocs/mdocs/en/pcda_1/pcda_1_2.pdf (accessed 28 April 2010).

[44] Consumer Project on Technology (CPTech) and Open Society Institute (OSI), 'Geneva Declaration on the Future of the WIPO', 29 September 2004, available at: http://www.cptech.org/ip/wipo/futureofwipodeclaration.pdf (accessed 19 March 2010).

- provide technical assistance that is development-oriented, demand-driven and transparent, taking into account the priorities and special needs of developing – countries, especially LDCs (Proposal 1);

- consider the preservation of the public domain within WIPO's normative processes and deepen the analysis of the implications and benefits of a rich and accessible public domain (Proposal 16);

- promote norm-setting activities related to IP that support a robust public domain in WIPO's Member States, including the possibility of preparing guidelines which could assist interested Member States in identifying subject matters that have fallen into the public domain within their respective jurisdictions (Proposal 20);
- initiate discussions on how, within WIPO's mandate, to further facilitate access to knowledge and technology for developing countries and LDCs to foster creativity and innovation and to strengthen such existing activities within WIPO (Proposal 19);

- ensure that its norm-setting activities should be supportive of the development goals agreed within the UN system, including those contained in the Millennium Declaration. The WIPO Secretariat, without prejudice to the outcome of Member States' considerations, should address in its working documents for norm-setting activities, as appropriate and as directed by Member States, issues such as: a) safeguarding national implementation of intellectual property rules; b) links between IP and competition; c) IP-related transfer of technology; d) potential flexibilities, exceptions and limitations for Member States; and e) the possibility of additional special provisions for developing countries and LDCs (Proposal 22; WIPO 2007, Annex A).

These recommendations are far-reaching and cut across the full spectrum of WIPO's activities. However, their impact on WIPO's institutional culture and the development of future IP norms will depend on how they are implemented and the establishment of an effective evaluation process. The WIPO Secretariat has proposed several plans to implement the adopted proposals.[45] In 2009 it was decided that recommendations that deal with similar subject matter would be grouped together and implemented by a set of 'thematic projects' beginning in January 2010. These will cover four themes: Intellectual Property and the Public Domain; Intellectual Property

[45] See Working Document for the Committee on Development and Intellectual Property, Thematic Projects, Doc. CDIP/3/4, 1 April 2009, available at: http://www.wipo.int/edocs/mdocs/mdocs/en/cdip_3/cdip_3_4.pdf (accessed 28 April 2010). See also Addendum, available at: http://www.wipo.int/edocs/mdocs/mdocs/en/cdip_3/cdip_3_4_add.doc (accessed 28 April 2010). The prior implementation plan developed by the Committee on Development and Intellectual Property (CDIP) sought to stagger implementation of the proposals. For nineteen of the forty-five proposals that the WIPO Secretariat determined could be implemented without any additional financial or human resources, the CDIP listed activities currently being undertaken by the WIPO Secretariat, which the CDIP considered implemented the proposals. For the remaining twenty-six proposals, the CDIP proposed new activities, subject to budgetary approval. See the Initial Working Document for the Committee on Development and Intellectual Property, Doc. CDIP/1/3, 3 March 2008, available at: http://www.wipo.int/edocs/mdocs/mdocs/en/cdip_1/cdip_1_3.pdf (accessed 28 April 2010).

and Competition Policy; Intellectual Property, Information and Communication Technologies; and Developing Tools for Access to Patent Information.

Many proponents consider that the Development Agenda will be successful at achieving its intended purpose only if the proposals are implemented across all areas of WIPO's work, and particularly in the various Standing Committees where the majority of WIPO's norm setting occurs. Mechanisms are also being explored to evaluate whether implementation activities are spurring WIPO's development dimension and ensuring consistency of application across various parts of WIPO's operations (see Mara 2009).

5.3. Scenario planning as a potential process for building the Development Agenda

As scenario planning provides a mechanism for devising new perspectives and thinking outside of the parameters of what has gone before (Schoemaker 1995), it could provide useful information for creating a work plan to implement the Development Agenda. Scenario planning is guided by three key principles: first, enabling stakeholders to take a long-term view; second, outside-in thinking, to identify key external forces of change;[46] and third, creating a platform for multiple perspectives to cast new light on strategic challenges (Searce & Fulton 2004, pp. 10–14). A broad range of stakeholders and experts might be invited by WIPO or other facilitators to engage in scenario planning to generate ideas about implementing the Development Agenda proposals. While it is unclear whether institutional and political forces at WIPO would permit use of scenario planning in framing a Development Agenda implementation plan, such a process would provide several concrete benefits for developing a WIPO Development Agenda work plan.

First, scenario planning would allow the discussion to take place free, at least conceptually, from current institutional processes, with their budgetary and normative constraints. It would bring additional stakeholders, beyond governments, to the discussion, including not only civil society entities and academics but also voices from the creative sectors, libraries, educational institutions, local communities, industry, small enterprises and others.[47]

Second, it would provide a framework for considering alternative paradigms of development, including a human development approach emphasizing enhancement of human capabilities and freedoms (see Netanel 2008; de Beer 2009). While a human development approach does not dismiss considerations of economic growth and efficiency for development (UNDP 1996; de Beer 2009), it sees the latter as just one of many means instrumental towards improving human capabilities and well-being. As Chon (2007, p. 522) observes: 'The

[46] Searce and Fulton (2004, p. 12) observe that: 'Most individuals and organizations think from the inside – the things they can control – out to the world they would like to shape…Conversely, thinking from the outside-in begins with pondering external changes that might, over time, profoundly affect [an individual's or organization's] work – a seemingly irrelevant technological development that could prove advantageous for service delivery, for example, or a geopolitical shift that could introduce unforeseen social needs.'

[47] Non-governmental organizations currently have observer status at specific WIPO meetings. A large proportion of such organizations attending meetings represent trade associations or other commercial outfits (New 2009). Public Interest Intellectual Property Advisors (PIIPA) is an example of a non-profit organization with permanent observer status at WIPO.

Development Agenda debate so far points to the constraints upon WIPO to reflect on its own changing identity and role vis-à-vis development. This is due in part to its historical "embeddedness" within a development as growth model, and in part to disagreement among member states about what development should mean'. These basic differences in viewing development, and the role of IP in development, are likely to result in divergent implementation proposals and evaluation criteria for the Development Agenda. Along with the human development approach, proponents have highlighted other related and important perspectives on development, including a human rights-based approach (see Ovett 2006; Fukuda-Parr 2009) and an approach to development with 'culture and identity'.[48]

Third, scenario planning could identify indicators of human development against which the design and implementation of a Development Agenda would be monitored and evaluated. Measuring the success of a Development Agenda in terms of improvements in human development in developing countries requires a starting point different from current attempts to measure the impact of IP through looking at income indicators, statistics relating to the strength of IP infrastructure in a country, the amount of 'technical assistance' rendered to create that infrastructure, the number of patents filed and granted or other ad-hoc collection of empirical information (see Chon 2006, p. 5; The International Expert Group on Biotechnology, Innovation and Intellectual Property [IEGBIP] 2008, p. 36).[49] There is scope, for example, for linking the evaluation of IP policies and enforcement to indicators of human development. The latter extend beyond income and growth indicators to include considerations such as access to medicine, improved nutrition, access to knowledge and education, protection of political and cultural freedoms and participation in cultural life. The measurements of human development are increasingly sophisticated and multidimensional, going beyond what is currently covered by the UNDP Human Development Index (Ranis, Steward & Samman 2006).[50]

Fourth, while WIPO's mandate as a UN specialized agency extends to facilitating 'the transfer of technology related to industrial property to the developing countries in order to accelerate *economic, social and cultural development*',[51] its traditional focus has been on IP

[48] Note the special theme of 'Indigenous Peoples: Development with Culture and Identity' at the UN Permanent Forum on Indigenous Issues (UNPFII), Ninth Session, 19 – 30 April 2010. See UNPFII, 'UN Permanent Forum on Indigenous Issues', available at: http://www.un.org/esa/socdev/unpfii/ (accessed 16 April 2010).

[49] Such measurements can be circular in gauging the development impact of IP (see Chon 2006, p. 5).

[50] See also United Nations University – World Institute for Development Economics (UNU-WIDER) 2007. The existing work of UNDP in measuring human development through the 'Human Development Index' (HDI) offers some means to track certain aspects of human development empirically, for comparison over time and space. Ranis et al. (2006) qualify, however, that: 'Human development (HD) goes well beyond the Human Development Index (HDI), with which it is often equated.…The HDI itself is clearly a reductionist measure, incorporating just a subset of possible human choices. In fact, the measure, which includes life expectancy, literacy, years of education, and a modified measure of income, is directed at the choices referred to as "most critical" in the first *Human Development Report* of the UNDP (1990)'. The UNDP HDI is reviewed periodically and now extends (beyond the original HDI) to such indices as – the Gender-related Development Index (GDI), the Gender Empowerment Measure (GEM), and the Human Poverty Index (HPI 1 and HPI 2). See Dhruv 2006. Other potential measures to reflect equality and empowerment are being explored in the (forthcoming) twentieth edition of the UNDP *Human Development Report*.

[51] Agreement between the United Nations and the World Intellectual Property Organization, (*entered into effect* 17 December 1974), Article 1 [hereinafter 'UN-WIPO Agreement'], available at: http://www.wipo.int/treaties/en/agreement/index.html (accessed 26 June 2009); see also para. 13(1) of the Convention Establishing the World Intellectual Property Organization (Stockholm, 14 July 1967), 828 U.N.T.S.

norm-setting and IP-related technical assistance. Creating scenarios for the WIPO Development Agenda could involve imagining WIPO as a different sort of organization, as a facilitator of dialogue between different communities of stakeholders affected by IP regulation (see Deere 2009, p. 43; Gold & Morin, p. 57). In relation to the information economy, for example, it might bring together citizens, educators, libraries and archives, technology innovators, free and open source software developers and users, collective management organizations, individual and corporate IP rights holders and communities with particular knowledge assets and claims. In terms of assisting ongoing work under the Development Agenda, such as the proposals and initiatives to 'map' the public domain (see Suthersanen 2008 for a detailed discussion), scenario planning might help to clarify the accessibility and relevance of the public domain to different stakeholders.

Fifth, scenario planning can enable diverse themes in human development to be addressed and connected in relation to IP. Thus far, the many intergovernmental committees of WIPO have tended to deal separately with particular sectors or areas of IP, while the Development Agenda is meant to cut across all aspects of WIPO's work. Apart from the many sectoral issues discussed in this and other studies, there are cross-cutting themes which could be brought out through scenario planning. For example, the impact of ICTs needs to be understood and linked for different areas of human development. An alternative innovation model that is developed in one sector can also have lessons for other sectors. For example, as discussed in sections of this study, 'open source' – which began with computer programming – is an innovation model spreading to the medical field (Maurer, Rai & Sali 2004), education, the area of plant genetic resources (Aoki & Luvai 2007), biotechnology (Hope 2008), biodiversity and TK (Oldham 2009), and to clean energy innovations. A patent pool called the 'Eco-patent commons' for environmentally sustainable technology has been formed, based on an open source model (Srinivas 2008, p. 16). The tensions and potential cross-pollination between modern technologies and traditional innovation systems (e.g. between health-related biotechnology and traditional medicinal knowledge) are also visible in many sectors. Sustainable use of resources and climate change are further considerations which cut across all fields.

Meanwhile, one significant blind-spot in IP-related planning is the interaction between formal and informal economies in terms of access by marginalized sectors to educational and cultural works (Rens, Prabhala & Kawooya 2006). Scenario planning might serve to draw out some of these linkages, while highlighting that many marginalized communities around the world, in fact, have intangible assets and creative capacities which remain largely invisible to the formal economy and IP compass (Finger & Schuler 2004). Apart from areas such as the protection of traditional knowledge and cultural expressions, where the IP of local custodians is increasingly recognized, IP-related policies and discussions in relation to the informal sectors tend to focus mainly on issues of 'piracy' and IP enforcement. A development agenda needs to seriously re-examine the 'piracy' rhetoric and focus further attention on the socio-economic

3, 21 U.S.T. 1749 (*entered into force* 26 April 1970), *as amended* 28 September 1979 (*amendments entered into force* 1 June 1984), available at: http://www.wipo.int/export/sites/www/treaties/en/convention/pdf/trtdocs_wo029.pdf (accessed 3 February 2010).

impact of IP enforcement in developing countries and LDCs, including the far-reaching consequences of criminal sanctions on human development.[52]

As WIPO is only one of many forums where discussions affecting IP and different aspects of human development are being pursued, the success of a development agenda will depend significantly on cross-fertilization of ideas and coordination of actions with other forums, and with all sectors, both for profit and nonprofit. Gold & Morin (2009) explore avenues for building a network around WIPO – involving other inter-governmental organizations, academics, think-tanks and non-profit organizations – to implement the Development Agenda. Discussing the programmatic focus of other international organizations in advancing the MDGs, Netanel (2008, pp. 12–13) notes:

> [A]lmost all the UN agencies identified in the Development Agenda's call for intensified cooperation have taken positions at odds with IP maximalism. Both WHO and UNESCO have expressed concern that uniformly strong IP rights run counter to human rights, particularly with regard to access to essential medicines; UNCTAD has sharply criticized the erosion of least developed countries' flexibilities in setting IP policies, particularly under TRIPS-plus agreements, as erecting barriers to development; and UNIDO has placed a premium on promoting technology transfer to least developed countries. One would thus expect that WIPO's close cooperation with other UN agencies would reinforce the Development Agenda's fundamental reorientation of WIPO's goals and priorities. (Footnotes omitted)

International agencies and governments may support a weakening (or strengthening) of rights in pursuit of specific human development objectives. Furthermore, the earlier discussion clarifies that views on IP strength levels will also depend on the technological and creative sectors involved and the interests and agendas of the stakeholders in question. A consequence is that both governments and stakeholders will seek to engage in forum shopping for the international organization with views most in alignment with their interests, and will then seek to transfer 'gains' in one forum to the others. Thus, ongoing processes at the WTO and the Convention on Biological Diversity (CBD), among others, will also affect how the future of the Development Agenda at WIPO unfolds.

6. Conclusion

In the terms used by the EPO Scenarios Report, the current environment for global knowledge production and dissemination is very much a 'Kaleidoscope Society', characterized by interconnected but fragmented communities and ongoing dynamic shifts in geopolitical power, all of which makes accurate predictions about the future innovation environment and IP impossible. Scenario planning, on the other hand, presents a promising tool for addressing the

[52] These concerns are not limited to developing countries and LDCs, as seen from the civil society debates over the ongoing negotiations of an Anti-Counterfeiting Trade Agreement by countries including the US, the EU, Japan and Switzerland. See Ermert, M. 2010, 'Scope of Anti-Counterfeiting Agreement Again a Big Issue in Round Nine', Intellectual Property Watch, 26 June 2010, available at: http://www.ip-watch.org/weblog/2010/06/26/scope-of-anti-counterfeiting-agreement-again-a-big-issue-in-round-nine/ (accessed 28 June 2010).

challenges posed by the complex, often polemic, nature of IP-related issues, the large number of different stakeholders involved and the absence of one-dimensional solutions (Scearce & Fulton 2004). While reviewing the scenario plans produced by organizations on the future of IP, this article briefly explored other IP-related themes for which scenario planning might be further considered. Some of these themes might even be addressed globally. For example, the future role of IP for clean energy innovation and transfer is particularly well-suited for a global scenario planning approach. The implications of climate change on human development across sectors have been discussed extensively in multiple forums (see UNDP 2007). Along with other driving forces shaping the future of IP and human development, considerations of climate change are likely to come increasingly into focus. Several other important themes which might be explored through scenario planning at the regional, national or local levels include, for example, the future implications of IP for preserving bio-cultural heritage including TK, the relationship between IP and food security and the impact of IP enforcement on access to education and livelihoods in developing countries. Approaching the future through narrative forms such as 'stories' and pictures may be culturally more accessible than legal writing to many stakeholders, including local communities.

IP protection remains at a global crossroads, and it is difficult to predict where it will go.[53] Driving forces – including changes in ideologies, geopolitical factors, new technologies and constituencies with stakes in the creative economy – and civil society action will likely have an impact in reshaping IP-related institutions as well as the general landscape for IP and human development. A variety of approaches can be taken by governments and civil society, at various levels, in shaping the future of IP. The future scenarios reviewed in this article can be placed within the context of several basic alternatives. One possibility is a gradual expansion of IPRs as countries come into compliance with the TRIPS Agreement at different implementation deadlines (Gollin 2008, p. 57). Many developing and developed countries have, however, not made full use of the delayed implementation provided under the TRIPS Agreement (see Musungu 2006; Roffe 2007), and some have signed up to TRIPS-plus agreements (see Abbott & Reichman 2007). A second alternative is a broad expansion of protection of all types of IP around the world. For example, the US extended its term of copyright in 1998. Expansion of IPRs, including enforcement, has been a foreign policy goal of the US government and global industry in implementing TRIPS and other bilateral and multilateral agreements (Gollin 2008, p. 57.[54]

A third alternative is a rollback or reduction of IP protection, already visible in certain areas (ibid.). Some developing countries are pushing to expand compulsory licensing for national health reasons, and there are segments of the research community who advocate broadly exempting scientific research from patent infringement. Some countries, notably those rich in biodiversity, are adding restrictions on patents by requiring the applicant to identify the source of any genetic material or TK used in the invention. There has also been some rollback in

[53] The following three paragraphs draw from, and expand on, future options discussed in Gollin 2008, pp. 57–58.
[54] In relation to the EU, Abbott and Reichman (2007, p. 965) suggest that:'The EU has nominally adopted a policy of not pursuing pharmaceutical-related TRIPS-plus commitments in its negotiations with developing countries, while nonetheless 'free riding' on the pharmaceuticals commitments obtained by the United States'. They qualify, at the same time, that, 'it is not really the case that the EU foregoes additional pharmaceutical-related commitments in its bilateral and regional negotiations' (ibid.).

developed countries in relation to particular areas of IP. For example, a string of US Supreme Court patent decisions have made it harder to obtain and enforce patents over the past several years.[55]

A further challenge for the future is to find new ways in which IP can promote social goals consistent with the global population's human development needs, including its needs in health, food security, education, promotion of bio-cultural heritage and contemporary cultural expressions, clean-energy and sustainable use of resources. As explored in the last section of this article, the evolving Development Agenda at WIPO could provide a context for a wide range of stakeholders in identifying alternative future scenarios relating to IP and human development. Such a process could help to clarify the social functions of IP in terms of enhancing the capabilities of individuals and communities in all spheres of human development.

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[55] See, for example, *KSR Int'l Co. v. Teleflex*, 550 U.S. 398 (2007), a case raising the non-obviousness requirement for obtaining a patent; *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437 (2007), a case in which the Supreme Court ruled that a US software patent does not protect against copies of the patented software being installed abroad; and *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388 (2006), a case establishing a more difficult standard for obtaining a permanent injunction against the use of patented material after a finding that a patent is valid and infringed.

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