

Roadmap for a Role for Intellectual Property Offices in the Governance of Green Innovation

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Key messages

1. Many Intellectual Property Offices (IPOs) have a mandate or considerable autonomy to allow them to offer a wide variety of pre-grant and post-grant services to green innovators to guide the latter towards a more sustainable (i.e. ecological and societal) management of their IP rights.
2. The landscape of IPO initiatives for green innovation is varied and would benefit from a more systematic and transparent approach allowing IPOs to identify, learn and tailor best practices. We identify six clusters of initiatives in this contribution.
3. IPOs should consider integrating green innovation initiatives throughout the IP lifecycle by setting up one stop shops or green technology hubs that can support the variety of activities. However, this is only feasible if sufficient financial, human and technical resources are allocated. Partnerships with other government actors and other IPOs on such green initiatives (e.g. the World Intellectual Property Organization (WIPO) GREEN) will save costs.
4. This new expanding role for IPOs in green innovation may signal their trustworthiness by indicating their expertise, benevolence and integrity in supporting sustainable development.

The relevance of Intellectual Property Offices for green innovation governance

The realization of SDGs calls for deliberate and context-sensitive green policies and for investment in the linkage science-policy-society to create public trust in science and innovation and to strengthen global cooperationⁱ. In view of their relative autonomy, technical expertise and trustworthinessⁱⁱ, Intellectual Property Offices (IPOs) are in a position to operate effectively as green innovation governance actors because they can offer technology-push and systemic instrumentsⁱⁱⁱ to harness intellectual property rights (IPRs) towards stimulating green innovation^{iv}¹.

¹ The terms “green innovation” and “green technology” are employed in this paper as general terms that embrace a variety of technical fields that can lower the impact of climate change and use resources in a more sustainable manner (Kim, 2011). Several words can be used to refer to green innovation and technologies, such as for instance greentech, clean technology, cleantech, clean energy technologies, environmentally sound technologies and environmental benign technologies (Pinto, 2019, pp. 29–30). An internationally accepted definition is the one in Chapter 34 under Agenda 21 of the United Nations Programme of Action from Rio, 1992: “environmentally sound technologies protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes.” (...). They also cover “end of the pipe technologies for treatment of pollution after it has been generated.”

The use of IPRs as a positive regulatory lever for technology innovation and dissemination is not unchallenged. They can both be a facilitator for partnerships for the SDGs as well as a barrier for technology use^v, which calls for the use of pragmatic and inclusive approaches towards IP^{vi}.

IPOs are in the first place agencies responsible for examining applications and granting IPRs. Some IPOs may traditionally have only limited mandates and personnel to craft public policies^{vii}. Nevertheless, in practice increasingly IPOs go beyond that, prioritizing green innovation applications or delivering services that support green innovation. IPOs can fulfil a wide variety of tasks throughout the IP lifecycle ranging from the pre-grant phase to the post-grant phase (exploitation)^{viii}. In this way, they are responsible for the public governance of IPRs and an enabler for the private governance of IPRs throughout the IP ecosystem. For the latter, IPOs have a range of available tools to increase the visibility and to facilitate the use of green technologies.

This contribution presents the main findings from a mapping exercise of the relevant IP governance literature and reports on the global IPOs with most patent applications^{ix}. The identified initiatives have subsequently been organized in clusters focusing on (1) strengthening the institutional mandate towards knowledge transfer and stimulating green innovation; (2) facilitating the use and interoperability of

classification systems for green technologies; (3) offering pre-grant services; (4) offering post-grant services; (5) partnering with other national governmental actors, other IPOs and international IP organizations; and (6) exchanging expertise. Below we provide examples of such initiatives without aiming at giving an exhaustive overview.

Strengthening the institutional mandate towards knowledge transfer and stimulating green innovation

Increasingly, IPOs are aligning their mission, mandate, institutional structure and performance indicators to explicitly include broader functions that fit within a more sustainable policy for the private governance of IPRs. For instance, the mission of Japan's Patent Office (JPO) states the aim of "[co-creating] an IP ecosystem, in which ideas exploring the future can be developed to generate new values [...] in order to achieve a society in which each individual is encouraged to enhance creativity to deal with various challenges, from improving the quality of life to solving social issues"^x.

Other IPOs explicitly target and prioritize SDGs. The Swiss Federal Institute of Intellectual Property (IPI) has a specialised unit for Sustainable Development and International Cooperation^{xi}. Moreover, the IPI created an internal GreenTech Working Group which identified and prioritized specific green technology governance initiatives^{xii}.

The United Kingdom IPO (UKIPO) has aligned its corporate priorities with the country's plan to become a science powerhouse and deliver a green industrial revolution. In practice, this means that the promotion of green technology effectively has become an evaluation criterion for the agency's performance and that the UKIPO had to deliver a green technology action plan by March 2023^{xiii}.

Facilitating the use and interoperability of classification systems for green technologies

Different classification systems have been put in place for green technologies. The WIPO International Patent Classification (IPC) Green Inventory^{xiv} and the JPO Green Transformation Technologies Inventory (GXTI)^{xv} facilitate the search for green technologies. They are both based on the IPC and can be used worldwide for patent document searches and analyses^{xvi}, which shows the advantage of safeguarding interoperability between different tools. In addition, the EPO created a tagging scheme for green technology (Y03/Y04S scheme)^{xvii}, increasing the accessibility of green patent information to non-experts^{xviii}.

Offering pre-grant services

One of the most common measures adopted by IPOs are the accelerated/priority examination programmes. The IPOs of Australia, Brazil, Canada, China, the UK, the US, Korea, Japan, Israel and Canada^{xix} had put those in place about 10 years ago, while others have joined more recently (e.g. Singapore)^{xx}.

Those acceleration programmes vary in terms of eligibility and process requirements. Eligibility requirements determine which green technologies categories qualify for the programmes. Countries like Australia, Canada and the UK use a self-declaratory system and accept all green technologies. For programmes in Brazil, Japan, Korea, Israel and the US there are enumerated classes of eligible technologies. Process requirements may relate to the number and types of claims permitted in an application or fees. Even if most IPOs do not charge additional fees for accelerated examination, some still require applicants to conduct prior art searches to save time^{xxi}.

IPOs can also cooperate to make the application for green patent protection quicker by preventing the duplication of work. Patent prosecution highways (PPH) are arrangements whereby an IPO can build on the work done by another IPO and reuse its prior art search and examination. Although IPOs report an interest in implementing "green PPHs", only few have done so^{xxii}. This can be attributed to disparities in the eligibility requirements for the different green patent programmes in the world^{xxiii}. Experts have argued in favour of harmonizing green acceleration programmes to reduce barriers. Ideally, a broad eligibility requirement would be employed to include as many technologies as possible with feasible process restrictions in order not to overburden IPOs^{xxiv}.

IPOs may also offer financial support for green patent applications^{xxv}, possibly in partnership with other organizations. For instance, the European Commission and the EUIPO established a fund to support SMEs in green transitions (e.g. vouchers to reimburse expenses with registration fees, prior art searches)^{xxvi}. Alternatively, awards for green inventors, such as the USPTO Patents for Humanity^{xxvii}, may provide financial support and give recognition to the innovators.

Offering post-grant services

WIPO GREEN is an international clearinghouse and partnership consisting of a Database and a Network. The Database consists of a broad catalogue of green technology products, IP assets and services, together with a list of technological needs of technology seekers. The Database has gathered more than 128,000 technologies, needs and experts. There are more than 2500 users worldwide and 150 Partners supporting the initiative^{xxviii}. The Network is a platform connecting users, fostering partnerships and offering a marketplace for green technologies^{xxix}.

WIPO GREEN also offers support to leverage IP as a facilitative tool for green partnerships, having developed a technology licensing checklist^{xxx} and an IP Strategy Checklist to assist IPR holders to plan their IP protection and management^{xxxi}. In addition, since 2020 organizations can be eligible to receive pro bono legal advice^{xxxii}.

WIPO GREEN has also set up thematic Acceleration Projects within a specific geographical scope^{xxxiii}. Specific projects concern smart agriculture in Latin America and the supply of clean drinking water in Southeast Asia^{xxxiv}.

At the national level, many initiatives exist to promote partnerships (e.g. USPTO Patents 4 Partnerships^{xxxv}, INPI (Brazil) for Business^{xxxvi}, INAPI Connect^{xxxvii}, INPI (France) personalised coaching services for innovators, SAIPI consulting clinics^{xxxviii}). Most of them are generic programmes but they can still be used by green innovators. However, in some IPOs such services are specifically targeted to projects with a green component^{xxxix} (e.g. INPI Brazil is developing multinational matchmaking business rounds for green technologies)^{xl}.

Partnering with other national governmental actors, other IPOs and International Organizations

The Canada Intellectual Property Office is part of the Clean Growth Hub together with 17 other federal departments and agencies. The Hub offers an online inventory of funding programmes, services and opportunities for clean technology projects, as well as advisory services to connect cleantech with federal support^{xli}.

IPOs cooperate to promote green innovation at the international level, often within the framework of WIPO. Since 2022 WIPO GREEN hosts the IPO GREEN^{xlii}, an initiative that invites IPOs to share experiences that is becoming a point of reference for green innovation.

IPOs also collaborate on fora like IP5, which gathers the world's five largest IPOs (USPTO, EPO, JPO, KIPO and CNIPA). Although such fora mostly aim at improving efficiency of patent examination, IP5 has recently committed to optimise cooperation with industry to support sustainability and enhance the quality and outreach of its initiatives^{xliii}.

Exchanging expertise

WIPO, EPO, USPTO, UKIPO and IP Australia have Chief Economists who provide patent analytics that offer a reliable basis for debates on patents, innovation and economic growth^{xliv}. This combination of technical and economic expertise is essential for drafting IP landscapes on green innovation (e.g. EPO/International Energy Agency on clean energy innovation^{xlv}, and IP Australia Patent Analytics Hub on battery industry^{xlvi} and hydrogen technologies^{xlvii}).

Recommendations

IPOs are in a unique position to act as a one stop shop for green innovators. They can stimulate the transition to an IP ecosystem that can be held accountable for a more sustainable approach. However, in view of the variety of initiatives, it is valuable to map them and to identify best practices which can then be tailored to the needs of IPOs and stakeholders while making sure that:

- a) special attention for green innovation is integrated throughout the IP lifecycle and carefully coordinated by creating one stop shops or “green technology hubs” with the required expertise to offer pre-grant and post-grant services;
- b) sufficient resources are allocated to ensure that initiatives make a difference and go beyond mere PR exercises. Effective partnerships with other government actors and IPOs, in particular through WIPO GREEN and the exchange of expertise and joint trainings will save costs;
- c) initiatives are set-up in such a way to signal the trustworthiness of IPOs in supporting green innovation. IPOs were generally not set up with strong mandates to contribute to achieving wider societal goals; this is a recent phenomenon. Their original key objectives were focused on stimulating R&D and economic growth. They will need to build new expertise and show their benevolence and integrity towards realizing the SDGs.

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