

## 6. PROMOTING INNOVATION, CREATIVITY & TECHNOLOGY TRANSFER

This section looks at the key issues and challenges related to promoting national innovation, creativity and transfer of technology in developing countries and transition economies, before setting out a detailed checklist to guide an assessment, based on available evidence, about a country's capacity to promote these objectives through exploitation of the IPR system. In many ways, because of their very weak science and technology base, for LDCs this may be the most important part of a technical and financial needs assessment exercise in terms of promoting sustainable social and economic development, and will likely require broad-based and sustained efforts over a long-term period.

### *6.1 Key issues and challenges*

Most LDCs are able to devote few resources to innovation and generate very low levels of (industrial) intellectual property that could be protected by the formal system of patents and trademarks. For example, almost 90% of patents granted in 2000 in the US originated from the USA, Europe and Japan. To address this situation, LDCs need to have more than just the minimum administrative and institutional capacities required to provide a reasonably smooth system for administration and enforcement of IPRs.

LDCs require a well-resourced, properly co-ordinated national policy and institutional framework in order to support development of their national innovation capabilities through maximizing access to technologies and knowledge assets protected by IPRs (e.g. through subsidised patent information searching services and support to upgrade technology transfer capabilities in universities). They also need to strengthen research & development (R&D) and education institutions, and to conduct public education and awareness campaigns that focus on the value of using innovation, creativity and technology transfer to help achieve social and economic development goals.<sup>21</sup>

The evidence suggests that these imperatives are not always well reflected at present in the policy frameworks and institutional infrastructure in LDCs or, indeed, in most technical co-operation programmes supported by donor organisations. The "cost of ignorance" regarding IPR can be high even when infringement of rights is not at issue. One need only consider the amount of needless duplication of research and development that takes place in the industrial sector. This occurs most often in the realm of small and medium enterprises (SMEs) but is not restricted to that sector. Large, well-funded governmental research organizations have also been known to have "re-invented the wheel" because they were not sufficiently aware of or knowledgeable about the IPR system. The mis-allocation of scarce R&D resources in this manner translates into significant direct costs.

Equally significant, albeit harder to quantify, are the opportunity costs associated with the reluctance of commercial enterprises to innovate for lack of understanding of IPRs. It is not uncommon for SMEs that do not understand IPRs to lack the enthusiasm to venture into areas of business where they may feel threatened by litigious competitors.

For example, a small business enterprise that does not understand that a competitor's foreign patent is not enforceable in his/her country, or that a patent granted 30 years ago is no longer enforceable, is at a serious competitive disadvantage in the marketplace. Similarly, a domestic producer of goods who has relied on foreign suppliers of patented components is often not likely to substitute his own, or domestically fabricated components, when the suppliers patent expires, if he has no basic understanding of the patent system.

The real gains for an LDC may instead lie in exploiting the intellectual effort already expended by a major foreign patent authority in establishing the TRIPS criteria for patentability, including novelty, inventiveness and industrial applicability, and focusing their own scarce technical resources on activities that offer greater payback. These might include activities such as helping domestic SMEs to access and exploit appropriate technology disclosed in patent documentation.

## **6.2 Diagnostic assessment checklist**

### **Profile and characteristics of innovation, creativity and technology transfer in the country**

- What are the main innovation characteristics in the different sectors of the economy? To what extent does existing innovation activity come within the scope of the formal IP system?
- Is significant research and development conducted at universities, colleges, institutes and at enterprise level in the country?
- What is the scale and focus of the main public and private R&D programmes?
- What are the main sources of technology in the principal economic sectors?
- Has an innovation survey been carried out? If yes, what were the results? If no, is one planned?
- Does the type of innovation generated locally arrive to the IP office? If not why?

### **Institutions and initiatives for promoting innovation, creativity and technology transfer**

- Are government research facilities and grant award programmes for research & development available?
- Are government policies and incentive programs and subsidies for national industries (e.g. for manufacturing or cultural industries such as film, music and publishing) and foreign investors in technology intensive sectors available?
- Are research and educational use exemptions in patent and copyright law to promote learning, research for follow-on innovation and diffusion of technical knowledge in place?
- Which national institutions are responsible for developing and implementing policy and programmes for science and technology in the country? Are there inventors', authors, composers, writers, musicians or handicraft societies in existence?

- How effective and well-resourced currently are the above institutions and initiatives in promoting innovation, creativity and technology transfer in the country? What are the key constraints if any?
- What are the main needs for technical and financial assistance for improving policy, programmes and institutions in the public and private sectors responsible for promoting innovation, creativity and technology transfer?
- Is the country benefiting from TA provided by donor countries in terms of incentives to enterprises and institutions in the home country for purposes of promoting and encouraging technology transfer to the LDC in accordance with Article 66(2), TRIPS? And, if not, what could be done to stimulate new initiatives?

**Mechanisms used by the IP office to enhance public awareness and understanding of intellectual property as well as use and management of IP by SMEs and the private sector**

- Does the national IP office and/or other ministries and agencies have active outreach and education campaigns to enhance public awareness and understanding of intellectual property as well as use and management of IP by SMEs and the private sector?
- If so, how extensive are such programmes and do they use any of the following: a Web site; publications and audio visual materials; radio and television; speakers and lecturers? What have been the experiences and results of such programmes to date?
- Are invention/innovation fairs, prizes, shows used to promote awareness of using innovation, technology and IP management to support development?
- Are intermediary organizations (e.g. private sector development agencies, regional offices of other departments and agencies) used to leverage increased IP awareness amongst the public, SMEs and the private sector around the country?
- Are activities to enhance business awareness, understanding and use of IP for development (e.g. using trademarks as part of an improved export marketing strategy) incorporated into national private sector development programmes and services for SMEs?
- Does the national IP office provide access to a modern and comprehensive patent information system database for nationals, companies and research organisations in the country to utilise? Is the database on-line? Is the database linked to other global patent databases?
- How widely used is patent information by enterprises, universities and R&D institutions in the country? What are the main constraints and needs for technical and financial assistance in this area?

**Who are the key targets of IP office public information or out-reach activities? To what extent are the following included?**

- General public?
- Does the country promote the participation of women in IP activities?
- Musicians, artists, performers?
- Inventors and innovators?

- Politicians and senior government policy advisers?
- Judiciary and enforcement agencies?
- Government officials, including treasury, economic/ industrial development, culture, agriculture, employment, education?
- Legal community?
- Academic community (both as educators and researchers)?
- Publicly funded research and development community?
- Business community and their associations?
- Organized consumers?

**Opportunities to work in cooperation with (complementing) key partners and stakeholders**

- Does a national research organization or council for science and technology exist in the country?
- Are there universities or other academic institutions that conduct research which could be of industrial application? Are such institutions well linked with industry? Do they currently utilise the IPR system and have technology transfer departments?
- Do national organizations exist that manage rights on behalf of artists, composers, performers and other copyright holders?
- Is there a national (sub-national or regional) association of IPR professionals active in the country?
- Are there associations of inventors, artists, lawyers, engineers in existence?

**Are successful examples of other domestic government programs and foreign IP organizations exploited for enhancing domestic IP awareness?**

- Do examples of successful public awareness activities by other government ministries exist?
- Is it feasible to evaluate public education and awareness activities of IPR offices in other countries and adopt/adapt best practices?
- Do international associations of IPR practitioners, IPR holders and inventors have programs that would support domestic initiatives?
- Are there regional economic cooperation programs that may support national IPR awareness activities (e.g. under APEC, SARC, ASEAN, ECA, SADC, COMESA, CEMAC, UMEOA, EAC and ECOWAS)?