

Climate Change Resilience and Technology Transfer: The Role of Intellectual Property (IP)

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In the long run, technology needs to be the central element of response strategies to climate change and that there are two, interdependent solutions to the problem of climate change – the intelligent use of technology and innovation.

Avoiding Dangerous Climate Change, Hans Joachim Schellnhuber, Wolfgang Cramer, Nebojsa Nakicenovic, and Tom Wigley (Eds.), Cambridge University Press, 2006.

Importance of Technology and IP

- ❑ The effectiveness of technological solutions depends on them being deployed on a global scale.
- ❑ Technology transfer from developed to developing countries, and also *between* developing countries, will therefore be needed.
- ❑ A major present focus of the climate discussions at the international level is how best to make this happen.
- ❑ As efforts are made to accelerate the development and transfer of Environmentally Sound Technologies (ESTs) to developing countries, there will be continuous need to scrutinize transfers to ensure that IP is working effectively to facilitate this process.

Objectives

- ❑ To explore whether IP rights facilitate or obstruct to the process of resilience to deal with climate change problems or not and
- ❑ To examine whether or not a country with a well functioning IP system would have better position to develop technology locally and can stimulate the process of technology transfer and hence better position for climate change resilience.

Climate Change Resilience

The literature on resilience is not homogenous in its conclusions, although following factors and conditions based on several empirical studies on resilience as identified particularly relevant for the ability to govern socio-ecological systems:

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- Flexibility** in social systems and institutions to deal with changes.
- Openness** of institutions so as to provide for broad participation.
- Effectiveness** of multilevel governance.
- Social structures that promote **learning and adaptability** without limiting the **options for future development**.

Ebbesson, J., The rule of law in governance of complex socio-ecological changes. *Global Environ. Change* (2010).

Considering the above four characteristics, climate change resilience in the context of this paper is the capacity of governmental system and institutions (here the patent system and the patent offices) to generate innovation, facilitate learning and adaptation, having openness, flexibility and efficiency to cope with the problems of climate change.

Therefore, it is essential to examine how far the presence of well functioning IP systems with special reference to patents contain the characteristics of socio-ecological resilience, and hence are supportive to the process of resilience or not.

Does the IP system support the process of Resilience?

- Does the patent system promote innovation?
- Does the patent system promote learning and adaptability?
- Does the patent system promote flexibility and effectiveness?

Hypothesis: As far as the patent system can promote effectiveness of learning, adaptability, flexibility and innovation in state and society, then arguably a well-functioning IP system can promote technology development, dissemination and transfer, and hence supportive to the process of climate change resilience.

Do IPRs trigger or hamper transfer of ESTs?

- ❑ Existing literature provides limited conclusions about the validity of the claims of both sides.
- ❑ Empirical research so far, based on both sector-specific research and a broader analysis of patent data, lends support to the conclusion that IP is not a major obstacle to the transfer of ESTs to developing countries.
- ❑ Different studies conducted by Abbott; Barton; Danish Church Aid; Copenhagen Economics; Dechezleprêtre et al. conclude that patent protection for the most relevant climate-technologies (e.g. solar, geothermal and biomass technologies) is requested and registered only in a small number of developed countries.

The Patent System and Innovation

In 1957, Fritz Machlup wrote:

“If we did not have a patent system, it would be irresponsible, on the basis of our present knowledge of its economic consequences, to recommend instituting one. But since we have had a patent system for a long time, it would be irresponsible, based on our present knowledge, to recommend abolishing it”.

This remains true today.

It is worth noting that, the patent system was initially designed for the purpose of advancement of science and technology.

Requirements of Disclosure and Promotion of Learning and Adaptability

The disclosure requirement as one of the basic requirements for the granting of patents.

The disclosure of patented information provides a great resource for technological teaching and learning.

Dissemination of technical information, promote adaptation and use of that knowledge for further development.

In the context of ESTs, European Patent Office (EPO) offers a new patent classification scheme for clean energies and a searchable database to provide reliable and user-friendly patent information on the clean energy sector.

Exceptions and Licensing of Patent: Flexibility and Transparency

- ❑ Most patent laws around the world provide flexibilities as exceptions and limitations to balance the rights of users and inventors, if required.
- ❑ These flexibilities encourage experimental use, use for public interest, emergency or governmental use for greater public cause, fair use, prior user rights etc.
- ❑ Research institutions are increasingly granting licenses on favorable terms and conditions for collaborative research and helping developing and poor countries to cope with the climate change problems.
- ❑ According to a recent survey by UNEP, EPO and ICTSD 70 % of respondents were prepared to offer more flexible terms when licensing to developing countries with limited financial capacity.

Effectiveness of the Patent System – Commercialization and Design Around

- ❑ Inventors around the world face serious problem for the utilization of their inventions due to the lack of experience and resources necessary to produce, advertise, distribute, and sell large quantities of the invention's commercial embodiment.
- ❑ Here, the patent system serves to give public notice to all parties involved in the technology licensing market to come forward to negotiate with inventors to better utilize the invention for commercialization and to give greater benefit to the inventor and consumers of that product.

Functioning Patent System and Technological Development and Under-Development

- ❑ Bangladesh is the classic example of having no well functioning IP system and being one of the worst victims of climate change. But, if Bangladesh had nourished a culture of IP protection in the past, it had today been possible for Bangladesh to develop technology locally rather than simply rely on (begging of) technology transfer.
- ❑ Due to a non functioning IP system induced the innovative scientists and researchers from Bangladesh to migrate to developed countries where they enjoyed better facilities for research and incentives for their innovation.

It is however noticeable that,

- ❑ By recognizing the need of the patent system's role in the greater technological development, some developing countries have taken such steps with quite encouraging results; they are now better equipped to deal with climate change problems.
- ❑ To this category belong some Asian countries, such as The Philippines, Vietnam, Thailand, Indonesia and Singapore, which have established a well functioning IP system that ensure incentive and support system to patent owners.
- ❑ The contrasting position of Bangladesh to these countries in regard of a functioning IP system and technological development for climate change resilience supports the climate change-IP interaction theory.

Climate Change Resilience-Intellectual Property Interaction Theory

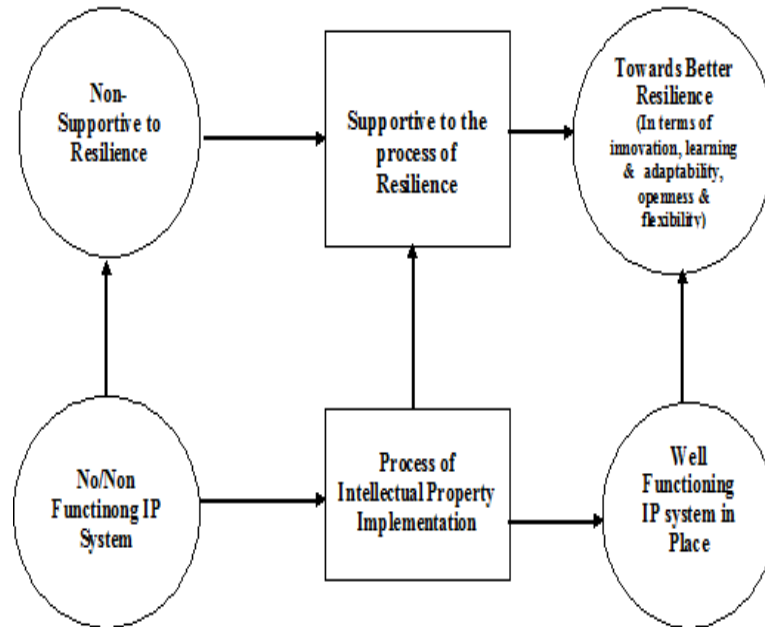


Figure: Climate Change Resilience-Intellectual Property Interaction Theory

Limitations of the “Climate Change Resilience-IP Interaction”

- ❑ In most of the developing countries an appropriate infrastructure and transparent system for innovativeness and patenting are not adequately developed.
- ❑ An effective IP system may not ensure greater resilience of a society, unless it this is not also directed in a way to generate more research, encourage innovation, collaboration and coordination between University Research and National policy making.
- ❑ A resilient country must be directed towards better governance, transparency and knowledge oriented, rather guided by unwise, hereditary, archaic, corrupt-driven and petty political motivation.

Final Words

- ❑ A well-developed IP system is one of the many necessary tools for any country that strives towards building a resilient society and such a country is hence in a better position for socio-ecological resilience.
- ❑ A well functioning patent system, together with other policy instruments and strong commitment of the governments, definitely will serve useful purposes and help to nurture the generation and development of local technology and facilitate the transfer and effective use of foreign technology, needed for the climate change resilience in the respective country.