Sustainable Development via Green Technology: A Patent Perspective

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Abstract

With the passage of time, the use of technology has led the world on a mode to wrestle with the challenges faced by mankind such as increase in population growth and limited resources left behind to share. Green technology is one of the important tools as identified to create a balance between the rise in the demands and the resources available with us at present. Green technologies encompass group of methods and materials, from techniques for generating energy to non-toxic products. Green technology in itself has some of the challenges to be curbed to achieve sustainable development. The paper discusses the challenges lying forefront to the exploitation of green technology to fight with the devil of the environment degradation and have a sustainable development for mankind. Concerns raised in this paper revolve around Intellectual Property Rights specifically laying stress on patents in monopolizing green technology. Various steps at the international level are being taken to facilitate the developing countries to have access to the environmentally safe technologies and its know-how. Can compulsory license and patent pools facilitate such access to green technologies? The paper provides suitable solution and strategies that can be adopted for achieving the common target as whole.

KEYWORDS: Green Technology; Sustainable Development; Patent; Compulsory License; Patent Pool.

INTRODUCTION

Introduction of technology by early Homo sapiens was indeed a step far ahead towards the development to the whole mankind. Some of the important mentions in the historical development of science and technology are the neolithic farming, food storage techniques, technological developments in the areas of metallurgy, weaving, printing, electronics, steam engine, factories and nuclear power.[1] Little did humanity realize, until recently, the cost that such leaps in innovation would exact from the environment? With the passage of time, the use of technology has led the world on a mode to wrestle with the challenges faced by mankind such as increase in population growth, limited resources left behind to share and climate change.

The population growth across the world is not even and depends upon the various factors starting from the education to the awareness among the masses. If we compare the distribution of resources to the population growth then there isan uneven balance between the both. Use of technology has been the key answer utilized by us to correct such imbalance.

Although technology allows people to become more efficient and to do things more intelligently that were not possible before[2], overuse of non-sustainable and polluting technologies has brought the world to the brink of catastrophe.

The emergence of 'green' or 'clean' technologies,also known as environmentally sound technologies (ESTs),purport to be promising in meeting the food production requirements, resolving water problems, providing alternative energy avenues and reducing the greenhouse emissions, all aiming at reducing adverse environmental impact while maintaining the level of human activities.

The organizations involved in the research and development of such unique technologies wish to make full use of Intellectual Property Systems to patent these technologies in order to recoup their investments and further invest in R & D of similar technologies. However, the challenge is in transfer of this technology to developing nations where the use of existing technology (which are mainly harmful to the environment) has increased due to improving economic conditions along with the need to catch-up with developed world.

This paper discusses the challenges in technology transfer of green technologies and proposes solutions and strategies for balancing the needs of organization to hold Intellectual Property Rights in these technologies while making it easier for adoption of such technologies for sustainable development.

UNMET NEEDS OF POPULACE & CLIMATE CHANGE

The growing population has posed several challenges in terms sustainability of the natural resources. In the next 40 years, the demand for food, water, and energy will increase significantly.[3] As per the Millennium Development Goals Report (2013) about 870 million people worldwide, did not consume enough food on a regular basis to cover their minimum dietary energy requirements over the period of 2010 to 2012.[4]

The availability of clean water for drinking is a dream for some part of the population in the many countries. Over a billion people around the world lack access to safe drinking water and over 2 billion have little or no sanitation.[5]The emission of the carbon monoxide (CO) has also increased with the increase in the population. CO2 emission is a responsible factor for climate change, due to which the earth's average temperature has risen by 0.7 degree Celsius.[6]

One of the goals set by the United Nations as its Millennium Development Goal is to ensure environment sustainability. As per the Millennium Development Goal Report, 2013 there has been accelerating growth in global emission of Carbon dioxide and currently it is more than 46 per cent higher than in the year 1990. Forests continue to be lost at disturbing rate. There is overexploitation of marine fish stocks, which results in diminished yields. Certain birds, mammals and other species are heading for extinction at ever-faster rates with declines in both populations and distribution. One of the areas in which the report urges for accelerated progress and bolder action is the area of environmental sustainability.[7]

In many developing countries the agricultural yields are under threat due to climate change. Simulations have shown that there may be reduced yield growth due to climate change and will affect certain regions such as Northern Africa, India, China

and Middle East as they have limited options available to expand agricultural land areas.[8]

The overview of the Indian situation is that the agricultural sectorhas contributed to 20% of the overall country Gross Domestic Product (GDP) and it also contributes close to a quarter of India's national income and the workforce engaged in agriculture sector is about 52%.[9] However, India needs to boost its food production by 1.34% annually to 280.6 million tons by 2020-2021 to meet the food requirements of the growing population in India.[10] Also, most of the India's energy requirements are currently satisfied by fossil fuels – coal, petroleum- based products and natural gas.Domestic production of the crude oil satisfies only about 25-30 percent of national requirements. Many villages in India are still not connected to power grids. This portrays the demand for energy consumption.[11]

WHAT IS GREEN TECHNOLOGY?

Green technology is one of the important tools that promises to create a balance between the rise in the demands and the availableresources. Green technologies encompass group of methods and materials, from techniques for generating energy to researching, manufacturing and utilizing non-toxic products.

Chapter 34 of Agenda 21 of the United Nations Programme of Action from Rio, 1992 defines ESTs as "*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.*" Further ESTs are considered not just as standalone technologies but complete systems that include know-how, procedures, goods and services, equipment and procedures both managerial and operational.[12]

Green Technologies are important part of Innovation today. Almost 5,000 patent applications were submitted relating to green technology in the year 2009.[13]

CHALLENGES IN ADOPTING GREEN TECHNOLOGY

There is a vast difference between the introduction of the green technology and adoption of the same for having a sustainable development. For instance, in the field of energy resources, the introduction of the green technology may be for the purpose of bringing awareness among the masses about renewable sources of energy that do not cause pollution. But if we analyze the use of green technology for commercial purpose on large scale then many problem areas exist. For example inventions made by Marc Parent (French inventor and entrepreneur) which have the potential to produce water using windmill face several challenges in commercializing its technology and making it available to the people. The challenges stated by the Inventor Marc Parent are: political (since governments need to finance and approve such technologies), economic (finding right kind of national partners who will be interested to obtainlicense for these technologies and bring clean and safe water to those most in need),technological (manufacturing the machines on an industrial scale, under license, in an acquiring country) and intellectual property (absence of intellectual property protection makes it difficult to find investors and commercialize or operationalize such inventions).[14]

Sustainable development cannot be possible if such technologies are limited only to certain geographical area. These technologies must be utilized across the globe evenly and must be made available specifically to the under developed and developing countries as the requirement is the most in these regions. However, the developed countries aiming at higher protections of intellectual property seem unhappy even when there are proposals to facilitate developing countries in transfer of such green technologies. For e.g. an Indian newspaper quotes an official who said "US officials were unhappy that the National Manufacturing Policy talks about issuing CLs (compulsory licences) in the green tech sector and argued that there was not much justification in violating patents in the sector"[15]. There is diplomatic pressure on the Indian Government and the policy of the Indian Government is being criticized for not respecting its international obligations. However the authors suggest that the National Manufacturing Policy of 2011 complies with the current patent laws in India and is not in violation of any International Obligations such as those undertaken under the TRIPS agreement. The policy is very clear as to the circumstances under which a compulsory license may be issued, the circumstances being if the green technology is not being provided by the patent holder at reasonable rates or is not being worked in India to meet the domestic demand in a satisfactory manner.[16]

TOOLS IDENTIFIED TO ACCESS GREEN TECHNOLOGIES

As there are challenges in access to the green technology for the developing countries as well as least developing countries, certain tools have been proposed to access the green technology. The World Bank, Inclusive Green Growth Report (2012) cited elsewhere[17], suggests the use of compulsory licensing and patent pools to facilitate access to green technologies.

Compulsory licence is a type of involuntary licence given to an interested third party by the Government of a Country if the grounds for such compulsory licence exist. Articles 30 and 31 of the TRIPS Agreement recognize exceptions to patent rights and allow flexibilities such as that of granting compulsory license. In a country like India compulsory licence can be issued for a certain patent protected technology if it is not worked in India or does not satisfy reasonable requirements of public or the patented invention is not available to the public at reasonable price.[18]The authors suggest that the mechanism of compulsory licence for Green Technologies must be viewed from a broader perspective as the intention is not just the wellbeing of the citizens of that particular country but use of such technology will benefit the whole mankind. The theoretical basis for granting of compulsory licence for a green technology can be derived from the utilitarian approach which suggests maximum good for maximum people.

Granting of compulsory license does not mean that the interest of the patent holder will be prejudiced, as a fair royalty can be determined for the purpose of compensating the patent owner. Efforts are required to maintain a balance between the interest of the patent holder and the whole mankind on the other hand. And compulsory license mechanism could provide such a balance. However, negotiating voluntary licences for such patents must be a first priority. The advantage of voluntary license can be that the transfer of technology by the patent owner (Licensor) to the Licensee would be smoother and foster long term collaboration in terms of sharing the improvements to the existing protected technology.

The other suggested measure for facilitating access to green technologies is to create Patent pools and funds to finance the transfer of green technologies to the developing countries.

Patent pool is an agreement between two or more patent owners or intellectual property owners to license their patent or IP to one another or to third parties.[19] A patent pool can also be said to be created when a group of companies that hold complimentary patents pool those patents together under a single license and then determine how to divide the proceeds between the members of the group. [20] Licensees that pay the fee are then able to use the group of patents without the threat of infringement. Patent pools have existed for a long time especially in the technologically developed countries[21], however for developing countries that still lag behind in research and development activities and patenting the same, patent pools are not many.

In a particular technology field, there may be a situation where patents of different owners often overlap, thus preventing one or other patent from being practiced because it would infringe on another patent. In such situations patent pool arrangements have proved to be useful. Patent pools reduce transaction costs and increase the use of technology. They are generally limited to a certain industry.[22]

In the field of Green Technologies, Patent pools could prove beneficial as it can lower the transaction costs through cooperation, reduce the risk between companies by splitting it between the companies participating in the patent pool and reduce duplicative research costs. Patent pools can provide one stop access to companies interested in working such technologies. The licensing costs can be reduced in that case. Rapid development of innovative technologies in the green technology field can be achieved through collaborations established by effective patent pools.

“Patent pools are particularly susceptible to anti-competitive violations such as price fixing, output restrictions among competitors to drive up product prices, and collusion”. The licensing on the other hand could also be increased due to anti-trust price fixing or by inclusion of unworthy patents in the pool.[23]

The issue of facilitating green technologies to developing countries is not fully addressed by patent pools as it is dependent upon the structure and organization of the patent pool. Since the patent pools work within the protection of patent system, and the patent owners retain some control over their inventions, it is unlikely that it will reduce the licensing costs or increase mass use of green technology except with the participating members of the pool.

A patent group called the Eco-Patent Commons (EPC), was formed in January 2008, by IBM, Nokia, Piney Bowes and Sony. The EPC offers environmentally useful patents without royalties to anyone who wishes to use them. EPC is a patent pool but with the exception that it does not require payment of any licensing fees. The patents in the group are available online, classified by subject and searchable. However, to get benefit of such patent pool a company needs to pledge at least one patent of their own into the pool. The participating company has to submit a written nomination giving the details of the ‘environmental benefits of the claimed invention’. However, the scope and effect of EPC is in question as not a single big energy company is a party to

EPC. One of the limitations of EPC may be that companies may be reluctant to donate patents that represent significant monetary value.[24]

INITIATIVES AT THE GLOBAL LEVEL FOR PROMOTING ACCESS TO GREEN TECHNOLOGIES

The United Nations Framework Convention on Climate Change (UNFCCC) has called on parties to cooperate in the promoting the development, application, transfer and diffusion of environmentally sound technologies to mitigate the impact and adapt to changing climatic conditions. Towards this end the international community in 2010 at the Climate Change Conference in Cancun, agreed to establish a technology mechanism that would include climate technology center and network. WIPO GREEN is projected as a valuable tool in supporting such technology mechanism.

WIPO GREEN is a unique platform, launched by the World Intellectual Property Organization and its industry partners, which aims at fast-tracking the adaptation, adoption and deployment of climate-friendly technologies, particularly in developing countries and emerging economies. WIPO Green provides knowledge about the existing ESTs and therefore helps access to such technologies. It helps in the search of solutions to specific climate change-related technology challenges, provides marketing and partnership opportunities. The expressed needs of the 'Technology Seekers' are matched to the available technologies, know-how and expertise of the 'Technology Providers'. Thus it acts like a hub where partnerships can be built. Besides that WIPO Green also provides complimentary services such as training on technology licensing, information on possible funding sources, licensing tools and many more.

SOLUTION AND STRATEGIES TO ACHIEVE COMMON GOAL

The common goal of all nations must be to utilize the available resources sustainably, minimize the adverse effects of the technology, promote and cascade the Green technologies to maximum countries for the benefit of the human populace in the world and to save our mother earth.

Various steps can be taken by different stakeholders to achieve the above stated common goal. The stakeholders range from Governments to companies and individuals.

The authors suggest that the individual governments must take steps to be a part of platforms such as WIPO Green and facilitate transfer of green technologies from 'Technology providers' to 'Technology Seekers'. The Governments can play a role of facilitator as they understand the requirements of their country and can identify and suggest to platforms such as WIPO Green about the companies or enterprises that have the capability of introducing such technologies within their own country. The Governments could appeal to such companies to invest in the identifiedgreen technologies. A recognition mechanism in the form of awards may be designed to appreciate the efforts of the company that adopts such green technology within the country upon the appeal made by the Government. Tax benefits could also be extended to such companies who invest in adapting such foreign technologies in the country.

On the other hand, the companies to which a Government appeals for investing in the green technologies can view this as an opportunity for fulfilling their corporate social responsibility. The companies based on their capacity to invest and the area of expertise may adopt such green technologies, which will reduce the carbon footprint of the company. The companies adopting such technologies will have first to market advantages too which will prove to be beneficial in the long run.

The Patent system can motivate the inventors of the green technologies by granting them a monopoly. There have been suggestions of fast-tracking the application for grant of patents to the patent applications in respect of green technologies. Another suggestion for developing countries is to exclude such green technologies from patent protection.[25]However, the exclusion of such green technologies from patent protection does not try to bring the balance between the rights of the inventor and public needs.

The patent pools could be a great facilitator in improvement of existing green technologies and finding new solutions for sustainable development. The companies possessing patents in these areas could create a patent pool which will provide opportunities to interested parties in seeking non-exclusive licenses. The patent pools however, must be regulated and subject to anti-trust or competition laws of a country, for preventing cartelization.

The compulsory licence mechanism must be utilized in case the patent owner refuses to grant voluntary license on reasonable terms, as there are larger interests involved in protecting the environment and public health. The use of green technologies by maximum countries will only secure the future generations of entire mankind from the harmful effects of environmental degradation. The grant of compulsory licence should entitle the patent owner to a reasonable royalty. This kind of balance must be maintained.

Encouragement of research in the area of green technologies through rapid adoption is the need of the hour. Every additional day without use of green technology is leading us to a dreadful fate that we cannot afford. Having the right strategies in place for adoption and implementing these technologies is paramount for the nations across the world and mankind as a whole.

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