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# Removing Intellectual Property Barrier: A Solution To Renewable Energy Technology Transfer

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**ABSTRACT**

Renewable energy currently becomes one of the global issues. Not all developing countries are capable of inventing or making renewable energy technology. In this regard, the intellectual property serves as a hindrance. The present study aims to further identify hindrances in recreating renewable energy technological invention, as it is protected by intellectual property. This normative legal study reviews literature and other sources relevant to technology transfer, intellectual property, and renewable energy. It concludes that reengineering, as a developmental effort, is difficult to be done within the context of technology transfer. It is possible to perform renewable energy invention reengineering by applying specific stipulation that does not harm the inventor's moral and economic rights.

**ABSTRAK**

Energi terbarukan saat ini menjadi salah satu isu global. Tidak semua negara berkembang mampu menciptakan atau membuat teknologi energi terbarukan. Dalam hal ini, kekayaan intelektual berfungsi sebagai penghalang. Penelitian ini bertujuan untuk lebih mengidentifikasi hambatan dalam menciptakan kembali penemuan teknologi energi terbarukan, karena dilindungi oleh kekayaan intelektual. Kajian hukum normatif ini mengkaji literatur dan sumber lain yang relevan dengan alih teknologi, kekayaan intelektual, dan energi terbarukan. Disimpulkan bahwa reengineering sebagai upaya pengembangan sulit dilakukan dalam konteks alih teknologi. Rekayasa ulang invensi energi terbarukan dapat dilakukan dengan menerapkan ketentuan khusus yang tidak merugikan hak moral dan ekonomi penemu.



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## I. INTRODUCTION

The world is currently attempting to recover from Covid-19 pandemic while facing civil war, trade war, and energy crisis at the same time. These conditions are worsened by the depleting non-renewable energies, such as crude oil and coal. The economic conditions become more difficult as one of the major sources of energy used for transportation fuel is non-renewable. Being aware of the depleting non-renewable energy sources, developed countries have begun seeking alternative, renewable energy sources. This is done through various implementations, such as converting oil fuel to electricity and converting current to electricity. Several companies in developed countries have even produced and commercialized electric cars worldwide. Clearly, the research and development of renewable energy require huge funds and highly competent human resources, resources developing countries do not necessarily have.

In this regard, developing countries intending to apply renewable technology need to perform technology transfer. We are interested in the statement, “we must make renewable energy technology a global public good, including removing intellectual property barriers to technology transfer”. A country’s budget and resources for research and development may be insufficient, implying need for technology transfer.

A previous study has discussed technology transfer and intellectual property. It was conducted by Intan Yuliantini and her associates, entitled “ Larangan Pembatasan Kontrak Dalam Alih Teknology”, which focuses more on contract in technology transfer and a revision recommendation for UNCTAD's Transfer of Technology (ToT) Code. The present study is different from the previous study by proposing a solution to eliminating the technology transfer barrier without harming the developed country inventors. This study focuses on reviewing the elimination of intellectual property barriers as a solution to renewable energy technology.

## II. RESEARCH METHOD

This study applied a normative legal study using statute and conceptual approaches. The legal materials were garnered through document study, i.e., reviewing regulations and concepts relevant to technology transfer, intellectual property, and renewable energy. Data in this study were analyzed qualitatively.

## III. RESULT AND DISCUSSION

There are two types of natural resources: renewable and non-renewable natural resources. Currently, most people use the latter for their daily needs, e.g., vehicle fuel, cooking, and other activities. Non-renewable natural resource comes from million years old fossils, while renewable natural resources are generated by natural energy sources, which will not deplete when properly managed.

It is urgently necessary to apply renewable energy at a national scale, as continuous dependence on fossil energy may result in various threats such as depleting oil reserves, oil price surge and instability as demands exceed the oil production, and greenhouse gas pollution due to fossil fuel combustion. These threats should be properly addressed to ensure the sustainability of resources needed by the community. When people find it difficult to obtain fuel or buy it at a high price, they will likely protest the government. In this regard, the government should invest in renewable energy technology inventions.

Indonesia has abundant potential renewable energy, including geothermal, water, wind, bioenergy (bioethanol, biodiesel, biomass), marine current, nuclear energy, and solar energy, which are applicable in all Indonesian region. Investing in renewable energy technology requires competent human resources and a considerable budget. Comparing to developed countries like China and the USA, which allocated US$22B and US$2.4B in 2021 for technology research and development, far higher than the budget of developing countries. This significant gap explains why developing countries could only use old, obsolete technology. They could try to use new technology through technology transfer budget. Article 1 number 1 of Indonesian government regulation no. 20 of 2005 on Technology Transfer of Intellectual Property and Higher Education Institution’s and Research and Development Institutions’ Research and Development Outcomes, technology transfer refers to the transfer of the ability to use and master a science and technology between institutions, entities, or individuals within a country, or from other countries to Indonesia, or vice versa.

An international legal principle states that every country holds the right to benefit from scientific and technological development through technology transfer, among other means. While technology transfer may help developing countries address issues on technology updates, it also brings several problems. First, technology transfer may cause the developing country to depend on the developed country. At the international level, United Nations Conference on Trade and Development (UNCTAD)

has formulated an International Draft Code of Conduct of Transfer of Technology (ToT-Code) to regulate the limitation of technology transfer practice as protection for technology receivers.

Another issue concerns UNCTAD's ToT-Code stipulation that hinders reverse engineering. The code stipulates clauses that hinder the technology transfer process: first, it prohibits recipients from developing the technology without the inventor's consent, returns the development to the inventors, and restricts research and development of the technology. These terms and conditions disserve the receivers, i.e., developing countries. We believe that reengineering is possible to be performed, given that in the intellectual property context, technology could be protected using patents and trade secrets.

Article 1 number 1 of Law no. 13 of 2016 on Patent defines patent as an exclusive right granted by the state to an inventor for his/her invention for certain period, to implement the invention by him/herself or gives consent to other parties to implement it. Article 1 number 1 of Law no. 30 of 2000 on Trade secret defines a trade secret as publicly unknown information in the field of technology and/or business, which possesses economic values due to its usefulness in business activity and is kept confidential by its owner. These two branches of intellectual property share the same scope, namely technology. Inventors could protect their invented technology using patent or trade secret laws. The following table compares the technology protected by patent and trade secret law:

**Table 1.** compares the technology protected by patent and trade secret law

| Category | Patent | Trade Secret |
|---|---|---|
| Principle | Open | Closed |
| Protection Period | The Protection Period Is Relatively Long, I.E., 10 (Ten) Years For Utility Model And 20 (Twenty) Years For Patent. | The Protection Period Is Unlimited So Long The Protected Information Confidentiality Is Not Known By The Public Or Competitors. |
| Reengineering | No Stipulation On Engineering | Allows Reengineering |

As shown in the table above, protecting inventions using patent and trade secret law have its advantages and disadvantages. Regarding the former, patented invention receives state protection, although its methods and/or components are accessible. A protected invention is accessible because it holds a principle of openness. An inventor who applies for patent protection should write an application document containing invention claims, descriptions, abstracts, and even pictures to describe the invention. This requirement makes the protected patent could not be reengineered during the protection period. Reverse engineering, as defined in article 15 of Law no. 30 of 2000 on Trade Secret, is an analysis and evaluation to find information about existing technology. It aims to obtain an alternative perspective of a system, recover an information loss, detect system error, synthesize the higher system abstraction, and facilitate reengineering. In other words, reengineering potentially produces new information in the field of technology and/or business.

One of the disadvantages of using a patent is its limited, inextensible protection period (i.e., 10 years for utility models and 20 years for patents). Renewable energy technologies should be categorized as patents, considering the inventive efforts required to find them. During the 20-year protection period, inventors could enjoy their economic rights, and it will be turned into the public domain after 20 years.

The advantage of a trade secret lies in its unlimited protection period, so long the information is kept confidential. Trade secret applies closed principles as it protects information. Trade secret also allows reengineering. However, the trade secret protection ends when its confidentiality leaks. A technology is suitable for trade secret applications if it contains a highly sophisticated invention no one could make. Regarding renewable energy technology, it would be better if such a technology is protected using a patent as it is obtained through research and development possibly done by other parties.

Although Law no. 13 of 2016 on Patent does not regulate about reengineering, It stipulates the scope of patent implementation and prohibition for other parties regarding the protected patent

through article 19 paragraph (1). Patent holders possess an exclusive right to implement their patent and to prevent other parties, without their consent, from a) regarding product patent: making, using, selling, importing, renting, giving, or providing for sale, rent, or gift; b) regarding process patent: using the patented production process to make goods or other actions as meant in point a. This article is in line with article 28 TRIPS, reading.

a. A patent shall confer on its owner the following exclusive rights:
   Where the subject matter of a patent is a product, to prevent third parties not having the owner's consent from the acts of: making, using, offering for sale, selling, or importing for these purpose that product; Where the subject matter of a patent is a process, to prevent third parties not having the owner's consent from the act of using the process, and from the acts of: using, offering for sale, selling, or importing for these purposes at least the product obtained directly by that process.
b. Patent owners shall also have the right to assign, or transfer by succession, the patent and to conclude licensing contracts.

Given that the ToT code prevent the development of a technology that could be obtained through reengineering and that TRIPS and Patent Law do not regulate reengineering, we argue that renewable technology reengineering could be performed under a certain stipulation that does not harm inventors. Intellectual property contains moral and economic rights. Sensitive issues related to reengineering are the moral rights of the reengineered technology and the potential economic benefits obtained by the parties who performed the reengineering. Reengineering process may generate a higher quality technology than the original technology. In other words, it may produce the development result. Thus, it is highly possible that the reengineering result is preferred by the market, particularly in developing countries.

"Technology diffusion to developing countries can be facilitated by various measures, including through addressing potential barriers to technology transfer at all levels, …., investment in human capital and increasing the capacity of domestic industries and infrastructure to support technology attraction and absorption, …., balanced and effective protection of intellectual property rights in both developed and developing countries in line with nationally defined and with full respect for international obligations". Based on the statement above, we believe that reengineering is possible, which is arranged in a technology transfer agreement between the owner-state and the developing country as the technology receivers. Regarding moral rights, the parties managing to reengineer an invented technology and create a better, new technology should have a moral right as an inventor. The patent protection request for the technology could be applied to PCT by mentioning the inventor of the original technology. The economic benefit of reengineering results could be divided based on the significance of technological advancement made by developing countries. The division of moral and economic rights could be made according to the agreement between both parties. This is in line with articles 20 to 27 of Government Regulation no. 20/2005 on Technology Transfer of Intellectual property and Higher Education's and Research and Development Institution's Research and Development Outcomes, although Indonesia, as the grantor of technology transfer, has greater needs than developed countries.

Renewable energy is a global issue, and working together is the key to solving this issue. Developing countries should receive a technology transfer and be capable of reengineering and developing the technology, providing them opportunities not to be dependent of the developed countries.

## IV. CONCLUSION

There are at least two technology transfer barriers: developing countries' dependence on developed countries due to UNCTAD's ToT-Code stipulation and the clauses stipulating that reengineering, as developmental efforts, is difficult to be done within the context of technology

transfer. It is possible to perform renewable energy invention reengineering by applying specific stipulation that does not harm the inventor's moral and economic rights.

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