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Risk or License? Precautionary Principle's Transition in Genetically Modified Organisms' Benefits After Job Creation Law

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Abstract

This article aims to discuss the implementation of precautionary principle on the use of Genetically Modified Organisms (GMO) in Indonesia as well as to identify and evaluate the changes of provisions on precautionary principles related to the use of GMOs as stipulated in the Environmental Law and the later Job Creation Law in Indonesia. This article employs normative legal research that descriptively examines humans, circumstances, and other phenomena to strengthen old theories and support new theories that are still in the drafting stage. It uses secondary data sources consisting of primary legal materials and secondary legal materials. The result shows that the implementation of precautionary principle on the use of GMOs is based on the Environmental Law and the Job Creation Law which can be seen in the AMDAL. Under the Environmental Law, the implementation of precautionary principle prioritizes the importance of a risk's impact before the activity is carried out. Whereas in the Job Creation Law, the operation of an activity adjusts the level of risk, namely low, medium, and high. Hence, based on Job Creation Law, a business activity that already utilizes GMOs is allowed to conduct its operation if the risk is assessed as low. It is due to a transition between the risk approach in the Environmental Law and the licensing approach in the Job Creation Law. This article suggests that in GMO usage, the government should find more specific precautionary implementation than regulations and labels since regulations alone are too abstract to comprehend in a society.

Keywords: *Environmental Law; Genetically Modified Organisms; Indonesia, Job Creation Law; Precautionary Principle.*

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1. INTRODUCTION

Food scarcity has motivated experts to find scientific breakthroughs in search of solutions. One of the efforts to fulfill world hunger is through biotechnology. Biotechnology manipulates living organisms that aim to improve human welfare and the environment.¹ Biotechnology has been applied in simple human life; one example is yeast to make alcohol and bread. Along with the times, traditional biotechnology has developed into modern biotechnology involving sophisticated genetic engineering. These genetically engineered products are known as Genetically Modified Organisms (GMO).

GMO undergoes genetic changes or *deoxyribonucleic acid* (DNA) unnaturally through natural recombination. Genetic engineering of GMOs is a change in an organism's fundamental nature or characteristics, especially plants and animals, to create new characteristics according to human will and need. Humans, animals, plants, enzymes, and other living organisms have changed their essential characteristics and properties through modern scientific technology.² In human life, GMOs are better known for food production and health. The technology analyzes how the characteristics of an organism can be passed on to other organisms to create new characteristics. One example of genetic engineering is that bacteria are introduced into a plant immune to pests.³

Foods in the form of GMOs are crops consumed by humans and animals. The yields of genetically modified crops are successful from crops that have been engineered to have characteristics that are resistant to drought, pests, and herbicides.⁴ Some examples of GMO drugs are insulin because bacterial insulin is genetically modified to resemble the human insulin gene so that the protein content contained undergoes a synthesis process. In addition, genetic engineering can be found in vaccines, such as Hepatitis B, which is produced from yeast. A precautionary principle based on potential risks before the natural phenomena reflects how the principle is used with the GMO.⁵

As much as GMOs are essential breakthroughs, their alien and unknown nature sparks discouragement from society. Debates on GMOs are further complexed by the disagreement between the public and scientists. Debates are seen through numerous studies. In 2013, the government of

¹ Andrew Tylecote, "Biotechnology as a New Techno-Economic Paradigm That Will Help Drive the World Economy and Mitigate Climate Change," *Research Policy* 48, no. 4 (2019): 2.

² Asheley R. Landrum, William K. Hallman, and Kathleen Hall Jamieson, "Examining the Impact of Expert Voices: Communicating the Scientific Consensus on Genetically-Modified Organisms," *Environmental Communication* 13, no. 1 (2019): 53.

³ Lilian E. Forman. *Genetically Modified Foods* (Minnesota: ABDO Publishing Company, 2010), 13.

⁴ Stuart J. Smyth, "Genetically Modified Crops, Regulatory Delays, and International Trade," *Food and Energy Security* 6, no. 2 (2017): 79.

⁵ Zhou Tian-meng, *et.al.*, "The Dilemma and Solution of the Precautionary Principle in EU Regulation of GMO—Based on the Analysis of Case Fidenato," *China Biotechnology* 38, no. 6 (2018): 97.

Kenya supported Genetically Modified or GM cotton plantations. However, a third of the community did not share the same opinion ten years prior.⁶ In 2015, the Pew Research Centre found that only 37% of Americans approve the GMO use, a very different comparison from 88% of the American Association for the Advancement of Science (AAAS) scientists. In 2016, a survey in China stated that 47% of the public are not fond of using GMOs; some even view GMOs as a bioterrorism form. In the same year, 60% of the Poland people also despise benefiting GM products.⁷ Subsequently, the precautionary principle became the “bridge” between the environment and the commercial perspective regarding GMO utilization.

The reason for such precautions is because there were many concerns about GMO use towards human health and the environment. One of these issues is the assumption that GMOs can cause allergies. In the United States of America, there have been cases where people suffered an allergic reaction after consuming GMO food. For instance, people were experiencing nut allergies after consuming a soybean cultivar that was inserted with the 2S albumin⁸ gene for nutritional reasons.⁹ GMOs could also intervene with the environment, especially biodiversity. One of the cases is in insecticidal genes inserted into *Bacillus thuringiensis* or Bt corn pollen that fatally affected the monarch butterfly larvae commonly found in North America. The pollen carried by the wind contaminated the milkweed, which is the larvae’s source of food.¹⁰ GMOs are also considered invasive because there is an array of unlabeled GMO products on the market. People would have consumed these products without claiming that they have interfered with GMO products.¹¹ Even though most of these impacts are generalized and supported by very few scientific studies, the potential is there, and a precautionary aim is to press the potential consequences to zero, which makes the principle taken into consideration.

Indonesia is one of the developing countries that accept GMO products. From the environmental aspect, Indonesia recognizes the precautionary principle through Article 2(f) of Law No. 32 of 2009 concerning Environmental Protection and Management (Environmental Law). Therefore, the use of GMOs that are in direct contact with the environment in Indonesia must comply with the precautionary principle, which is implemented in the form of an *Analisis Dampak Mengenai Lingkungan*

⁶ Sarah Evanega, *et.al.*, “The State of the ‘GMO’ Debate - Toward an Increasingly Favorable and Less Polarized Media Conversation on Ag-Biotech?,” *GM Crops and Food* 13, no. 1 (2022): 38.

⁷ *Ibid.*

⁸ 2S albumin proteins are a class of essential seed storage proteins (SSPs) that are required by seeds at many phases of development, including germination and seed defense.

⁹ Angelo Vega Rodríguez, *et.al.*, “Myths and Realities about Genetically Modified Food: A Risk-Benefit Analysis,” *Applied Science* 12, no. 6 (2022): 9.

¹⁰ Mehmed Fidan and Arif Ayar. *Genetically Modified Organisms and Effects on Human Health*. in *Research and Reviews in Health Science*, ed. Cem Evereklioglu, I (Ankara: Gece Publishing, 2021), 106.

¹¹ John Paull, “Genetically Modified Organisms (GMOs) as Invasive Species,” *Journal of Environment Protection and Sustainable Development* 4, no. 3 (2018): 33.

(AMDAL) or Environmental Impact Analysis (EIA).¹² The later Law No. 11 of 2020 concerning Job Creation (Job Creation Law) has changed several provisions in the Environmental Law. These changes consist of license application steps, licensing regulation, risk assessor, involved community elements, support from the government, and consequences.¹³

The focus of this research is a precautionary principle that is connected with licensing as a barrier to risk. Therefore, this article aims to discuss the implementation of the precautionary principle on the use of GMOs in Indonesia. In addition, the article identifies and evaluates the changes of provisions regarding precautionary principle on the use of GMOs as stipulated in the Environmental Law and the later Job Creation Law. It is normative legal research that descriptively examines humans, circumstances, and other phenomena to strengthen old theories and support new theories that are still in the drafting stage.¹⁴ The data sources used are secondary data sources consisting of primary and secondary legal materials.

2. RESULT AND ANALYSIS

The risks of GMO products have been debated among experts for years. Experts strongly recommend every GMO product be used according to the precautionary principle. Therefore, the following discussion will further describe the relationship between applying the precautionary principle and the use of GMO products.

2.1. Correlation between Precautionary Principles in the Utilization of Genetically Modified Organisms

Concerns have been raised concerning the safety of GMO products using processed food, raw food ingredients, or other components. As a result, it is essential to minimize the potential of this risk emerging through an analysis based on the precautionary principle. The precautionary principle serves as a criterion for GMO products to guarantee that their utilization does not have harmful effects.

2.1.1. Precautionary Principle as a Risk Standardization

The precautionary principle is a standard-setting philosophy for preventing serious threats to human health or the environment. It is applied to natural occurrences that are characterized by uncertainty and a lack of scientific information.¹⁵ The principle is used for conducting estimation and calculation to minimize the potential risk and is considered one concept that

¹² Elly Kristiani Purwendah, "Perlindungan Lingkungan Dalam Perspektif Prinsip Kehati-Hatian (Precautionary Principle)," *Jurnal Media Komunikasi Pendidikan Pancasila Dan Kewarganegaraan* 1, no. 2 (2019): 85.

¹³ Anih Sri Suryani, "Perizinan Lingkungan Dalam Undang-Undang Cipta Kerja Dan Dampaknya Terhadap Kelestarian Lingkungan," *Info Singkat: Kajian Singkat Terhadap Isu Aktual Dan Strategis* 12, no. 20 (2020): 14.

¹⁴ Soerjono Soekanto. *Pengantar Penelitian Hukum* (Jakarta: Penerbit Universitas Indonesia, 2012), 50.

¹⁵ Tian-meng, *et.al., op.cit.*, 96.

is widely outlined in various international environmental agreements, such as:

- (1) The 1992 Convention on Biological Diversity.
- (2) The 1992 United Nations Framework Convention on Climate Change.
- (3) The 1992 United Nations Convention on the Protection and Use of Transboundary Watercourses and International Lakes.
- (4) The 1994 Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Further Reduction of Sulphur Emissions.
- (5) The 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stock.
- (6) The 1996 London Protocol to the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter.
- (7) The 2000 Cartagena Protocol on Biosafety to the Convention on Biological Diversity.
- (8) The 2001 Stockholm Convention on Persistent Organic Pollutants.
- (9) The 2018 Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean.

Precautionary becomes a general principle of public international law, including International Environmental Law, that is recognized and implemented worldwide. The principle is categorized as preventive measures that contain a careful action conducted “before” an impact of a natural phenomenon occurs. The precautionary principle comprises the following elements:¹⁶

a. Risk Uncertainty

Precautionary measures or behavior go further than preventive measures because the measures are given in situations where the consequences and impacts are known,¹⁷ for example, the impact of smoking and the use of pesticides. Preventive measures are carried out before it is known that there is a causal relationship between the existing technology in a product or activity and the potential damage or danger that will be caused due to the absence of scientific evidence.¹⁸

¹⁶ Giulia Claudia Leonelli, “Judicial Review of Compliance with the Precautionary Principle from Paraquat to Blaise: Quantitative Thresholds, Risk Assessment, and the Gap between Regulation and Regulatory Implementation,” *German Law Journal* 22, no. 2 (2021): 195.

¹⁷ Ante Ivčević, *et.al.*, “Local Risk Awareness and Precautionary Behaviour in a Multi-Hazard Region of North Morocco,” *International Journal of Disaster Risk Reduction* 50 (2020): 4.

¹⁸ Ronald Watson and Victor Preedy, “Genetically Modified Food: Production, Safety, Regulation and Public Health,” 78.

b. Scientific Assessment of Potential Risks

The scientific assessment of potential risks is vital in preventing the precautionary principle from being misused. This element consists of two aspects, namely, risk assessment and risk management that are usually applied in the industrial sphere.¹⁹

c. Potential for Serious or Irreversible Damage

The precautionary principle estimates the potential for severe or permanent damage. Oil pollution in the sea is an example of estimated severe damage that is not necessarily permanent while the extinction of flora, fauna and natural resources is an example of serious permanent damage. This element can occur if natural phenomena are applied over a long period and with high intensity.²⁰

d. Proportionate Precautions

Prevention in the precautionary principle prioritizes public health over the economy. The previous precautionary principle can be used to reduce exposure, monitor, label, test before entering the market, and conduct studies or research to reduce uncertainty decided by policymakers. However, a product ban is a last resort when a product's risk is too dangerous for a country to bear.²¹

e. There is a Shift in the Burden of Evidence

Shifting the burden of proof is different from a traditional proof. Definitive evidence will generally apply the product first and, over time, analyze its impact, while a shift in the burden of proof means the risk must be known before the product is applied. The burden of proof is left on the creators of the product or natural phenomenon to be responsible for the risks that occur. The product creator must provide scientific support that the product to be applied has zero risk.²²

2.1.2. Precautionary Principle: Linking Genetically Modified Organisms Products between Environmental and Economic Aspects

The precautionary principle, which is drawn from environmental risk management and is used as a tool to avert a major hazard to human health or the environment based on uncertainty or scientific knowledge estimations, is routinely applied to GMOs. An estimate of damage can be eliminated or decreased by employing the precautionary principle. The

¹⁹ *Ibid.*

²⁰ *Ibid.*

²¹ Rajib Deb, *et.al.*, "Genetically Modified Crops: An Alternative Source of Livestock Feeding," in *Genetically Modified Organisms in Food: Production, Safety, Regulation and Public Health* (Elsevier Inc., 2016): 490.

²² *Ibid.*

precautionary principle can be regarded as a precautionary act that is carried out before the impact occurs.²³

Scientists have been debating the hazards of genetically modified foods. GMOs, according to scientists, work on the precautionary principle because the risk of GMOs is unpredictable. Distribution of health and ecosystems are two of these two factors. GMOs have a tendency to spread out of control in the environment, posing dangers that are difficult to assess.²⁴ Both of these parameters act as a risk assessment for determining the effects of GMOs.²⁵ If the two prerequisites are insufficient to verify a 0% GMO risk, the precautionary principle can be used to assess the GMO risk (precautionary measures) using the parts of the precautionary principle stated above.

The usage of GMOs in human life can be seen in the areas of food, health, and medicine.²⁶ GM plants have been employed as processed crops that are consumed by humans and animals in the food industry. Crops can be grown faster with genetic engineering techniques than with traditional methods. The harvest can be handled in such a way that it adapts to drought, pests, and herbicides, or has tolerance to them. The benefits of GMOs can be divided into two categories: insect resistance and herbicide resistance.²⁷ Bt for short is a frequently debated pest-resistance genetic modification. Bt is a naturally occurring pesticide that has been used as a repellent for decades and has been approved for use by organic farms as a pest management strategy. Toxins can be extracted and introduced into the genes of crops, which are currently often used in maize.

Countries do not always accept the utilization of GMOs. This is due to the risks posed by the use of GMOs. Countries are worried about the uncertainty of GMOs, which pose a high risk to a country's sovereignty because GMO products can spread plant or animal diseases. The risks posed by GMO products have two aspects. These two aspects include the distribution and impact on health and ecosystems.²⁸ Ecologically, GMOs have a habit of spreading out of control, creating challenges to ascertaining risks.²⁹ Crossbreeding of a plant species with GMOs causes an effect on environmental systems that is very widespread, irreversible, and with uncertain risks. In the development of the use of GMOs, the state is in a dilemma between the commercialization of GMOs and the protection of sovereignty. This dilemma is bridged by the precautionary principle where

²³ Naveen Thayyil. *Biotechnology Regulation and GMOs: Law, Technology and Public Contestations in Europe* (New Delhi, India: Edward Elgar Publishing, 2014), 65.

²⁴ Renate Schubert. *Future Bioenergy and Sustainable Land Use* (London and Sterling: Earthscan, 2010), 89.

²⁵ M. G. Edwards and G. M. Poppy. *Environmental Impact of Genetically Modified Crops* (Oxfordshire: CAB International, 2009), 72.

²⁶ Center of Ecogenetics and Environmental Health. *Fast Fact about Genetically Modified Organisms* (Washington D. C.: National Academy Press, 2013), 39.

²⁷ Eliana M.G. Fontes, *et.al.*, "The Environmental Effects of Genetically Modified Crops Resistant to Insects," *Neotropical Entomology* 31, no. 4 (2002): 499.

²⁸ Ashli Akins, *et.al.*, "The Universal Precautionary Principle: New Pillars and Pathways for Environmental, Sociocultural, and Economic Resilience," *Sustainability* 11, no. 8 (2019): 13.

²⁹ Schubert, *op.cit.*, 149.

countries can estimate potential risks before using GMOs.³⁰ Therefore, the study illustrates the relationship between the precautionary principle and GMOs through the following illustration.

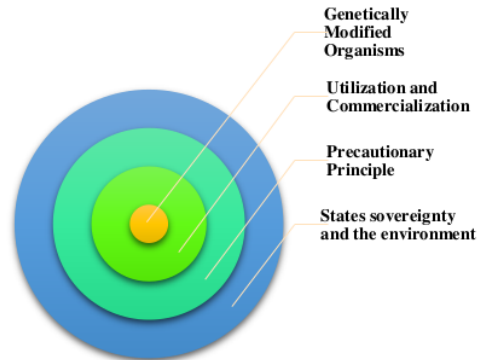


Illustration 1. The linkage between the Precautionary Principle and the Genetically Modified Organisms

Based on Illustration 1, it can be seen that GMOs are the main object of the problem. The GMOs' purpose is to be utilized and commercialized, but it is hindered by the considerations of countries regarding environmental aspects. Therefore, the application of the precautionary principle lies between commercialization and sovereignty. The relationship of the precautionary principle with GMOs is as a benchmark or risk basis, meaning it acts as a liaison between the economic point of view and the environmental point of view in utilizing GMOs.

The precautionary principle, unlike the preventative concept, does not require certainty when determining the danger. As a result, there is a significant distinction between preventative and precautionary actions. Precautionary measures go beyond preventative measures because preventive measures are used in cases where the implications and effects are known, such as the effects of smoking, pesticide use, and so on. Precautionary precautions, on the other hand, are taken before it is known that there is a causal relationship between current technology in a product or activity and the possible damage or risk that will be created due to a lack of scientific evidence. This is especially true when it comes to GMOs, because each GMO product is unique, posing unique dangers.

2.2. The Implementation of Precautionary Principle on Utilization of Genetically Modified Organisms in Indonesia

Based on the data for the year 2020, Indonesia is one of the most populous countries globally, with 273 million people.³¹ Indonesia is currently faced with an agricultural land crisis and declining crop

³⁰ Wahyu Yun Santoso, *et.al.*, "Signifikansi Pendekatan Kehati-Hatian Dalam Pengaturan Organisme Transgenik Di Indonesia," *Jurnal Hukum Lingkungan Indonesia* 4, no. 1 (2017): 90.

³¹ BPS-Statistics Indonesia, "The Indonesia Population Census 2020 Highlights, (United Nations Expert Group Meeting, 9-12 February 2021)," 8.

productivity in the agricultural sector. Therefore, the use of GMOs is an option in Indonesia to promote people's welfare. Even so, Indonesia's dependency towards its nature makes the country very fragile to any kind of potential risks. Hence, Indonesia's regulation must apply precautionary measures in utilizing GMOs. The implementation of the precautionary principle on the use of GMOs in Indonesia is as follows:

Table 1. Implementation of Precautionary Principles on Utilization of Genetically Modified Organisms in Indonesian Law and Regulations

Law and Regulations	The Realization of Precautionary Principle's Implementation
Law No. 32 of 2009 concerning the Environment Protection and Management (Art. 47)	Environmental Impact Analysis
Law No. 18 of 2012 concerning Food (Art. 77-79)	a. PRG ³² should not be produced without government approval. b. Requirements for food containing PRG are government regulations (Government Regulation No. 28 of 2004).
Government Regulation No. 69 of 1996 concerning Food Labels and Advertisements (Art. 35)	This article describes the obligation to include "Genetic Engineering Food" or at least a memorable PRG logo.
Government Regulation No. 28 of 2004 concerning Food Safety, Quality, and Nutrition	This law outlines the requirements that must be met by a PRG, such as genetic information, description of donor organisms, description of genetic modification and characterization, and food safety information.
Government Regulation No. 21 of 2005 concerning Biosafety	There is an assignment to the Biosafety Commission by the Minister or the Head of Non-Departmental Government Institutions (LPND) when providing recommendations for the biosafety of PRGs.
Presidential Regulation No. 39 of 2010 concerning the Commission on the Biosafety of Genetically Engineered Products (KKH PRG)	KKH PRG also carries out assignments from the Minister and the Head of LPND such as technology assessment and evaluation and examination and proof of negative impacts.
Decree of the Minister of Agriculture No. 1038/KPTS/HK.330/11/1997 concerning the Establishment of KKH PRG	The legal basis for the formation of the PRG KKH. The PRG KKH has the primary function of formulating materials to prepare guidelines for environmental safety assessment, feed, and monitoring of PRG utilization.
Joint Decree of the Ministers of Agriculture, Forestry and Plantations, Health, State Food and Horticulture 1999 concerning Biosafety and Food Safety of PHRG	The contents of this joint decision include regulations regarding classification, security requirements, assessment procedures, rights, obligations, and reporting on PRG security.
Regulation of the Head of BPOM ³³ No. HK.03.1.23.03.12.1563 of 2012 concerning Guidelines for the Assessment of Food Safety of Genetically Engineered Products	The Biodiversity Safety Commission carries out the safety assessment of PRG for Genetically Engineered Products (KKH PRG).

³² PRG stands for "Pangan Rekayasa Genetik" or Genetically Engineered Food.

³³ BPOM Stands for "Badan Pengawas Obat dan Nasional" or National Agency of Food and Drugs Control.

Table 1 describes the consistency, coherence, and correspondence regarding the application of the precautionary principle on the use of GMOs through regulations in Indonesia. The Commission on the Biosafety of Genetically Engineered Products (*Komisi Keamanan Hayati Produk Rekayasa Genetik*/KKH PRG) was established to analyze and assess the risks of genetically engineered products. In addition, through regulations related to GMO products, the public is asked to understand genetically modified food products through food labeling.

2.3. Comparison of Implementation of Precautionary Principles on Utilization of Genetically Modified Organisms According to the Environmental Law and the Job Creation Law

Before understanding how to apply the precautionary principle to the use of GMO according to the Environmental Law and the Job Creation Law, the research will first describe how to apply the precautionary principle according to each of these arrangements.

2.3.1. The Implementation of Precautionary Principles on Utilization of Genetically Modified Organisms according to Law No. 32 of 2009 concerning Environmental Protection and Management

Environmental law in Indonesia recognizes 3 (three) principles, namely, the polluter pays principle, the prevention principle, and the precautionary principle. The Environmental Law regulates the precautionary principle in Article 2(f). The precautionary principle is then applied in the obligation to carry out an Environmental Impact Analysis (EIA) or AMDAL.³⁴ Article 47 paragraphs (1) and (2) of the Environmental Law stipulate that every business or activity that has the potential to have a significant impact on the environment, threats to ecosystems and life, and human health and safety is obligated to conduct an environmental risk analysis.³⁵ Environmental risk analysis can be carried out through risk assessment, management, and communication. This means that based on the Environmental Law regulation, if the legal subject in the future will carry out activities and businesses that utilize GMOs, then as a precautionary measure, the risks of these activities and businesses must be reviewed first.³⁶

³⁴ Martika Dini Syaputri, "Partisipasi Masyarakat Dalam Penyusunan Analisis Mengenai Dampak Lingkungan Berdasarkan UU No 32 Tahun 2009," *Varia Justicia* 13, no. 2 (2017): 125.

³⁵ Satria Sukananda and Danang Adi Nugraha, "Urgensi Penerapan Analisis Dampak Lingkungan (AMDAL) Sebagai Kontrol Dampak Terhadap Lingkungan Di Indonesia," *Jurnal Penegakan Hukum Dan Keadilan* 1, no. 2 (2020): 133.

³⁶ Sri Maulidiah, *et.al.*, "Environmental Management: A Study on the Precautionary Principle in Siak Regency of Indonesia towards Sustainable Development," *EM International* 26, no. 3 (2020): 10856.

2.3.2 Precautionary Principles' Implementation on Utilization of Genetically Modified Organisms according to Law No. 11 of 2020 concerning Job Creation

The Job Creation Law was enacted on November 2, 2020, which aims to address legal issues, commencing with the overlapping of laws and regulations or the incompatibility of rules with one another. In this case, this study focuses on the Job Creation Law's substance, which consists of 79 laws with 15 chapters and 174 articles targeting 11 clusters, including environmental issues.³⁷ Thus, the Job Creation Law impacts the revision and deletion of several articles carried out in the Environmental Law. One of the highlighted problems within the Job Creation Law is the objective to abolish Article 40, which requires an environmental license to obtain business permits. The abolition of the license has given rise to various legal polemics since licensing is essential in maintaining and determining an agreement from the authorities based on the law. Based on theory, licensing has three vital functions, namely, (1) as an instrument of development engineering, (2) as an addition to state revenue, and (3) as a regulator of community action. In the third function, licensing prevents community behavior from damaging and demolishing the environment.³⁸ Thus, business activities must be carried out with various administrative and legal means necessary to the government, whether conducted in concrete or legal actions. Issuance, implementation, and enforcement of laws based on the environmental license is a means to protect and preserve the environment from the activities of managing natural resources and their impacts on the environment. In this case, good governance principles must be implemented as standards for the government.³⁹

In order to protect and preserve the environment, documents are required in the form of laws, EIA or AMDAL, Environment Management Efforts, and Environment Monitoring Efforts or *Upaya Pengelolaan Lingkungan Hidup dan Upaya Pemantauan Lingkungan Hidup* (UKL-UPL) and Statement of Ability to Manage and Monitor the Environment or *Surat Pernyataan Kesanggupan Pengelolaan dan Pemantauan Lingkungan Hidup* (SPPL).⁴⁰ AMDAL is an introspection procedure of the principal and significant impacts of a planned business or activity on the environment, which is then needed in a decision-making process regarding the implementation of such activity. Regarding environmental protection and management, the primary factor that evolves the foremost concern is

³⁷ Fitri Yanni Dewi Siregar, "Aspek Hukum Penyederhanaan Perizinan Badan Usaha Di Bidang Lingkungan Hidup Dalam Undang-Undang Cipta Kerja," *Jurnal Ilmiah Penegakan Hukum* 7, no. 2 (2020): 188.

³⁸ Roni Sulistyanto Luhukay, "Penghapusan Izin Lingkungan Kegiatan Usaha Dalam Undang-Undang Omnibus Law Cipta Kerja," *Jurnal Meta-Yuridis* 4, no. 1 (2021): 112.

³⁹ *Ibid.*

⁴⁰ Dwi Febriyanti, *et.al.*, "Fungsi AMDAL Dalam Pengendalian Kerusakan Dan Pencemaran Lingkungan Setelah Diundangkannya UU Cipta Kerja," *Widya Pranata Hukum : Jurnal Kajian Dan Penelitian Hukum* 3, no. 2 (2021): 122.

licensing.⁴¹ The licensing factor can be used as a guide for business actors who will manage the environment. Environmental licensing is related to the obligation to obtain an AMDAL as an instrument for preventing ecological pollution where this principle is contained in the form of a legal product so that it is a necessity that must be obeyed by all parties, which means, in order for an environmental permit to be issued and approved, it must obtain an AMDAL.⁴²

The concept of licensing is regulated in the Environmental Law. The provision regarding environmental licensing is outlined in Article 1 (35) of the Environmental Law which regulates that all parties who establish business activities must acquire AMDAL or UKL-UPL in the context of protection and environmental management as a prerequisite for obtaining business and/or activity permits. Thus, a business and/or activity permit will be granted by the agency concerned if the business owner has environmental access. Therefore, if the environmental license is revoked, the business and/or activity permit will be canceled. However, after the enactment of the Job Creation Law, the abolition of environmental licenses was determined as a form of simplification of permits which caused a fundamental change in the implementation of the AMDAL mechanism.⁴³

After analyzing the EIA or AMDAL as the implementation of the precautionary principle, the research will see how the AMDAL arrangement in the Job Creation Law. The regulation regarding AMDAL in Article 24 of Job Creation Law has changed. The feasibility test is one of the transitions regarding AMDAL. According to its impact on the environment, this test is carried out at the beginning of business activities carried out before business activities. The government conducts the feasibility test by appointing a certified expert or institution.⁴⁴ In addition, business permits can be issued before or after issuing the environmental feasibility decree.⁴⁵ Therefore, if there is a business activity that utilizes GMO products and the risk is considered low, then the business activity can be carried out. This is not under the precautionary principle, which prevents scientific uncertainty about risk. The following is a comparison of the implementation of the AMDAL between the Environmental Law and the Job Creation Law.⁴⁶

⁴¹ Muhammad Al Ikhwan Bintarto and Muhammad Uwais Alqarni, "Landasan Filosofis, Aspek Moral Dan Aspek Keadilan Dalam Pembentukan UU Cipta Kerja," *Jatiswara* 36, no. 3 (2021): 280.

⁴² Martika Dini Syaputri, *op.cit.*, 127.

⁴³ Siregar, *loc.cit.*

⁴⁴ *Ibid.*

⁴⁵ Luhukay, *op.cit.*, 118.

⁴⁶ Sukananda and Nugraha, *op.cit.*, 131.

Table 2. Comparison of AMDAL Arrangements between the Environmental Law and the Job Creation Law

Elements	Environmental Law	Job Creation Law
Stages	Process environmental documents (AMDAL or UKL-UPL), environmental approvals, environmental permits, and business permits	Process environmental documents (AMDAL or UKL-UPL), environmental approvals, business permits
Licensing Process	The impact is significant or not significant towards the environment	Categorized into high risk, medium risk, and low risk
AMDAL evaluator	AMDAL Assessment Commission or <i>Komisi Penilai AMDAL</i> (KPA)	Feasibility Test Institute or <i>Lembaga Uji Kelayakan</i> (LUK)
AMDAL Evaluator Establisher	Minister, governor, or regent/mayor	National government
Communities involved in AMDAL	Communities directly affected, environmentalists, communities affected by decisions in the AMDAL process	Communities directly affected

It can be seen from Table 2 that there are transitions and differences regarding AMDAL arrangements between the Environmental Law and the Job Creation Law. In the Environmental Law, the precautionary principle's implementation prioritizes the importance of the impact of a risk before the activity is carried out. Meanwhile, in the Job Creation Law, an activity can be implemented if the risk is assessed as low because there is a transition between the risk approach in the Environmental Law and the licensing approach in the Job Creation Law. Such transition is considered to be a threat to the future environment management system since the Job Creation Law determined the level of risk, namely low, medium, and high. Therefore, according to the Job Creation Law, it is possible for business activities that already utilize GMOs to be operationalized even if the risk is assessed as low because there is a transition between the risk approach in the Environmental Law and the licensing approach in the Job Creation Law. The transition from risk-based to license-based is one of the many legal problems that have arisen since the enactment of the Job Creation Law. Another concern from this transition is that in the Job Creation Law, the community's involvement towards risk is merely preventive, whereas the direct monitoring of the environment is managed by the license applicant. This given role is very subjective and does not fulfill the definition of precaution from the environmental point of view.⁴⁷

Moreover, since its promulgation in 2020, the Job Creation Law has been in the spotlight of legal critics because it is considered to have material and formal weaknesses.⁴⁸ However, beyond the reasons for the necessity for a revision of the Job Creation Law, the environmental aspect, unfortunately, became the aspect that was least paid attention to. In November 2021 or a

⁴⁷ M Reza Baihaki, "Persetujuan Lingkungan Sebagai Objectum Litis Hak Tanggung Gugat Di Peradilan Tata Usaha Negara (Telaah Kritis Pergeseran Nomenklatur Izin Lingkungan Menjadi Persetujuan Lingkungan Dalam Undang-Undang Nomor 11 Tahun 2020 Tentang Cipta Kerja)," *Majalah Hukum Nasional: Media Pembinaan Dan Pembangunan Hukum* 51, no. 1 (2021): 13.

⁴⁸ *Ibid.*

year of its implementation, the Job Creation Law through Decision No. 91/PUU-XVIII/2020 was declared “conditionally unconstitutional” by the Constitutional Court.⁴⁹ This decision is the result of the partial approval of the application for a formal review of the Job Creation Law. The Job Creation Law is declared contrary to the 1945 Constitution of the Republic of Indonesia and has no binding legal force as long as it is not amended within two years of the decision being made. Thus, the Job Creation Law will be declared permanently unconstitutional if improvements are not made within the given period. The court decision might possess an adequate opportunity for the development of environmental law in Indonesia. Although the provisions related to environmental licensing based on the Job Creation Law are still in effect, with a conditionally unconstitutional status, the issue of environmental permits can be reviewed and subject to material revisions to be included in the Job Creation Law in the future.⁵⁰

3. CONCLUSION

Based on the discussion, the research concludes that the precautionary principle's implementation in the use of GMOs in Indonesia is realized in the regulations for the food, feed, and agriculture sectors. The regulations of KKHPRG are Presidential Regulation No. 39 of 2010 on the Commission for the Biosafety of Genetically Engineered Products and the standardization of food labeling of genetically engineered food products based on Government Regulation No. 69 of 1996 concerning Food Labels and Advertising. A comparison of the implementation of the precautionary principle on the use of GMOs according to the Environmental Law and the Job Creation Law can be seen in the AMDAL arrangement as the implementation of the precautionary principle. In the Environmental Law, the implementation of precautionary principle prioritizes the importance of a risk's impact before the activity is carried out. Whereas in the Job Creation Law, the operation of an activity adjusts the level of risk, namely low, medium, and high. This means that in the Job Creation Law, it is possible for business activities that already utilize GMOs to be operationalized if the risk is assessed as low because there is a transition between the risk approach in the Environmental Law and the licensing approach in the Job Creation Law. All in all, this article suggests the following points: (1) regarding the usage of GMOs, the government should find precautionary implementations that are more specific than regulations and labels, since regulations alone are too abstract to comprehend in a society; (2) environmental NGO institutions and the government should coordinate to ensure business actors do not abuse the Job Creation Law's interpretation as their defense on harming the environment; and (3) environmental NGO institutions should act as a communicator between the government and community related to GMOs usage towards the environment.

⁴⁹ Constitutional Court, Decision of the Constitutional Court of the Republic of Indonesia No.91/PUU-XVIII/2020, para [3.20.3], 413.

⁵⁰ Dodi Haryono, “Metode Tafsir Putusan Mahkamah Konstitusi Dalam Pengujian Konstitusional Undang-Undang Cipta Kerja,” *Jurnal Konstitusi* 18, no. 4 (2022): 774.

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