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UNVEILING THE LEGAL COMPLEXITIES SURROUNDING DUAL USE OF CHEMICAL IN GLOBAL AND INDONESIAN CONTEXTS

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ABSTRACT

The use of white phosphorus as a weapon is highly dangerous, causing direct physical damage to victims and environmental harm. White phosphorus is just one of many dual-use chemicals that have industrial benefits but also pose significant health and environmental risks. This situation leads to violations of fundamental human rights. This study discusses the legal complexities related to the use of dual-use chemicals in both global and Indonesian contexts, with a focus on Indonesia's Health Law No. 17 of 2023. The research aims to identify legal gaps in the regulation of hazardous chemical use, from both international and national perspectives, and to provide recommendations for improving national regulations to better protect the public from the threats posed by dual-use chemicals. This study uses a normative legal approach with descriptive-analytical methods. It evaluates the gaps between national and international regulations on dual-use chemicals and the practical impact of these differences on public health protection in Indonesia. The study finds significant gaps between national and international regulations, particularly in terms of oversight and regulation of dual-use chemicals. The implementation of current health laws in Indonesia remains weak. International regulations are stricter, but they have not been fully integrated into national policies, resulting in gaps in public health protection from the threats posed by these chemicals.

INTRODUCTION

History has shown the use of white phosphorus as a weapon can have a very dangerous impact. For example, the conflicts in Gaza and Iraq about 20 years ago showed that white phosphorus not only causes physical damage to victims directly, but also causes long-term health consequences and damages the environment (Khalaf, 2023). White phosphorus was originally designed to provide an illuminating effect on the battlefield, and has uses in the industrial manufacture of phosphoric acid and other compounds required in the production of fertilizers and detergents (Geeson & Cummins, 2018; Hill, 1952; Thao et al., 2022). However, white phosphorus is also used as a weapon that causes burns, airway disorders, corneal perforations, and causes fetal abnormalities, as well as causing significant fires in buildings, fields, and other civilian objects (WHO, 2023). Not only white phosphorus, but also dioxins, sulfuric acid and several other types of chemicals, have a number of benefits in industry and also on the other hand have the potential to be harmful to health and the environment. The dual function of a material or material in civilian and military purposes is called dual-use (van der Bruggen, 2012). Although its use is considered a violation of human rights, in fact white phosphorus is still being used again in the conflict in Gaza recently. Regulations regarding the use of hazardous chemicals in Indonesia

itself have been regulated in Law number 9 of 2008 and internationally in the Chemical Weapon Convention (CWC). But in particular, the public health aspect has not been well detailed in the law.

This research aims to discuss aspects of public health protection from the use of hazardous chemicals in the global and Indonesia context with the perspective of Law number 17 of 2023. This study is also expected to identify the gaps and linkages between international law and Indonesia's health law regarding the dual-use of chemicals and evaluate the practical consequences of these differences.

METHODS

The method used in this research is normative juridical and descriptive-analytical in nature. This approach involves a thorough examination of legal norms and regulations related to dual-use chemicals at both national and international levels. The study assessed and compared existing Indonesian laws with relevant international frameworks, identifying any legal gaps that may exist.

The research was conducted through document analysis, focusing on primary legal materials such as national laws, international conventions, government regulations, and court rulings. Secondary sources, including legal textbooks, journal articles, and expert opinions, were also examined to provide context and depth to the analysis.

The analytical approach was both qualitative and comparative. Qualitative analysis was employed to interpret the legal texts, while a comparative method will be used to evaluate differences between national and international regulations. Furthermore, the research investigated the practical implications of these regulatory gaps on public health protection in Indonesia, highlighting real-world challenges and risks related to the management of dual-use chemicals.

The ultimate goal of this research is to propose recommendations for harmonizing Indonesia's national regulations with international standards to enhance public health protection. Data collection was based on library research and document analysis, ensuring a comprehensive understanding of the legal landscape and its practical impacts.

RESULTS

Dual Use Chemicals

Dual-use is a term used to refer to chemicals or equipment that can be used for peaceful civilian and commercial purposes, but can also be used in the manufacture of weapons or as weapons themselves (Organisation for the Prohibition of Chemical Weapon, 2023). Dual-Use chemicals can also fall into the category of *Riot Control Agents*, components and precursors of chemical weapons, herbicides, and chemicals that affect the central nervous system. An example of this dual-use chemical is *dimethyl-methyl-phosphonate* (DMMP) (safety dual use). DMMP functions as a fire retardant in furniture manufacturing and the Electrical industry. This material can be a precursor to chemical weapons of nerve agents. Nerve agents or "nerve agents/gases" are one of the deadly agents that cause death very quickly, preceded by symptoms of dizziness, diarrhea, nausea and vomiting, to seizures and shortness of breath (Nurazzi et al., 2021). Another example is *Arsenic trichloride* which functions as a precursor to semiconductors and insecticides, but can also be used as a precursor to chemical weapons (Lewisite). Likewise, sulfuric acid (H2SO4), which is a raw material in the production of medicines and many pharmaceutical compounds, was once used as a raw material for *a triacetone triperoxide-based* bomb (TATP) that was detonated in Bali in 2002 (Walters et al., 2015).

In addition to the chemicals listed on the list (*Schedule 1-3*) and the CWC's special numbering of chemicals, other irritant chemicals that have the potential to be military weapons may be included in *dual-use* if they meet the definition of dual-use. But because it is not explicitly listed in the list detailed by the CWC, its use has become controversial. A well-documented example of the controversial *use of dual-use* chemicals is the use of white phosphorus by the United States in the 2004 Iraq war (Tessier, 2007). The effect of white phosphorus on the human body is in the form of severe burns that will continue to burn as long as the wound is exposed to air (white phosphorus interacts with oxides). The effect of burning until burned out can also occur on infrastructure targets (Carroll, 2021).

Aspects of International Law

There are at least three relevant regulations on the use of dual-use chemical weapons in international law. The use of chemicals as weapons is regulated in the Chemical Weapons Convention or CWC, a convention that prohibits the development, production, acquisition, stockpiling, storage, transfer or use of chemical weapons by signatory countries. The CWC has a special list and numbering

of chemicals that have the potential to become chemical weapons. Not all dual-use chemicals are included in the list except for chemicals that can function as precursors (Schedule 3) (Organization for the Prohibition of Chemical Weapon, 2023).

International Humanitarian Law (IHL) also regulates how weapons should be used in an armed conflict. IHL is a set of regulations aimed at limiting the adverse effects of an armed conflict, including protecting the rights of civilians. IHL consists of 161 regulations in 6 chapters (The International Committee of Red Cross, 2023). Regarding their use that violates human rights, chemicals that include irritants such as "Riot Control Agent" or tear gas, are also prohibited under International Human Rights Law. The regulation does not specifically mention the types of chemical weapons, but its impact on violating the right to life, the right to freedom from torture and ill-treatment, inhuman or degrading treatment, the right to "peaceful protest", and the right to health, makes the regulation relevant to the use of chemicals as weapons (Geneva Academy, 2023).

Perspectives on Indonesia's Health Law

Health Law number 17 of 2023 (hereinafter referred to as Law no. 17 of 2023) is a health law regulation that is currently in force. This legal framework does not detail the impact of chemicals on the health of individuals or society in particular. The use of hazardous chemicals is outlined in Law No. 9 of 2008 which is in line with international humanitarian law and the CWC. Although it does not specify this, Law no. 17 of 2023 regulates several things relevant to the use of hazardous chemicals. The principles of humanity, protection and safety, public interest, environmental sustainability, and legal order and certainty are the basis of this regulation (article 2). This regulation also protects the right of everyone to be able to live a healthy life physically, mentally and socially, get a healthy environment and be protected from health risks (article 4).

Judging from the form of chemicals, dual-use chemicals can be in the form of precursors or chemicals used in the pharmaceutical industry. Law no. 17 has regulated health supplies (articles 314-321) and pharmaceutical and medical device durability (articles 322-333). The central and local governments are responsible for the availability, equity, and affordability of pharmaceutical supplies and preparation materials. This shows that the arrangement of these precursor materials has been regulated by the government. However, there are no details of pharmaceutical precursor ingredients that must be watched out for as dual-use. Likewise, the parties who can access the materials, how to obtain them, and the supervision of distribution have not been detailed.

Law no. 17 is quite comprehensive by including regulations on outbreaks and KLB into it, namely in articles 352 – 400. However, the use of dual-use chemicals in conflict situations, their impact on society, and the impact on the environment have not been explained in this legal framework. The protection of every citizen and the environment against chemicals, as well as the responsibility of governments in terms of prevention and treatment of the dual-use effects of chemicals has not been explained. An example of this is the use of "riot control agents" or tear gas in Kanjuruhan in 2022. There is no legal framework that regulates victim protection so that various problems arise, including financing the treatment of victims in hospitals. The event is not included in the criteria for outbreaks, extraordinary events, or types of diseases covered by national health insurance. Unstrict regulations become a loophole so that the public also does not get certainty about the party responsible for the treatment and management of the deceased. This incident became one of the humanitarian tragedies in Indonesia, which although in the end the treatment of the victims was borne by the central and regional governments, it had experienced problems because the laws governing it were not yet clear.

Although Health Law No. 17 of 2023 already regulates the protection of health hazards, the implementation of these regulations often encounters obstacles in the field. Weaknesses in law enforcement, as seen in the handling of the Kanjuruhan incident, show that legal uncertainty remains a major challenge in protecting the public from the threat of hazardous chemicals. This demonstrates the need for more effective law enforcement as well as more detailed regulatory revisions to address gaps in legal protection.

Dual Use of Chemical Weapons and Legal Gaps

The use of chemical weapons is a major concern in international law because of its devastating impact on humans and the environment. According to a report by the Organization for the Prohibition of Chemical Weapons (OPCW), chemical weapons not only cause mass deaths but also leave long-term effects on the physical and mental health of victims. This report is in line with the findings of the

International Committee of the Red Cross (ICRC) which affirmed that chemical weapons constitute a serious violation of international humanitarian law, in particular the principles of distinction and proportionality in armed conflict.

International legal experts emphasized that the implementation of the chemical weapons ban is strictly regulated by the Chemical Weapons Convention (CWC), which prohibits the production, storage and use of chemical weapons in all their forms. However, in practice, there are still states involved in armed conflicts that violate this treaty without any decisive consequences. For example, the use of chemical weapons in Syria by local governments has sparked a global debate about the effectiveness of the CWC and the ability of the international community to enforce punishment for violators (al-Maghafi, 2018).

Meanwhile, in Indonesia, regulations regarding dual-use chemicals are still poorly structured and often not in line with international standards. Health Law No. 17 of 2023 actually covers aspects of health protection from hazardous chemicals, but it has not explicitly regulated and shown weaknesses in international law enforcement. Despite clear evidence of the use of chemical weapons in Syria, the United Nations Security Council is often hampered by vetoes from major powers, such as Russia and China, which protect its allies from sanctions. This shows the limitations of the CWC in the context of global geopolitics, which is sometimes influenced more by political interests than by commitment to international humanitarian law.

In addition to weak enforcement mechanisms, the CWC also faces the challenges of the proliferation of chemical weapons through the black market and the use of dual-use chemicals that can be diverted for military purposes. For example, chemicals such as chlorine that are legally used in industry can be easily turned into weapons when in the wrong hands. This phenomenon has sparked debate in the international community about the need for stricter regulation of dual-use chemicals, especially in conflict-prone countries. When comparing Indonesia's regulations with international law, especially the CWC, it can be seen that the CWC regulates in detail the use and storage of chemicals that have the potential for dual-use. This regulation establishes stricter international standards compared to Health Law No. 17 of 2023 which, although it includes protection against health risks from chemicals, does not provide specific details regarding chemicals that can be used in conflicts. Thus, the existence of this international regulation highlights the regulatory gap at the national level, especially in the face of the global threat of hazardous chemicals.

CONCLUSION

Dual-use chemicals, which can be used for civilian and military purposes, are regulated internationally in the Convention on Chemical Weapons (CWC), International Human Rights Law, and International Civil Law. Indonesia's health legal framework, Law No. 9 of 2008, regulates hazardous chemicals in line with international laws. However, Law No. 17 of 2023 does not detail the protection of citizens' health during conflict and the impact of dual-use chemicals. The author suggests that Indonesia's national regulations, as reflected in Health Law No. 17, need to emphasize supervision and control of dual-use chemicals to prevent misuse. Strengthening the integration between national regulations and international law is crucial to ensure effective enforcement mechanisms. Future research could explore the effectiveness of Indonesia's enforcement mechanisms in regulating dual-use chemicals, investigate gaps between national and international legal frameworks, and examine the role of government oversight and inter-agency coordination.

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