



## IMPLEMENTATION OF THE POLLUTER-PAYS PRINCIPLE ON SPACE DEBRIS

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### ABSTRACT

*The study aims to examine the extent to which The Polluter-Pays Principle on the Space Debris problem can be applied. Moreover, this study analyzes the prevention and recovery for countries affected by cases of falling space objects resulting from the launch of a country or a space company to the Earth's surface, particularly in the territory of a country. This study uses the normative method. This study's results determine that the Polluter-Pays Principle can be applied to handling environmental pollution problems caused by Space Debris, especially Space Debris which causes damage and pollution on the surface of the Earth. Therefore, in the case of the fall of Space Debris in Indonesian territory that causes environmental damage and pollution, this principle may be applied. The aggrieved party may ask for compensation based on the Liability Convention and Article 7 of The Outer Space Treaty. The Liability Convention stipulates that the launching State bears absolute responsibility in paying compensation for damage caused by space objects on the surface of the Earth or aircraft, and is responsible for the damage due to his mistake in space. This responsibility action is used to protect, prevent and restore the environmental impact caused by the case of a space object falling into the territory of a country.*

**Keywords:** *Prevention, Recovery, Compensation, State Responsibility*

### A. INTRODUCTION

Space exploration is still an interesting thing for several countries that have the capability of technological power to develop their rights over their airspace for peaceful purposes. According to the Roman adage, the sovereignty of the state in space is to an unlimited height (*cujus est solum eius ad coelum*). The principle of unlimited height is no longer maintained along with technological advances such as the launch and placement of satellites in space. Along with the development of technological advances for space exploration, it raises issues of the Space Environment which continue to be explored without any restrictions or bound rules regarding space environmental issues.<sup>1</sup>

<sup>1</sup>Sefriani, *International Law: An Introduction*, PT Rajagrafindo Persada, Jakarta, 2011, p. 224.

The Space Area is determined based on the principle of the common heritage of mankind, that every country is free to take advantage of Space exploration, research, investigation including celestial bodies, based on the Principle of Equality of all countries and according to the provisions of International Law and guidelines to the UN Charter, regardless of the level of economic and scientific progress.<sup>2</sup>

The main source of space debris in Earth orbit is accidental and intentional rupture resulting in long-lived debris and intentionally released debris during the operation of the launch stage and spacecraft. Currently, the fragments generated by the collision are the main source of space debris debris. Since the launch of the first Sputnik in 1957 there have been more than 4000 rocket launches, as well as many other debris-generating events like this - more than 150 orbit fragmentation events. Of these satellites, about 3,600 remain in space, of which only 1,000 are still operational; the rest just wander around in space.<sup>3</sup>

In 2002 a guideline for mitigating space debris (Space Debris Mitigation Guidelines) was prepared by The Inter-Agency Space Debris Coordination Committee (IADC). This guide contains a set of fundamental practices of mitigation, standards, guidelines, and handbooks developed by a number of national and international organizations. On the other hand, after a series of comprehensive discussions through working groups on space debris, the 50th meeting of the UN Committee for the Peaceful Use of Space (UNCOPUOS), the UN Guidelines on Mitigation of Space Debris (UN Space Debris Mitigation Guidelines) were adopted through Resolution No. . 62/217 of 2007. Substantially these guidelines were prepared taking into account input from the IADC as well as various inputs from UNCOPUOS member countries.<sup>4</sup>

In this case, the impact of the space debris problem becomes more complex because it will result in the stability of space objects such as satellites and other space objects that can enter the Earth's surface and then experience friction in the atmosphere and be destroyed, in some cases these objects are still intact. Several incidents regarding this matter were in Indonesia.

In 1978, Kessler and Cour-Palais published the paper "Collision Frequency of Artificial Satellites": The Creation of a Debris Belt.<sup>5</sup>The paper concluded that if past catalog population growth rates continued, around the year 2000 a more hazardous small debris population would have been generated as a result of random collision fragments between cataloged objects. These new debris sources will quickly generate hazards that exceed those from natural meteoroids, and over a longer timeframe, the growth of small debris will be exponential, even if a net zero input rate in the catalog is maintained. Shortly after this publication, John Gabbard of NORAD known as Retired Senior Scientist for Orbital Debris Research at NASA for his "Gabbard Plot", introduced the term "Kessler Syndrome" to describe the future collisional cascade described in the paper. Over the years, the term has developed definitions from the press that are not necessarily consistent with those of the paper or Mr. Gabbard.<sup>6</sup>Set in the year 2075,

<sup>2</sup>Thontowi, Jawahir and Iskandar, Pranoto, Contemporary International Law, PT. Refika Aditama, Bandung, p. 191.

<sup>3</sup>Priyatna Abdurrasyid, National Space Law (Placement of Urgency), Rajawali, Jakarta, 1986, p.8

<sup>4</sup>Nur Sri Fatmawati, Analysis on implementation of UN Space Debris Mitigation Guidelines, Aerospace Policy Research, LAPAN (2012), p. 113.

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this is an example of the popular definition of the Kessler Syndrome which includes both factual and exaggerated comments. While one episode correctly defines Kessler Syndrome as a stream of fragments from a collision that destroys other intact objects at increasing speeds, it goes on to say that, once initiated, billions of other pieces will be generated in a very short time and Earth will be surrounded by true space debris. -completely disconnected from outer space.<sup>7</sup>

Sequentially, certain regions of low Earth orbit will likely experience a slow but continuous growth of collision fragments that will not stop until the intact population is dwindled. The question becomes how much trust we should have in this conclusion and what are our options for dealing with the matter. There are three independent components of the prediction that can be examined: (1) Collision frequency between cataloged objects. (2) As a result of the collision. (3) Atmospheric decay rate of impacted fragments. Collision Frequency between Cataloged Objects The frequency of collisions between cataloged objects varies as the square of the number of objects in orbit, whereas other debris sources are proportional to the number of objects in orbit.<sup>8</sup>

As a result, as the population grows, it is inevitable that the debris from the collision will become more important than other sources of small debris. The model used in the 1978 publication to predict collision frequency is very simple compared to the models used today.

## **B. METHOD**

The author in this study uses regulatory research analysis techniques, previous international agreements and examines new problems that arise. As for the steps to obtain conclusions in this study the approach that the author uses is as follows:

### **1. Statutory Approach**

The statutory approach is used with the aim that the problems in this study are reviewed from a legal aspect, namely the extent to which international legal rules and regulations and existing international agreements can regulate issues related to Space Debris. In addition, international law in implementing a regulation cannot be separated from political elements which always influence a country to act with the aim of prioritizing its country's national interests. Then descriptively-analytical outlines the problems to be discussed, then analyzed to obtain a conclusion.

### **2. Conceptual Approach**

The conceptual approach used by the author by studying this researcher and finding ideas then gave birth to relevant legal notions, legal concepts, and legal principles. In connection with the issues faced and the impact of space waste on the territory of Indonesia, efforts to apply international environmental law to address the Space Debris problem.

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<sup>7</sup>DJ Kessler and BG Cour-Palais, "Collision Frequency of Artificial Satellites: The Creation of a Debris Belt", *Journal of Geophysical Research*, Vol. 83, No. A6, pp. 2637-2646, June 1, 1978.

<sup>8</sup>DJ Kessler, "Derivation of the Collision Probability between Orbiting Objects: The Lifetimes of Jupiter's Outer Moons", *Icarus*, Vol. 48, pp. 39-48, 1981.

## **C. ANALYSIS AND DISCUSSION**

### **A. Setting the Polluter-Pays Principle in International Law**

The polluter pays principle creates responsibility for environmental restoration and pollution control that is borne by polluters due to pollution caused by activities carried out by polluters, namely in the form of environmental restoration costs and environmental restoration practices.

The application of the polluter-pays principle requires polluters to bear the burden or cost of preventing and overcoming the resulting pollution, so it needs to be applied to the problem of space debris. In environmental management, The polluter pays-principle is one of the important principles, this principle was developed through the recommendations of the Organization for Economic Cooperation and Development (OECD) in 1972. In Law no. 32 of 2009 concerning Environmental Protection and Management, also stipulates that every person in charge of business and/or environmental damage that causes harm to other people or the environment is obliged to pay compensation and/or take environmental restoration actions.

This is a realization of the principle contained in environmental law which is also known as a polluter pays, so it can be said that the formulation of this provision is part of the polluter-pays principle, which does not only concern preventive aspects, but can also be linked to repressive aspects.

Based on Law Number 21 of 2013 concerning Space  
Article 7 e:

“Conducting activities that can cause pollution and/or damage to the environment of the Earth and Space and endanger Space activities including the destruction of Space Objects.”

What is no less important in implementing The Polluter-pays principle on the problem of space debris is the need for a lot of discussion with stakeholders to be able to support overcoming this problem so that it does not become a dangerous problem in the future, in this research it is also hoped that the international public will be open to supporting protection environment in airspace & space.

### **1. History of The Polluter-Pays Principle**

*The Polluter-Pays Principle*(The Polluter Pays Principle) was first introduced by the Organization of Economic Cooperation and Development (OECD) in 1972. The report states that polluters are responsible for the control and prevention of pollution associated with manufacturing processes. But officially The Polluter-Pays Principle was formally recognized in the 1992 Rio Declaration which is part of a broader set of principles for moving toward sustainable development worldwide. In this principle, every business actor who in his activities commits an unlawful act in the form of environmental pollution and/or damage or produces pollution that causes harm to other people or the environment, must bear the management costs by compensating for losses and/or taking certain actions against what was done by the perpetrators of business activities to prevent damage to humans or the environment. The ‘polluter pays’ principle is the generally accepted practice that those who produce the pollution must

bear the costs of managing it to prevent harm to human health or the environment. For example, a factory that produces potentially toxic substances as a by-product of its activities is usually responsible for their safe disposal. The polluter pays principle is part of a broader set of principles to guide sustainable development around the world (formally known as the 1992 Rio Declaration).<sup>9</sup>

## 2. Scope of the Polluter Pays Principle in International Environmental Law

This principle means that in relation to means of controlling environmental pollution and at whose expense efforts need to be made

*Het redelijk werd geacht, dat in beginsel de vervuilers de kosten van de zuivering betalen, daar zij door die vervuiling in conflict (zouden) comment met andere belangen en zij er dus de oorzaak van zijn dat maatregelen moeten worden getroffen.*<sup>10</sup>

A free translation is “It is considered reasonable that, in principle, polluters should pay treatment costs, because they will or will conflict with other interests as a result of that pollution and are therefore a cause for action.”

In general, the polluter pays principle implies that the polluter must bear the cost of preventing pollution; power to decide to maintain environmental quality standards. The rationale behind this is that the cost of environmental management efforts should be revealed in the cost of goods and services whose manufacture or use results in pollution.

*Doordat de kosten van deze maatregelen niet ten laste van de algemene middelen worden gebracht, right het beginsel “de vervuiler betaalt” gezien worden als een toepassing van het profijtbeginsel.*<sup>11</sup>

A free translation is “By not charging the costs of these measures to the general fund, the polluter payment principle can be seen as an application of the profit principle.”

Polak further views the polluter pays principle as an application of Kranenburg’s principle of balance (evenredigheidsbeginsel):

*Zoveel lust en onlust als waarvoor elk lid der rechtsgemeenschap de voorwaarden heeft geschapen, comment aan hem toe. Vervuilende product method veroorzaken onlust of nadeel aan het algemene belang, waarvoor de gepresenteerd word account.*

The free translation is “As much passion and restlessness as every member of the legal community has created conditions for him. Polluting production methods cause unrest or harm to the public interest where the bill is presented.”

In reality, the industry concerned is exempt from financing related to clearing activities and actually has to be borne by them. As a substitute, entrepreneurs get the opportunity on a payment basis to utilize the available facilities. This also applies to household polluters; Ordinary people are also burdened in various ways with fees for cleaning activities carried out by the authorities. Thus, a special tax legal basis is formed which is based on profit-beginsel, because the authorities must pay for the

<sup>9</sup>“What is the polluter pays principle?”. Grantham Research Institute on climate change and the environment (in English). Retrieved 03 August 2023.

<sup>10</sup>Hayatuddin Khalisah, Aprita Serlika, Environmental Law, ed. 1. (Jakarta: KENCANA Publisher, 2021), p. 196-197.

<sup>11</sup>Hayatuddin Khalisah, Loc.Cit.,

interests of polluters by carrying out protective measures themselves from a technical perspective or other considerations.

Even though the polluter pays principle is an internationally established principle, there are many criticisms of its limited application in laws and regulations, because there is no agreement on the definition of the polluter. There are several Dutch legal experts that can be used as food for thought:

Leenen stated that so far the polluter pays principle has not been applied in a pure and unified manner by legislators. In reality, government apparatus, scientific research and so on are financed by public means. Besides that, there are exceptions. Supported by Van Lieshout's statement, he argues that it is not necessary to legally determine who the polluter is. The pollution that arises and the imposition of levies or clearing obligations on producers, even importers, is sufficient. The market mechanism prepares the next allocation, calculation into the price may occur, but not always.<sup>12</sup>

In connection with the problem of who is the polluter, the OECD report on the polluter-pays principle in 1975 put forward the idea of "Who pays for what"?

The report discusses the relationship between pollution and accountability: polluters are not always responsible for the pollution they cause. Furthermore, the OECD report links pollution and power, in the sense of finding out who is the party that economically and technically has the power to deal with pollution, Entrepreneurs have the ability to make their production free of pollution by installing pollution prevention tools, so it is not feasible to burden the "victims" solely. In other words, the polluter-pays principle has different results, depending on the application to producers or consumers.

From the description above, it is evident that it is not easy to determine the actual pollutant that will be charged with recovery costs. Thus, it is not yet clear who the polluter is. For the sake of accountability and legal certainty it is very important to establish a legal unity of understanding of polluters. Through the establishment of several international organizations to provide recommendations regarding environmental policies.

#### 1) Organization for Economic Cooperation and Development (OECD)

After the OECD was founded, the OECD accepted the polluter-pays principle, not intentionally as a starting point for an efficient national environmental policy, but also a principle that can demonstrate international harmony. The cost of preventing and controlling pollution is an important key environmental problem, so that at its first meeting, on 15 and 16 June 1971/Sub Committee of Economic Experts OECD determined:

- a) that internalization of external effects connected with the environment obeyed a basis for a pollution control policy.
- b) that such internalization should be based as far as possible on the overriding principle that "the polluters should be the payers".
- c) that exceptions may have to be made to this principle which ought to be defined and analyzed.

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<sup>12</sup>Ibid.

- d) that the internalization of external effects related to the environment complies with the basic pollution control policies.
- e) that such internalization should be based as far as possible on the main principle that “the polluters must be the payers”.
- f) that exceptions may have to be made to this principle which must be defined and analysed.

On May 26, 1972 in the Guiding Principles concerning the International Economic Aspects of Environmental Policies, the OECD advised member countries to apply the polluter-pays principle, but also stated exceptions to the said principle. Finally, on November 14, 1974, limitations were set against the exceptions to this principle in the Recommendation of the Council on the Implementation of the Polluter-pays Principle.<sup>13</sup>

## 2) Council of Europe

The Council of Europe through the Committee of Ministers has approved Resolution (68)4 concerning the Declaration of Principles on Air Pollution Coniro on March 8, 1968, which among others in Chapter II Principles paragraph 6 (Financing) states that: The cost incurred in preventing or abating pollution should be borne by whoever causes the pollution. This does not preclude aid from Public Authorities. As such, the Council of Europe has started to think about the cost of environmental management in line with the work of the OECD.<sup>14</sup>

## 3) European Communities (EC)

This organization also contributes ideas to the implementation of the polluter-pays principle. On November 22, 1973, the Actieprogramma van de Europese Gemeenschappen inzake het milieu was established (Dutch version), which reads as follows:

*De Lid-staten en de Commissie hebben de goedkeuring bepleit van het door de OESO aanbevolen beginsel “de vervuiler betaalt”. De aard en de juiste draagwijdte van dit beginsel moeten met bepaling van de aanvaardbare uitzonderingen gemeenschappelijk worden omschreven.*

The free translation is “Member States and the Commission have advocated for the adoption of the polluter pays principle recommended by the OECD. The nature and scope of this principle must be defined together with defining acceptable exceptions.”

On 7 November 1974 once again the European Communities emphasized the application of the polluter-pays principle in the Council Recommendation on the Application of the Polluter-Pays Principle, which stated, among other things:

*For these reasons, and having regard to Article 189 of the Treaty establishing the European Economic Community, the Council recommends that, in respect of cost allocations and action by public authorities in the field of environmental protection, the Member State conforms to the principles and the rules governing their application which are contained in the commission communication.*

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<sup>13</sup>Ibid.

<sup>14</sup>Ibid.

A free translation is “For this reason, and having regard to Article 189 of the Treaty establishing the European Economic Community, the Council recommends that, with respect to the allocation of costs and actions by public authorities in the field of environmental protection, Member States comply with the principles and rules governing the application of contained in the commission’s communications.”

Thus, historically the OECD and European Communities organizations have played a major role in the development of the polluter-pays principle as a starting point for thinking about environmental policy. In addition, the World Bank also adheres to the view of the willingness in the early stages of providing guidance on environmental issues. This is of course closely related to the recommendations and implementation of the polluter-pays by OECD and EC member countries.<sup>15</sup>

## **2.1 What the Polluter Has to Pay**

Thinking about the costs imposed on polluters is still very different. Are polluters only responsible for the costs of concrete countermeasures (narrow meaning). Or is it basically also for general expenses (broad sense).

Criticism arises regarding the obligation to pay for polluters who interpret that by paying the polluter has the right to pollute, provided he pays compensation. This interpretation is known as the expression the right to pollute, license to pollute, paying to pollute and de betaler vervuilt.<sup>16</sup>

Since there are criticisms of pollution charges as a realization of the polluter-pays principle, objections have arisen against the use of these facilities:

Environmental policy basically does not contain such negative meanings: *Deze interpretatie is in het milieubeleid nooit aan dit beginsel gegeven. In dit beleid staat het voorkomen of tenminste tot een aanvaardbaar riiveau van de milieuverontreiniging primair. Het principe “de vervuiler betaalt” beoogt daarbij slecht te verzekeren, dat de kosten van milieumaatregelen en milieuvervuiling ten laste van de betrokken product of consumptie worden gebrach. Het koppelen van een op vervuiling aan de mogelijkheid en bereidheid tot betailing daarvoor wordt onaanvaardbaar geacht.*<sup>17</sup>

The free translation is “This interpretation has never been given to this principle in environmental policy. This policy is primarily about preventing or at least leading to a collision of environmental pollution. The ‘polluter pays’ principle is intended to ensure that the costs of environmental action and pollution are borne by the production or consumption concerned. Associating pollution with the possibility and willingness to engage in it is deemed unacceptable.”

This interpretation has never been given to this principle in environmental policy. This policy is primarily about preventing or at least leading to a collision of environmental pollution. The ‘polluter pays’ principle is intended to ensure that the costs of environmental action and pollution are borne by the production or consumption concerned. Associating pollution with the possibility and willingness to do so is considered unacceptable.

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<sup>15</sup>*Loc. Cit.*

<sup>16</sup>*Op. Cit*, p. 201.

<sup>17</sup>Hayatuddin Khalisah, Aprita Serlika, *Environmental Law*, ed. 1. (Jakarta: KENCANA Publisher, 2021), p. 201-202.

Regarding what polluters have to pay, the OECD provides guidance suggestions, namely:

- a. Polluters should be burdened with the obligation to pay for the pollution they cause. However, this solution is unsatisfactory and even dangerous for the following reasons:
  - 1) Environmental restoration is meaningless in the event of severe damage whose impact cannot be resolved by pure compensation.
  - 2) Crash recovery involves a lot of difficulty; for example. long-term impacts and discovery of indirect impacts.
  - 3) Estimate the cost of damage to the cost of restoration.
  - 4) Damage repair is often economically wasteful: prevention is better than cure.
- b. The polluter pays, by charging him the costs of the activities necessary to prevent pollution, in the form of levying incentives equal to the cost of cleaning up the waste, or simply setting criteria that require taking preventive measures.<sup>18</sup>

Furthermore, the OECD stated that in addition to the efforts mentioned above, pollution control also includes other costs in the form of alternative costs for implementing anti-pollution policies, costs for measuring and monitoring management, costs for research and development of anti-pollution technology, donations for updating out-of-date installations and etc. If the polluter has to pay, it still needs to be determined exactly what he has to pay. In fact, polluter having to pay means that he is the first payer, or he is at the internalization stage of external costs. In this case, passing costs on to consumers does not undermine the principle.

According to the OECD report above, it is considered unrealistic that the entire cost of tackling pollution is borne by the polluter. The opinion adopted by the OECD regarding this issue is formulated as follows:

*The polluter-pays principle is not a principle of compensation for damage caused by pollution, does not mean that the polluter should only pay me the cost of measures to prevent pollution. The Polluter-Pays Principle means that the polluter should be charged with the cost of whatever pollution prevention and control measures are determined by the public authorities, whether preventive measures, restoration, or a combination of both. is not in itself a principle intended to fully internalize the cost of pollution.*<sup>19</sup>

A free translation is “The polluter payment principle is not the principle of compensation for damage caused by pollution, not that the polluter only has to pay me the costs of measures to prevent pollution. The Polluter Payment Principle means that polluters must be charged with the costs of any pollution prevention and control measures prescribed by public authorities, whether preventive, remedial, or a combination of the two. “In other words, the polluter-pays principle itself is not a principle that wants to fully internalize the cost of pollution. The OECD formulation emphasizes a fairly broad understanding of the question of what polluters must pay.<sup>20</sup>

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<sup>18</sup>Loc. Cit.

<sup>19</sup>Hayatuddin Khalisah, Aprita Serlika, Environmental Law, ed. 1. (Jakarta: KENCANA Publisher, 2021), p. 203.

<sup>20</sup>Ibid.

## 2.2 How Do Polluters Pay?

In the area of environmental policy, a number of economic instruments have been put forward, the benefits of each of which are relative to the success of environmental management. Regarding environmental policy facilities, the OECD recognizes the following types: Direct control, Taxes, Payments, Subsidies, Various incentives (tax benefits, accelerated amortization, credit facilities), The auction of pollution rights, charges.

In general, environmental policy tools emphasize prohibition provisions and licensing requirements, as direct and effective means of achieving the goals to be achieved, if this relates to factual countermeasures at sources of pollution.<sup>21</sup>

Provisions regarding prohibitions and fines as sanctions against polluters, is one possible physical suggestion. England can be used as an example of a country that imposes a ban with fines for those who litter on the street. The prohibition reads: "Littering is an offense. Liability to a £100.00 fine". Likewise in Singapore there is a prohibition against throwing trash around with a fine of S.\$1,000.00 for those who violate it; also the prohibition of allowing water to stagnate in the yard, gutters and gutters which can be controlled from time to time as an effort to prevent malaria, with a witness of S\$1,000.00.

Regarding the possibility of calculating the cost of disposal and disposal of household waste, Mc.Loughlin put forward the following thoughts:

*It is consistent with the "polluter-pays" principle that the person creating waste is initially responsible for the cost of its disposal, although the cost may be passed on to the ultimate consumer. This cost is usually charged at the time of collection for disposal, eg, when trade wastes are discharged to sewers, or industrial wastes are collected by public authorities. When the waste comes in fairly equal quantities from all members of the community, eg household refuse and domestic sewage. The cost may legitimately be charged to public funds.<sup>22</sup>*

A free translation is "This is consistent with the "polluter-pays" principle that the person who creates the waste is initially responsible for the costs of disposing of it, although those costs can be passed on to the final consumer. This fee is usually charged at the time of collection for disposal, for example, when commercial waste is discharged into sewers, or industrial waste is collected by public authorities. When garbage comes in fairly equal amounts from all members of the community, for example household refuse and domestic waste. Such fees can legally be charged to public funds."

Mc.Loughlin's description is the rationale for charges for disposing of household waste, which are commonly known in Indonesia as garbage charges. However, fees at the time of garbage collection are not always easy, as Mc. Loughlin further stated: *In some cases, however, charging at the time of collection is impossible or impracticable, and charging public funds could not be justified by the ground state above. It is sometimes not possible to find the person who has abandoned an old car, and it is impracticable to charge for the disposal of each non-returnable bottle. The easy solution to this problem is to*

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<sup>21</sup>Loc. Cit.

<sup>22</sup>Ibid.

*impose a disposal charge at the time of distribution. The distributor pays, passing on the cost to the consumer. This method has the added advantage of charging the person who is at the point of decision—who can decide to choose substances or articles which do not create such expensive disposal problems.*<sup>23</sup>

The free translation is “However, in some cases, charging at the time of collection is not possible or impractical, and charging public funds cannot be justified as the above ground circumstances. It’s sometimes impossible to find people who have abandoned old cars, and it’s impractical to charge for the non-refundable disposal of each bottle. An easy solution to this problem is to charge a disposal fee at the time of distribution. The distributor pays, passing the cost on to the consumer. This method should add to the advantage of charging people who are at the decision point—who can decide to choose a substance or article that doesn’t create costly disposal problems.

From the above review, it is clear that it is appropriate to charge fees when someone makes a decision to choose materials or objects whose disposal is not expensive. more Mc. Loughlin explains:

*To that extent, the method not only ensures a proper distribution of costs but also facilitates a response to those costs to the benefit of the people involved. To the extent that any charge exceeds the cost of disposal, it goes beyond being a disposal charge. It becomes a regulatory instrument in the form of a tax.*<sup>24</sup>

A loose translation is “To that extent, this method not only ensures the proper distribution of costs but also facilitates the response to those costs in the interests of the people involved. To the extent that any fee exceeds the disposal fee, it is more than the disposal fee. This becomes a regulatory instrument in the form of taxes.”

*In imposing taxes to provide funds for the administration of pollution protection legislation, and to finance research and development in connection with pollution control or pollution control, the authorities would be applying the “polluter-pays” principle. They would do the same if they used the funds to compensate persons who had suffered damage. Taxes or import duties could also be used to encourage recycling. Although the recycling of a material such as paper is technically feasible, it may not be done because it is uneconomic. A tax or duty can so increase the cost of new materials that a recycling of the old then becomes commercially worth while. In Germany a tax is imposed on new oils, but is not imposed on recycling oils, thus providing an economic incentive for their use.*<sup>25</sup>

The free translation is “In imposing taxes to provide funds for the administration of pollution protection laws, and to finance research and development related to pollution control or pollution control, the authorities shall apply the principle of “polluter payments”. They will do so too if they use the funds to compensate the people who have suffered damage. Taxes or import duties can also be used to encourage recycling. Although recycling materials such as paper is technically feasible, it may not be done because it is not economical. Taxes or import duties can increase the cost of new material so that recycled old material becomes temporarily commercially valuable. In Germany a tax is levied on new oil, but not on recycling oil.

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<sup>23</sup>Ibid.

<sup>24</sup>Ibid.

<sup>25</sup>Hayatuddin Khalisah, Aprita Serlika, Environmental Law, ed. 1. (Jakarta: KENCANA Publisher, 2021), p. 206.

With regard to the issue of means of implementing the polluter-pays principle in its member countries, the OECD put forward the following views:

*Direct regulations could be of exceptional value in achieving immediate or speedy pollution reduction needed to safeguard public health or abate unacceptable nuisance. They would also be more appropriate in cases where the kind of pollutant or the structure of the group of polluters (because of their number or of their composition) makes the charge system less effective. In other cases, pollution prevention and control measures may achieve a desired improvement of the quality of the environment to the least social costs when they are based on the levying of charges.*<sup>26</sup>

A loose translation is “Direct regulation can be of tremendous value in achieving the immediate or rapid reductions in pollution needed to maintain public health or reduce unacceptable nuisance. They will also be more advantageous in cases where the pollutant type or pollutant group structure (due to their number or composition) makes the charging system less effective. In other cases, pollution prevention and control measures can achieve the desired environmental quality improvements at the lowest social cost when based on a charge.”

Both direct control or physical facilities as well as imposition of levies can be considered as implementing the polluter-pays principle which is also stated in the OECD report.

*The polluter-pays principle may be implemented by various means ranging from process and product standards, individual regulation and prohibition to levying various kinds of pollution charges. Two or more of these instruments can be used together. The choice of instruments is particularly important as the effectiveness of a policy depends on it. This choice can only be made by public authorities at central or regional level, in the light of a number of factors such as the amount of information required for the efficient use of these various instruments, their administrative costs, etc.*<sup>27</sup>

A free translation is “The polluter pays principle can be implemented in a variety of ways, from process and product standards, individual regulations and prohibitions to levying various types of pollution fees. Two or more of these instruments can be used together. The choice of instrument is very important because the effectiveness of a policy depends on it. This choice can only be made by public authorities at the central or local level, considering factors such as the amount of information required for the efficient use of these various instruments, their administrative costs, etc.”

From the description above, it can be said that the implementation of the polluter-pays principle is carried out in various ways, starting from process and product quality standards, regulations, prohibitions to forms of imposing various pollution levies or their combinations.

## **B. Application of the Polluter-Pays Principle in the Settlement of Space Debris Cases**

The application of the Polluter Pays Principle in Space Law, especially in handling space debris, has been discussed by a number of authors. According to the expert’s opinion that actors involved in polluting or hazardous activities must bear the costs associated with pollution, in terms of prevention, control and repair of damage caused

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<sup>26</sup>Loc. Cit.

<sup>27</sup>Ibid.

by it. The principle is based on the premise that these costs should not be borne by the wider community. Basically an economic principle, the allocation of costs to guide policies implemented by public authorities and private actors generates pollution; as such, it is not intended to be applied at the inter-country level and therefore its application in an international context is limited. Besides that,<sup>28</sup>

Meanwhile, according to the author, The Polluter-Pays Principle can be applied to the application of environmental pollution problems caused by space debris, especially for space debris that causes damage and pollution on the surface of the Earth, so that in cases of falling space debris in Indonesian territory, prevention and recovery can be applied to environment affected by space debris cases.

The incident of falling space debris in Indonesia has left many questions, especially regarding environmental and human security as a direct impact of falling space debris. Is there any anticipation by the Indonesian government for these incidents of falling space debris through the making of rules and policies, as well as what is Indonesia's position towards the applicable international regulations concerning space debris.

This research was conducted in an effort to find out what has been done by the Government of Indonesia which also introduced The Polluter-Pays Principle together with Brazil, India, China and South Africa as "Primary Partners" to implement the program and encourage this principle which was later adopted. into Law No. 32 of 2009 concerning Environmental Protection and Management Article 2 Letter j with the principle of "polluters pay" and with an explanation that every person in charge whose business and/or activity causes environmental pollution and/or damage is obliged to bear the costs environmental restoration.

In this section, the author further analyzes how the Polluter Pays Principle applies in the case of falling space debris in Indonesian territory.

## **1. Chronology of Cases of Falling Space Debris in Indonesia**

### **a. Incidents of Falling Space Trash in Indonesia Based on Time Research Objects**

The fifth case on July 18 2017 found two falling space objects in two locations in West Sumatra originating from fragments of a CZ-3A rocket belonging to China's catalog number 31116, the rocket used to launch the Beidou M1 satellite on April 13 2017. The sixth case in 2021 was found to be part of the fairing of the CZ-8 Logo CNSA (Chinese National Space Administration) rocket that crashed in the sea northwest of Central Kalimantan. Then the latest update is in 2022 the remains of China's Long March 5B rocket which fell in Sanggau, West Kalimantan, weighing 20 tons. In the sixth case in 2021, a part of the CNSA (Chinese National Space Administration) CZ-8 rocket fairing was found which had fallen in the sea northwest of Central Kalimantan. Then the latest update is in 2022 the remains of China's Long March 5B rocket which fell in Sanggau, West Kalimantan, weighing 20 tons. In the sixth case in 2021, a part of the CNSA (Chinese National Space Administration) CZ-8 rocket fairing was found which had fallen in the sea northwest of Central Kalimantan. Then the latest update

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<sup>28</sup>Birnie P., Boyle A. and Redgwell C, P. 322; See Principle 16 of the Rio Declaration

is in 2022 the remains of China's Long March 5B rocket which fell in Sanggau, West Kalimantan, weighing 20 tons.<sup>29</sup>

## **b. Cases of Falling Space Junk Impacting the Loss of the Surrounding Environment**

The biggest case of falling space debris in Indonesia was when space debris fell in Sumenep Madura on September 26 2016. The falling space debris was part of the Falcon 9 rocket owned by the United States SpaceX to launch the Japan JCSAT 16 communication satellite. The impact of the fall of this rocket part is damage to property belonging to local residents. The object that fell in Sumenep is shaped like a cylindrical tube 1.5 meters long and 60 centimeters in diameter, there are three tanks and one electrical panel which is part of the former rocket.

The incidents of falling space debris in the period 1981-2022 had an impact on many things, both economically, socially and environmentally. Economically (without taking into account the size of the impact) it causes damage to society and the environment. Not to mention the added traumatic possibility for the people who become very worried if the space debris directly hits their property, and even worse if there are casualties.

The existence of space debris in space makes Indonesian satellites that are still active very vulnerable to collisions because the debris moves freely and cannot be controlled. A collision with space debris disrupts the operational system of the satellite and damages communication. The threat of damage to Indonesia's satellites in space can eventually cause economic losses for Indonesia. This is because if there is damage, the government must make a new satellite which requires a lot of money, threatens Indonesia's capabilities, and disrupts communication and remote sensing systems to observe a weather phenomenon or geological mapping.

Space debris from Cosmos 954 which weighs about 65 kg contains about 3,500 radioactive particles consisting of 90 % uranium material. One small fragment has a radiation level of up to 500 X-rays/hour which is enough to kill a human after direct contact within a few hours. Taking into account the six cases that have occurred in Indonesia and carrying substances or ingredients that are harmful to humans in the future, if they are included in the space trash, moreover, it will be very dangerous and threatening if it falls in a densely populated area.<sup>30</sup>

Before discussing specifically how the Polluter Pays Principle is applied in these cases, the author will first explain the rules of space regarding compensation arising from space objects. This can be explained in the Convention on International Liability for Damage Caused by Space Objects 1972.

## **2. Handling of Losses Due to Space Objects Based on the 1972 Convention on International Liability for Damage Caused by Space Objects**

### **a. Rights and Obligations of Handling Space Debris**

In this case, Indonesia has the right to receive compensation from the launching country in accordance with international law, if the impact of the space debris generated is truly very detrimental and causes many victims due to the presence of space debris

<sup>29</sup>Djamiluddin, Thomas. "Falling Space Objects." *Aerospace Media* 5.2 (2010).

<sup>30</sup>Galloway, E. (1979). *Nuclear Powered Satellites: The USSR COSMOS 954 and The Canadian Claim*. Arron Law review Vol 12:3.

in the affected area. There are several stages and rules regarding the mechanism for implementing compensation demands and obligations of the launching country regarding Space Debris.

**b. Rights Exercised by States as Victims of Space Debris**

According to the 1972 Convention on International Liability for Damage Caused by Space Objects, it is the state that has the right to sue the launching nation. Individuals or legal entities are not entitled to claim compensation under the convention. The state can act on behalf of its citizens, on behalf of foreign nationals who have a permanent residence in its territory, and can even sue on behalf of a stateless person as long as the damage occurs within its jurisdiction. These provisions deviate from the applicable traditional provisions. Traditional provisions that apply in general, a country only acts to protect the interests of its citizens, but the convention does not only protect its citizens, but anyone who is within its jurisdiction.<sup>31</sup>

In general, the sequence of claims is as follows, if the country where the person is a national, within a certain time does not file a claim for compensation, then the country where the person has a permanent residence (permanent resident) will demand compensation from the launching country on behalf of the person who suffered the damage .

Likewise, if the country where the person is a national or the country where the person is permanently residing, and the country where the person is permanently residing does not file a claim for compensation, then the country where the person actually suffers damage may file compensation on his behalf.

**c. Obligations Performed by the Launching State**

Article 2 of the Convention on International Liability for Damage Caused by Space Objects 1972, states that the launching nation is absolutely responsible for paying compensation. According to Article 1 letters (c) and (i), the launching country is the country that actually launches, the country that provides the launching facilities, as well as the country where the space object is launched.

From these provisions, it turns out that the convention allows for activities to launch space objects which are carried out through cooperation. The launch of a space object is not only carried out by the owner of the object, but can be carried out by other countries that are not the owner. After the launch occurs, surveillance by another country that is not the owner. After the launch has taken place, further surveillance can be carried out by the launching country or by the country owning the space object.

In principle, the state is responsible for paying compensation. Individuals or private legal entities or companies are not responsible. This kind of principle is contained in the Outer Space Treaty of 1967, namely Article 7 which states that regardless of whether the launch of space objects is carried out by companies, individuals or private legal entities, the state is internationally responsible. In addition to the state, Article 22 of the 1972 Convention states that international organizations are also absolutely responsible for paying compensation, if they meet the conditions specified by the 1972 UN convention.<sup>32</sup>

<sup>31</sup>United Nations. (1972). Convention on International Liability for Damage Caused by Space Objects.

<sup>32</sup>United Nations. (1972). Convention on International Liability for Damage Caused by Space Objects.

### **3. The Polluter-Pays Principlein Handling Space Debris**

In the development of law in Indonesia, the Polluter-Pays Principle does not only cover economic instruments, but has also been included in legal instruments, especially international law. In the positive law that regulates the protection and management of the environment that is currently in effect, namely Law no. 32 of 2009 concerning Environmental Protection and Management (UUPPLH), the polluter pays principle has been adopted into the Act.

Article 2 of the Law on the Environment No. 32 of 2009 states “Protection and management of the environment is carried out based on 14 principles, namely: 1) State responsibility, 2) Sustainability and sustainability, 3) Harmony and balance; 4) Integration, 5) Benefit, 6) Precautionary, 7) Fairness, 8) Ecoregion, 9) Biodiversity, 10) Polluter pays, 11) Participatory, 12) Local wisdom, 13) Good governance, and 14) Regional autonomy.

In the elucidation of the law regarding the polluter-pays principle as stated in Article 2 letter (J), what is meant by the polluter-pays principle is “that every person responsible whose business and/or activity causes pollution and/or damage the environment is obliged to bear the costs of environmental restoration”.

In Article 42 paragraph (1) of the Law on the Environment No. 32 of 2009 “In order to preserve environmental functions, the government and regional governments are required to develop and implement environmental economic instruments” which is then explained in Article 42 paragraph (2) “Instruments environmental economics as referred to in paragraph (1) includes a) development planning and economic activities; b) environmental financing; and c) incentives and/or disincentives. Then it is further explained in article 43 that one of the development planning instruments and economic activities includes the internalization of environmental costs, namely including costs of environmental pollution and/or damage in the calculation of production costs or costs of a business and/or activity,

Conversely, disobedient activities/or businesses will be subject to disincentives in the form of levies. This arises because so far the environment has not been given a value/price, so in its development humans or legal entities (especially profit-oriented ones) use natural resources excessively and tend to clear it without thinking about the consequences for future generations. Of course all that remains is suffering and disaster that must be borne by the price, goods and lives. For this reason, the effort to provide an environmental fee contained in articles 42-43 of the Law on the Environment No. 32 of 2009 is the first step to reform from the previous Law, namely Law No. 23 of 1997 concerning Environmental Management. The ideas contained in the article, as the embodiment of the principles of environmental and social costs that are integrated into the decision-making process related to the use of Natural Resources, so that in the end there is an internalization of “externalities” in the sense that externalities must become part of decision-making. By utilizing the existing instruments in the law in the form of regulations (prohibitions and sanctions), charges, fees, leasing, licensing, property rights mechanisms and others.

Article 87 paragraph (1) of the Law on the Environment No. 32 of 2009, also states that “Every person in charge of a business and/or activity who commits an unlawful act in the form of environmental pollution and/or damage is obliged to pay compensation

and/or commit certain action”. In the elucidation of Article 87 paragraph (1) of the Environmental Law No. 32 of 2009 it is explained: “The provisions in this paragraph are the realization of a principle contained in environmental law which is called the polluter-pays principle. Apart from being required to pay compensation, polluters and/or environmental destroyers can also be burdened by judges to take certain legal actions, for example an order to:

- 1) Installing or repairing waste treatment units in accordance with the specified environmental quality standards;
- 2) Restore environmental functions; and/or
- 3) Eliminate or destroy the causes of environmental pollution and or damage.

The elucidation of this article has illustrated that the principles that have developed and are influential in international environmental law, some of which have been adopted in Indonesian environmental laws in order to create economic progress and development without neglecting the environment. Regarding compensation that must be paid by polluters for the impacts arising from pollution, Minister of Environment Regulation Number 13 of 2011 concerning Compensation for Environmental Pollution and/or Destruction provides guidelines for resolving environmental disputes both through court and outside the court. The ministerial regulation introduces the components that must be included in calculating compensation for both individuals and the environment. Therefore, for business actors who have a permit, if the activity causes specified environmental damage, then the company must be subject to sanctions in the form of paying an amount of money (forced money/dwangsom), not administrative fines, determined by the (regional) government, without having to go through a court process. The sanctions given are direct after a calculation has been carried out by a team of experts regarding the amount of money that must be paid equivalent to the environmental damage caused.

#### **4. Indonesian Policy Participation in Implementing The Polluter-Pays Principle in Resolving Space Debris Cases and Threats in Indonesian Territory.**

The role and policies of the Indonesian government began when Indonesia joined as a member of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) and was accepted as the 37th member in 1973. Indonesia participates in every discussion of space issues at every UNCOPUOS meeting. . Through UNCOPUOS, Indonesia conveys statements of support, suggestions, and looks at space issues including from legal or institutional aspects, as well as science and technology (IPTEK) to protect Indonesia’s national interests. Indonesia participates actively in space activities by utilizing science and technology in space. At present Indonesia has been able to build its own satellites and the main goal is to master the manufacture of A series experimental satellites. satellites for remote sensing, and communication satellites such as the Palapa satellite. In addition, Indonesia is currently developing a civilian rocket with the ability to master sonda technology, guided rockets, and liquid rockets towards mastering the 2015 LAPAN satellite orbiter rocket (RPS). In addition, Indonesia also binds itself to international space regulations, for example through a Presidential Decree No. 20 of 1996 concerning Ratification of the 1972 Convention on International Liability for Damage Caused by Space Objects, and Law of the Republic of Indonesia No. 16 of 2002

concerning ratification of the Treaty on Principles Governing the Activities of State in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies of 1967 (Treaty on the Principles Governing the Activities of States in the Exploration and Use of Space, Including the Moon and Other Celestial Bodies). Thus, Indonesia also plays a role in using and exploiting these natural resources.<sup>33</sup>

Indonesia as a sovereign country has special laws regarding outer space, which are contained in Law No. 21 of 2013 concerning Space (“Space Law”).<sup>34</sup> Articles 51-57 of the Space Law regulate space safety and security and Articles 58-70 deal with handling falling objects in Indonesian territory. In Article 1 number 12 of the Space Law, security is defined as: “all international efforts and commitments for each space operator to maintain and/or guarantee the use of outer space and other celestial bodies for peaceful purposes and not cause damage to the environment earth and outer space through the integrated use of human resources, facilities and procedures. This shows the sovereign side of the Indonesian state which does not only regulate the land area, but also covers the sea and space areas.

The fall of space debris in Sumenep, Madura in 2016 is an event that can be reviewed in accordance with what is written in Law no. 21 of 2013 concerning Space. In Article 58 paragraph 4 which reads:

*“The agency is obliged to identify falling space objects in the sovereign territory and jurisdiction of the Unitary State of the Republic of Indonesia and coordinate with other government agencies.”*

LAPAN as an official Indonesian government agency managed to identify that the space debris that fell in Sumenep, Madura belonged to SpaceX, a private company owned by Elon Musk from the United States. The fragments are part of the upper stage of the Falcon rocket which is used to launch a communications satellite owned by Japan which was launched in August 2016. The impact of the space debris is damage to the livestock pens belonging to residents. Regarding this case, the Indonesian side immediately identified the owner of the falling object, which turned out to be from pieces of space debris from the US company SpaceX. Because the company requested that the pieces of space junk be returned, the Indonesian government complied with the request. “After communicating with SpaceX,<sup>35</sup> This prepared statement is in accordance with the provisions in Law No. 21 of 2013 concerning Space Activities Article 64 paragraph (1) which reads:

*“In the case of a foreign spacecraft having an accident in the sovereign territory and jurisdictional territory of the Unitary State of the Republic of Indonesia, an official representative from the country where the spacecraft was launched, the country where the business entity for launching the spacecraft, the country where it is designed, and the country where it is manufactured may be involved in the investigation as long as it is not against the national interest.”*

### **C. Indonesia’s role in tackling Space Debris**

<sup>33</sup>United Nations. (1972). Convention on International Liability for Damage Caused by Space Objects.

<sup>34</sup>Indonesia, U. -U. (2013). Law No. 21 of 2013 concerning Space. Jakarta: President of the Republic of Indonesia.

<sup>35</sup>CNN, S. (2016, 9 27). Rocket Fuel Canister Overrides Cow Stall in Sumenep. Accessed from CNN Indonesia: <https://www.cnnindonesia.com/nasional/20160927081603-20-161355/tabung-bahan-bakar-roket-timpa-kandang-sapi-di-sumenep>

To minimize the risks caused by this space debris, countries that are members of UNCOPOUS and international organizations such as the Inter-Agency Space Debris Coordination Committee (IADC) with an interest in outer space issue policies on space waste mitigation.

### 1. UNCOPOUS (United Nations Committee on the Peaceful Uses of Outer Space)

UNCOPUOS published the Space Debris Mitigation Guidelines as a step to tackle space debris which was approved by the UN General Assembly. The guidelines call on UNCOPOUS member countries to consider applicable national measures or mechanisms to ensure that the guidelines are implemented to the fullest extent possible through mitigation procedures.<sup>36</sup>

There are seven guidelines issued. Guideline four on “Avoid intentional destruction and other harmful activities” explains that the risk of a collision can pose a threat to space operations, so it is prohibited to carry out intentional destruction of any spacecraft and orbital stages of launch vehicles or other dangerous activities that produce long-lived waste in orbit. Then, guideline five regarding “Minimize potential for post-mission break-ups resulting from stored energy” explains that to limit the risk of rupture or explosion of a spacecraft, all the energy contained in a spacecraft must be spent or disposed of when it is no longer needed for the end of its mission. <sup>37</sup>

### 2. IADC (Inter-Agency Space Debris Coordination Committee)

IADC is an international forum for government agencies to coordinate issues related to space debris. The IADC also issued a number of mitigation guidelines, one of which reads “Minimize the potential for On Orbit Break-Up”. Mitigation measures issued by the IADC stated that all potential for rupture or explosion of the vehicle during the mission must be minimized and all space systems must be designed and operated to prevent intentional or accidental explosions. Steps taken to minimize this are by consuming all the energy that is still stored in the spacecraft or ensuring it is safe when the vehicle is no longer operating. There are several steps to prevent potential rupture or explosion of spacecraft in orbit. These steps include: all energy sources that are still stored in the spacecraft or orbital stage, such as: propellant residue; battery; high-pressure vessels; self-destructive devices; flywheels and momentum wheels; must be used up or safe when no longer needed.<sup>38</sup>

### 3. Steps taken by the Indonesian government based on the Space Law

As a sovereign country, Indonesia uses its strength in providing advice and a real role in realizing a series of international mechanisms in guidelines, especially in regulations that discuss guidelines for dealing with space debris. This is because Indonesia has the advantage of being geographically located right on the equator. With the existence of guidelines related to handling space waste, it will certainly make it easier for countries around the world to implement this regulation into national mechanisms related to space waste mitigation.

<sup>36</sup>United Nations. (2010). Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space. (UN Affairs, Ed.) Vienna: Special Publication.

<sup>37</sup>United Nations. (2010). Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space. (UN Affairs, Ed.) Vienna: Special Publication. Op. cit

<sup>38</sup>IADC. (2014). Support to the IADC Space Debris Mitigation Guidelines.

In efforts to deal with space debris preventively, the government prohibits a number of dangerous activities, this is stated in Law no. 21 of 2013 Article 8 (d) and (e) which reads:

*“Any space activity is prohibited: (d). Carrying out activities that may threaten the Security and Safety of Space Administration including the security of space objects, individuals, and public interests; or (e). carry out activities that may cause pollution and/or damage to the environment of the Earth and Space and endanger Space activities including the destruction of Space Objects”*<sup>39</sup>

In the context of monitoring space debris in Indonesian territory, LAPAN as the authorized national space agency, has been able to monitor the trajectory of space debris (in general artificial space objects) carried out by the United States Department of Defense’s Space Surveillance Network which uses telescopic optics and radar.<sup>40</sup>

#### **D. CONCLUSION**

1. The Polluter Pays Principle is one of the principles of International Environmental Law first introduced in the Rio Declaration in 1972 by the Organization for Economic Cooperation and Development (OECD) in which polluters remain responsible for pollution. The application of the polluter pays principle does not only mean that the polluter pays a fee or compensation for the damage caused, but also expenses that are used to prevent such damage/pollution. The Polluter Pays Principle can properly be applied to handling environmental pollution problems caused by Space Debris, especially for Space Debris which causes damage and pollution on the surface of the Earth, resulting in cases of the fall of Space Debris in Indonesian territory.
2. The application of the Polluter Pays Principle occupies a strategic position in the arrangement of Environmental Law, but the application of this instrument requires a number of things, namely:
  - a. Government support through the establishment of implementing regulations;
  - b. Mechanism and determination of clear implementing organization;
  - c. Good socialization regarding the forms of economic instruments in International Environmental Law.

These three things can only be obtained if the word sustainable development is not just a slogan, but has become the main goal in decision making. In this case the most urgent thing that must be done is to stipulate a Government Regulation regarding International Environmental Law. The enactment of a Government Regulation regarding International Environmental Law can provide guidance for the implementation of The Polluter-Pays Principle in Indonesia.

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