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# The Invocation of the Precautionary Principle within the Investor–State Dispute Settlement Mechanism: Not Seizing the Occasion

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**Abstract:** The principal purpose of this article is to demonstrate how the precautionary principle can be included in the investor–state dispute settlement (ISDS) deliberative process by providing a legal solution that would permit the invocation and implementation of this concept within the ISDS operational framework. The precautionary principle has been widely applied in the environmental management field, yet its role within the ISDS framework has remained relatively underutilised. To analyse this issue, this paper first explores the operational justification of the precautionary principle and how decision-makers should endorse it in order to fully recognise and address environmental concerns on a legal level. Next, the article proceeds to examine recent ISDS cases in which the precautionary principle was invoked and compares various risk assessment techniques to illustrate how it may be incorporated into the deliberative process and harmonised with other standards. The paper suggests that the forward-looking nature of the precautionary principle has paramount importance in disputes involving oil and gas, particularly in cases where oil and gas activities are believed to contribute to greenhouse gas emissions that could worsen global warming. This paper advances the argument that a wider application of the principle could better equip ISDS tribunals to address the limitations of scientific knowledge, especially under circumstances where significant or irreversible environmental damage may occur.

**Keywords:** the precautionary principle; investor–state dispute settlement; investment arbitration; oil and gas disputes; climate crisis; proportionality test; environmental harms



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## 1. Introduction

While the precautionary principle (PP) is expressed in various legal instruments, such as the 1992 Maastricht Treaty (European Union 1992), its application within the context of investment arbitration has received diverging interpretations (Adams 2011). As enshrined in the 1972 Stockholm Conference, this principle purports to legitimise governmental precautionary actions based on potential risks of serious and irreparable environmental hazards (Sands et al. 2012). In essence, it operates as a license to prevent actions that could cause irreversible environmental damage for future generations. This principle emerges from the premise that the uncertainty of potentially serious and widespread environmental hazards should be considered (Wiener 2007). However, no uniform definition of the concept exists, and it can be applied in various ways to different projects and contexts. This lack of clarity is largely attributed to the ambiguous nature of the model’s normative structure.

Critically, the constituent elements of this principle, such as the severity and the nature of potential risks (i.e., the economic, social, environmental, and health threats), the threshold degree of uncertainty, the magnitude of the potential harm, and the type of response necessary, remain highly contested (Wiener 2002; Cross 1996; Goklany 2001). Furthermore, the normative foundation of this principle is prefaced on the principle of

intergenerational justice, which is a prominent, yet elusive principle recognised by the 2030 UN agenda as a crucial pillar of sustainable development (Freestone and Hey 1995; Segger et al. 2021). The section will explain how this principle has not attained a coherent and unanimous definition, thereby rendering its scope of application open to divergent interpretations. Although a wider application of the precautionary principle could mitigate widespread environmental threats stemming from unregulated oil and gas industries, the discrepancies within its normative composition and its ideological foundation render this concept as inoperative within the context of ISDS. Therefore, to situate this principle within investment arbitration, it is necessary to provide a thorough explanation of its legal standing, defined function, and normative foundations.

In light of this, the following section of this article will analyse existing international and regional legal frameworks and agreements to provide a brief overview of the various formulations of this idea. A thorough grasp of the main purposes and origins of this concept can be achieved by identifying the shared normative components of this principle. The next section will explore the constituent elements of this principal vis-a-vis the risk assessment process to underscore their distinctions and differences to erase any existing ambiguity. Such a distinction would provide for a greater understanding of its legal implications and its role in combating significant environmental risks. The final section will examine cases of investment arbitration to identify the attitudes of investment tribunals towards this concept. Using *Mamidoil Jetoil v. Albania*, *Burlington v. Ecuador*, and *Rockhopper v. Italy* as focal points, the piece will demonstrate how tribunals have failed to effectively invoke this principle to justify the precautionary measures adopted by the host states to prevent harms resulting from oil and gas exploration activities. The article concludes that effectively adopting and enforcing this principle within investment arbitration could counteract any actions that might worsen climate change.

## 2. A General Introduction to the Precautionary Principle

Despite its unclear legal status within the body of public international law, the precautionary principle is not a new aspect of international adjudication. It has been included in many international agreements and proclamations, most famously the Rio Declaration, whose wording has been praised as being “classic”. Principle 15 of the Rio Declaration on Environment and Development, adopted by the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, 1992, states that:

“In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”. (United Nations 1992)

The precautionary principle is a concept that was launched through soft law, following its first elucidation in the 1972 Stockholm Conference.<sup>1</sup> The Stockholm Conference serves as a chief vehicle that conceptualises its normative contour. This concept was subsequently integrated in the Vienna Convention for the Protection of the Ozone Layer in 1985.<sup>2</sup> Afterwards, the United Nations Conference on Environment and Development provided an iteration of this principle in Article 15, solidifying and expanding its normative framework (United Nations 1992). Additionally, the Lisbon Treaty referred to the precautionary principle as a norm to combat climate. Nevertheless, many scholars have also argued that this principle lacks the necessary normative coherency for it to be considered as a well-established principle of law, rendering it incapable of being heavily endorsed by arbitral tribunals (Wainwright 1998; Freestone and Ellen 1996). It is said that this principle is founded on ethical commitments, environmental risk governance, and analogy precedence,

<sup>1</sup> Stockholm Declaration on the Human Environment, in the Report of the United Nations Conference on the Human Environment, UN Doc. A/CONF. 48/14, at 2 and Corr.1 (1972).

<sup>2</sup> (Szell 1985), appears at 26 I.L.M. 1516 (1987).

none of which provide a robust backdrop (foundational ideology) to promulgate a coherent paradigm (O’Riordan and Jordan 1995). To this end, many believe that this principle only serves as an aspirational ideal.<sup>3</sup> Thus, this concept does not serve as a self-standing norm and is not perceived to be an important principle, capable of restriction or change, by laying out its core conceptual components.<sup>4</sup> Additionally, the 2001 Stockholm Convention proposed this concept to prevent persistent organic pollutants (Hagen and Walls 2005).

The inclusion of this concept in the Convention to fight organic pollutants has facilitated its expansion in terms of its scope of application. In this vein, Article 19(1) of the Energy Charter Treaty provides a cursory reference to this concept by explaining its function, which is to minimise environmental degradation. Further, the Convention on International Trade in Endangered Species (CITES) 1973 defined the role of this concept as assigning and assessing the magnitude of anthropogenic threats (Boutillon 2002). Thus, the conception, articulation, and dissemination of the precautionary principle and its constituent components emerged from two to three decades of intense UN-led activity, which is a relatively short time to acquire the status of a formal source of law within the tenet of international law (Distefano 2019).

### 2.1. *The Normative Structure of the Precautionary Principle*

This principle confers states with a distinct legal power to manage situations of uncertainty and adopt measures in accordance with the harms presented (Bodansky 1991). Trouwborst remarked that this concept provides a rationale for action, which allows states to take necessary measures to protect the environment and human health in the face of scientific uncertainty (Trouwborst 2007).

This principle provides discretion to states to implement or engage in supervisory practice with a spectrum of possible actions that can be taken. As noted by Trouwborst, the precautionary principle recognises a credible basis for decisions that are based on imprecise and indeterminate probabilities. Therefore, the main thrust of this principle is to formulate a sound decision based on the mechanism of imprecise probabilities (Trouwborst 2002; Ellis 2006).

#### 2.1.1. *The Normative Provisions of the Precautionary Principle*

To apply a model for normative deliberation of this concept, it is necessary to break down its constructive elements. Despite the varied definitions of this principle, there are some core conceptual components that are shared among all these definitions. A close examination of the various formulations of this concept showcases three common grounds that are (reflected) in every definition of this concept.

These elements are as follows:

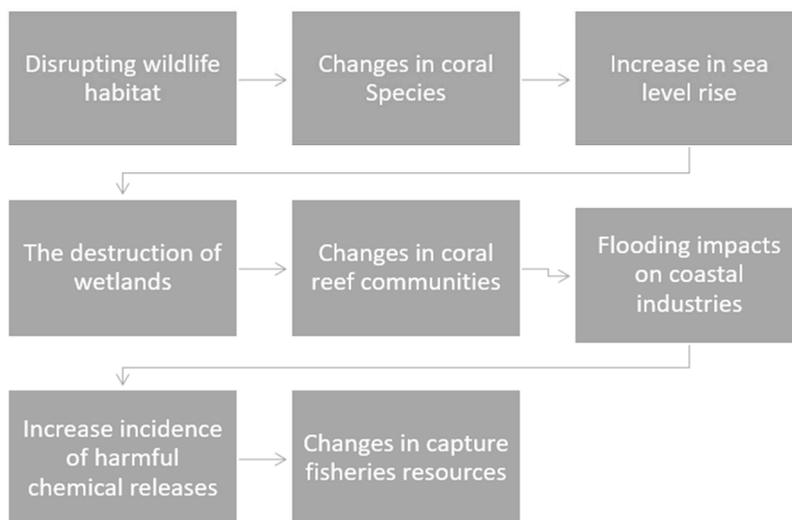
- The potential of significant harms to the environment and health.
- The existence of triggering conditions.
- The invocation of an appropriate precautionary response.

See Figure 1.

<sup>3</sup> Convention on International Trade in Endangered Species of Wild Fauna and Flora (Mar. 3, 1973), 27 U.S.T. 1087, 12 I.L.M. 1085.

<sup>4</sup> Treaty of Lisbon, amending the Treaty on European Union and the Treaty establishing the European Community, signed in Lisbon, 13 December 2007, OJ C 306, 17.12.2007, pp. 1–271.

# Climate Risks Caused by Oil and Gas Operations



**Figure 1.** This figure shows risks caused by the oil and gas industries within the areas that the projects are taking place. Source: own assessments based on findings in United Nations Environment Programme Finance Initiative. Data were retrieved in May 2021.

While there is not much controversy about what environmental harm entails, it is important to emphasise the growing interconnectedness of biodiversity and the environment. Biodiversity is a varied concept, which includes variability among living organisms from all sources, including, inter alia, terrestrial, marine, and other aquatic ecosystems, as well as the ecological complex of which they are part (Ekardt et al. 2023). This includes diversity within and between species. Ecosystems are a component of biodiversity and can be defined as “dynamic complexes of plant, animal, and microorganism communities that also include the non-living environment, which interacts as a functional unit” (Kriebel et al. 2001). The following charts showcase the wide spectrum of factors that would constitute harm to the ecosystem. One of the caveats in the effective implementation of the precautionary principle is that it is often conflated with the rationale for implementing Risk Management Assessment (RMA). However, as the following paragraphs denote, the function and objectives of these two concepts are quite distinct. Thus, it is of critical importance to provide a clear distinction between these two concepts (Goldstein and Carruth 2004).

## 2.1.2. The Divergent Applications of the Precautionary Principle Vis-a-Vis Risk Management Assessment

Risk management is invoked in a situation wherein risks and potential adverse impacts are precisely described through scientific criteria (Stirling 2007). Thus, the identification of these risks will lead to the implementation of measures that will help prevent the negative repercussions of adverse impacts. Risk management is, therefore, preventative in nature and based upon predefined risks or the occurrences of certain risks, established by the existing scientific knowledge (Stirling 2007).

In the context of oil and gas exploration, the risks management process is triggered by the implementation of the Environmental and Social Impact Assessment (ESIA).<sup>5</sup> This will allow for the full assessment of impacts on biodiversity and provide mitigation measures and effective biodiversity management, which are often authorised by a competent authority (Siting 2004; Mantatov and Mantatova 2015). Thus, effective biodiversity management requires predication of multifaceted impacts along the lines of the internationally accepted mitigation hierarchy. This will lend itself to the establishment of appropriate compliance and monitoring systems, while minimising the impacts on biodiversity on an ongoing basis and facilitating temporary biodiversity gains through targeted measures. There are several notable provisions that will be implemented within the common biodiversity management program, including the rehabilitation of the impact parts of the operation side, ensuring long-term sustainability of rehabilitation actions, and monitoring any rehabilitation progress and development of biodiversity.

In short, within the framework of Risk Management Assessment (RMA), there are a number of predefined standards or a threshold of acceptability and safety that ought to be met by the designated measures (Mace and Sissenwine 2002).

#### The Criterium of Risk

The characteristics of the risks, the threshold of knowledge, and the nature of the risks that create the constituent components of the second normative prong (“the triggering condition”) form a prerequisite of the application of this principle. In this regard, the propensities of the type of hazards or risks serve a crucial role in distinguishing what type of “threats” would give rise to the invocation of the precautionary principle versus the invocation of RMA (Bodansky 1991).

The invocation of the precautionary principle requires the risks to have the following important characteristics. Firstly, risks in relation to the principle are inherently complex and have the potential to cause dramatic and extreme impacts, sometimes leaving decade-long risks in their wake (Van Asselt and Vos 2007). This is largely due to risks pertaining to the environment being complex and dynamic. Often, adverse impacts can have significant and long-term consequences on the health and happiness of present and future generations. However, current scientific knowledge is not adequate to accurately capture the exact degrees of harm with certainty. Namely, the scientific criterion is not well advanced to clearly and concretely establish the degree and magnitude of harms based on statistical probabilities. However, the current scientific and policy interfaces do recognise the potential of environmental risks that can leave irreversible damage (Jordan and O’Riordan 1999).

Critically, what remains essential in relation to risks is that they should not be remote, hypothetical, or conjectural. Instead, the basis of the risk should be scientifically informed, while the threshold of harms can be established through the science–policy interfaces that constitute the threshold of knowledge (Whiteside 2006).

#### The Identification of Science–Policy Interfaces

Another important feature within the normative disposition of the precautionary principle is the requirement of endorsing a multifaceted analogy of risks from Science, Policy, and Society Interfaces (SPIs). More critically, factors perceived as risks should not solely be construed through the prism of current scientific criteria. To this end, the close examination of SPIs should be conducted and its implementation through the minority views should not denigrate its legitimacy and viability, as long as its grounds are informed by scientific data (Von Schomberg 2012).

<sup>5</sup> Environmental and Social Impact Assessment (ESIA) identifies and assesses the potential social and environmental impacts of a proposed project in its area of influence, evaluates alternatives, and designs appropriate avoidance, mitigation, management, and monitoring measures. Generally, an ESIA is required for Substantial Risk and High-Risk projects with “downstream” impacts (e.g., with a physical footprint). An ESIA addresses all relevant issues related to the SES Programming Principles and Project-level Standards triggered by project activities.

### The Threshold of Knowledge

Another sub-component of the “triggering condition” is the threshold of knowledge, which speaks to the inadequacy of the current state of knowledge that fails to clearly and adequately capture the underlying probabilities. In other words, current knowledge does not allow us to garner the objective probability of the underlying risks, which in turn signifies that an adequate understanding of an identified threat is not a necessary condition for taking the necessary measures. More specifically, the cause–effect relationship and the magnitude of the damage cannot be quantifiably and statistically identified through current, state-of-the-art scientific data (Lemons et al. 1997).

In this regard, the precautionary principle carves out a margin of appreciation for states to take action when neither the probability nor the magnitude of harms can be assigned due to discrepancies and disagreements on the nature of a risk. Thus, precautionary-inspired efforts can be based on tentative, inconclusive, or, in some cases, disputed science espoused by the minority views, but to the extent that it creates a conclusive assumption of “potential risk” (Van Asselt and Vos 2007). This feature distinguishes this principle from earlier institutionalised risks and governance approaches. This feature also runs counter to standard decision-making procedures (e.g., cost–benefit analysis), in which possible, but unproven, causal connections do not count (Jordan and O’Riordan 1999).

The lack of scientific certainty was conceptualised in the UNCED formulation of the precautionary principle in Article 10 (1992), which stated that the uncertainty was due to insufficient relevant scientific information and knowledge (United Nations 1992). Article 10 does provide some clarity as to what uncertainty pertains to, as follows: (a) The degree of the likelihood of the anticipated adverse impacts. (b) The absence of “sufficient evidence” to provide a clear cause and effect between the uncertainty and possible adverse impacts. This requirement has also been emphasised by the definition of the precautionary principle of the World Charter for Nature (1982; United Nations Environment Programme 1982), noting that the causes and effects are not fully understood. In other words, the cause-and-effect relationships are not fully established scientifically, as encapsulated in a wingspread statement on the precautionary principle in 1998. (c) Scientific data cannot effectively assign precise probabilities or utilities to the possible outcomes of actions and there is not enough scientific information available to calculate precise expected utilities. (d) The magnitude of the risk is still contested (Holm and Harris 1999). Current research and the active development of this method can certainly increase our ability to identify and assess environmental threats and tell us about what we do not know. While scientific evidence may not be able to concretely point out the magnitude of harm, it certainly has the capability to indicate the existing gaps (Graham and Hsia 2011).

Following in this vein, when it comes to risks associated with oil and gas operations, the current scientific knowledge permits a clear understanding of the nature of risks, such as the reduction of biodiversity, risks of temperature, zoning, and rezoning, as well as the plausibility of the occurrences of said risks. Nevertheless, a progression or acquisition of more knowledge is required to ascertain the degree of impacts, as well as the magnitude and seriousness of damage. However, current knowledge should draw on the available facts or quality of presentable information, as well as the plausibility of risks based on reasonable grounds for concern (Holm and Harris 1999). See Figure 2.

The invocation of risk in PP	Invocation of risk in RAM
<b>The methodology to identify risk</b>	
Articulation of risks based on the science– policy interface and without requiring the majority views.	Identification of risks based on scientifically quantifiable and statistically clear data or nature.
<b>The nature of the risks</b>	
Inherently complex, dramatic, and evaluative, capable of causing decade-long harms.	Known cause-and-effects, and the nexus can be easily and scientifically established between adverse effects and human actions.
<b>The areas of harm</b>	
Potential threats and risks to health and environment.	Predefined risks to health, property, and environment.
<b>The standards of safety and acceptability</b>	
The standards of safety and acceptability of risks are transformable.	The risks posed exceed the benchmark set for acceptable safety and standards.
The standard by which they invoke measures is based on transformable standards.	The normative standards or benchmark for safety or acceptability of a measure is predefined (established).
<b>The threshold of knowledge</b>	
The incompleteness of knowledge is the primary reason to render such articulation scientific conjecture.	Scientific certainty on the degree and seriousness of the adverse impacts of the risks.
The progression of knowledge is required to clearly and statistically establish the degree of harm.	Based on available scientific data, the link can be established by absolutely clear scientific evidence.

**Figure 2.** This figure illustrates the differences in metrics employed in the application of the precautionary principle and Risk Management Assessment. Source: made by the authors.

### The Appropriate Measure to Mitigate Harms

The third intrinsic component of the right to the precautionary principle concerns the appropriate measures that can effectively counteract the potential hazards. To determine whether an adopted measure is appropriate for the relevant context and variables, policy-makers ought to apply a proportionality analysis, which is comprised of three important sub-tests (Siting 2004).

First, the test requires a thorough assessment of all plausible alternatives to establish if the adopted measures effectively restrain and mitigate the hazard. In devising the appropriate measure, the policymakers ought to consider different factors, such as policies being onerous or burdensome, or whether a given action has disproportionate disadvantages (O’Riordan et al. 2001; Comstock 2000). In addition, they will look at alternative scenarios to identify avenues that will pose little repercussions based on the variables, contexts, and alternative resources. To identify an optimal test, a thorough cost-and-benefit analysis is required (O’Riordan et al. 2001; Comstock 2000).

In the second sub-test, a delicate balance between costs and benefits must be achieved by taking into account not only economic analysis, but also a whole host of factors, including science and policy criteria. During this decision-making process, the parties ought to be afforded the opportunity to examine various plausible options to seek out the most suitable criteria and assess a range of strategies for carrying out measures (O’Riordan et al. 2001; Comstock 2000).

The PP calls for all potential outcomes to be acknowledged by looking into various disciplines. The third sub-test is the application of these adopted measures in a consistent manner. For these measures to be applied in a sound and effective manner, they should be applied based on non-discriminatory and consistent measures while assessing plausible alternatives (Ahteensun and Sandin 2012).

### 3. The Position of ISDS on the Adoption of the Precautionary Principle

This section explores the use of the precautionary principle by investment tribunals that are entrusted with evaluating state-adopted risk mitigation strategies. To date, little attention has been given to the potential benefits of the investor–state dispute settlement (ISDS) mechanism in embracing a principle-based approach to assessing the legitimacy of state climate action policies. Similarly, there has been little focus on the normative challenges faced by ISDS adjudicators when they try to apply the precautionary principle to interpret environmental regulations.

This is coupled with an increasing realisation that the current risk assessment methodology does not capture certain climate change risks. Thus, viewing risks through the traditional risk assessment methodology serves as a barrier to adopt a holistic climate conscious approach, which predominately favours preservation over prevention (Cohen 2022).

It is at this juncture where the precautionary principle provides “a qualified exemption” to the requirement to the general risk assessment methodology. As noted by Wagner, this principle can be best harnessed when experts can only provide insufficient evidence, and it allows measures to be assessed based on “available pertinent information”, or “insufficient scientific data” (Wagner 2012). Despite the greater application of the precautionary principle within the practice of the WTO and the ICJ, this principle has yet to be successfully integrated in the reasoning of investment arbitrations. This is because international adjudications have emerged as a forum for strategic lawsuits, prioritising climate change mitigation and adoption over pre-existing economic obligations (Setzer and Higham 2023). Thus, advocates and policymakers have turned to these forums due to uncertainty about implementing international treaties and the inadequacy of business efforts to curb greenhouse emissions.

Nevertheless, ISDS has served as a forum for reactive “anti-regulatory” climate lawsuits. A cogent example of this is *Burlington Resources Inc. v. Republic of Ecuador*,<sup>6</sup> in which a tribunal awarded Burlington USD 378.9 million for expropriation of its investment, albeit Ecuador successfully counterclaimed for breach of contract and domestic environmental protection laws. Additionally, in *Mamidoil v. Albania*, the tribunal failed to classify greenhouse gases or climate-related threats as a regulatable pollutant.<sup>7</sup> In a similar vein, in *Rockhopper v. Italy*,<sup>8</sup> investment tribunals failed to engage in a deliberative process of collaborating with affected people to identify advocacy goals of understanding the adverse effects of resource extraction and the fundamental rights to preserve the environment for present and future generations.

These proceedings proved to be polarising and confirmed the ongoing difficulties of ISDS in striking the delicate balance between conflicting entitlement to natural resources and the accommodation of environmental policies that seek to tighten domestic regulations. Critically, these awards revealed that ISDS tribunals grapple to develop “climate consciousness” when confronted with complex cases that seek to curb greenhouse gas emissions.

As the following analysis shows, investment tribunals are predominantly concerned with interpreting and applying the environmental protection measures in policies before them, typically by relying on traditional Risk Management Assessments that are largely designed to only control and reduce pollution. Notably, these tribunals must interpret and

<sup>6</sup> *Burlington Resources Inc. v. Republic of Ecuador*, ICSID Case No. ARB/08/5 (Formerly *Burlington Resources Inc. and others v. Republic of Ecuador and Empresa Estatal Petroleos del Ecuador (Petro Ecuador)*).

<sup>7</sup> *Mamidoil Jetoil Greek Petroleum Products Societies SA v. Albania*. ICSID Case No. ARM/11/24.

<sup>8</sup> *Rockhopper Exploration Plc, Rockhopper Italia S. p.A. and Rockhopper Mediterranean Ltd v. Italian Republic*, ICSID Case No. ARB/17/14.

apply obligations to which states are subject pursuant to investment treaties, which require them to abstain from measures that could encroach upon the wide investment protections reserved for investors (Gordon and Pohl 2011). These investment protection standards are general obligations of international law, derived from investment law and reflected in customary international law (Gordon and Pohl 2011). Such wide and expansive investment protection standards afforded to investors do not furnish states with adequate legal basis to establish tightened environmental regulations.

In light of this, this section examines how, in the context of natural resource-driven economic development, reliance on a classical causality theory has arisen as a critical institutional space for challenging progressive environmental measures. This section shows that investment tribunals have adopted an agnostic approach to applying this principle, using as focal points the rulings made in *Mamidoil v. Albania*, *Rockhopper v. Italy*,<sup>9</sup> and *Burlington Resources Inc. v. Republic of Ecuador*. It illustrates how tribunals would not specifically mention the precautionary principle, especially as a basis for validating the precise environmental justifications for enacting environmental regulations that had forward-looking qualities. Conversely, few nations have adopted this idea as a normative justification for their aggressive climate change initiatives. As a result, the precautionary principle is of little consequence because it cannot affect the tribunals' decision-making, even though it gives states the authority to establish policy boundaries in the face of scientific uncertainty and operationalise liability for environmental conservation and preservation in the context of ISDS.

However, this section argues for a more widespread application of the precautionary principle as a powerful instrument to bridge the gap between the need for immediate environmental action and the potential for indirect and delayed harm. In order to reiterate the necessity for institutional re-adjustment in the risk assessment, it will finish by elucidating how the current risk assessment models fall short in capturing long-term operational hazards of oil and gas projects.

### 3.1. *The Preservation of Ecosystems versus Reduction of Oil Contamination: The Saga of Burlington v. Ecuador*

The case of *Burlington v. Ecuador*<sup>10</sup> is a prime example whereby a tribunal failed to endorse regulatory measures taken by a state when evidence was presented that such measures were taken on a precautionary basis to support progressive climate policies.

The case concerned a U.S.-affiliated investor that was assigned production-sharing contracts (PSCs) for the exploration and exploitation of blocks 7 and 21 of certain oil production facilities in Ecuador in 2001. The entire cost and operations risks were born by Burlington and Parengo, and in return, they were to receive a share in the oil.<sup>11</sup> Due to rising oil prices, Ecuador revised its tax regime, subjecting Burlington to new tax regulations—the state-owned oil company—to be the subject of the new tax regime. The change in the tax regime resulted in the reduction of the windfall profit.<sup>12</sup> Subsequently, Burlington submitted that its law was enforced to abdicate its rights under the PSCs, as the introduction of the tax regime led to the seizure of certain fractions of the investment, which was tantamount to indirect expropriation.<sup>13</sup> The project was subsequently halted and abandoned by Burlington.<sup>14</sup> Following the suspension of the operations, the Ecuadorian government took over the facilities, claiming that the suspension of the operation would have led to the depletion of blocks 7–21, causing irreparable harm as well as devastating impacts on the ecosystem of that area.<sup>15</sup> In support of its claim, Ecuador presented a polygenic risk

<sup>9</sup> See footnote 8.

<sup>10</sup> *Burlington Resources Inc. v. Republic of Ecuador*. ICSID Case No. ARB/08/5, 2012.

<sup>11</sup> *Ibid.*, para. 432.

<sup>12</sup> *Ibid.*, para. 434.

<sup>13</sup> *Ibid.*, para. 455–32.

<sup>14</sup> *Ibid.*, (para. 455, decision on liability).

<sup>15</sup> *Ibid.*, 420.

score report (PRS report) listing four risks that would have materialised if not addressed immediately. Ecuador emphasised that the continued suspension of operations at the blocks would have caused reservoir, mechanical, and environmental damage, as well as economic loss to the state.<sup>16</sup> The report indicated that there was a degree of certainty that the environmental risks would have materialised if these risks were not addressed imminently. It then noted that the risks were more pronounced in blocks 7–21 that were under the control of Burlington.

In refuting Ecuador's claim, Burlington submitted that the risks claimed by Ecuador were not based on identifiable and concrete criteria. It then claimed that these reports did not provide a clear account of real risks, rather that they presented abstractive and remote risks. In this context, Burlington equated harm with seriousness and reinforced its position by asserting that it had fulfilled its due diligence obligations by implementing measures consistent with the International Standardisation Organisation's Environmental Management Standard (ISO 2022).<sup>17</sup> Burlington asserted that its oil contamination assessment was based on scientifically identifiable measures and the possibility of any real threat emerging was slim.

The tribunal was, therefore, confronted with complex issues concerning the assessment of oil site contamination. The state's risk assessment not only highlighted imminent risks, but also identified a strong likelihood of persistent and cumulative risks arising.

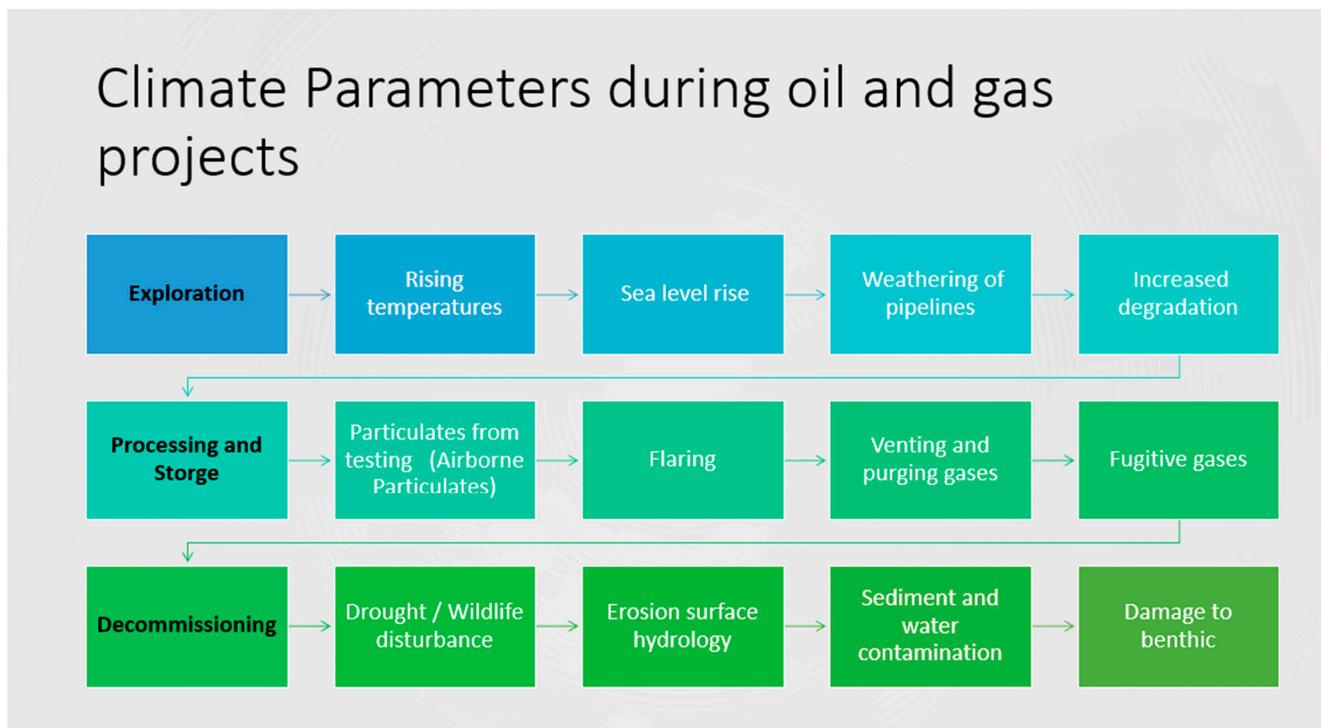
However, when seeking to determine the justiciability of such risks, the tribunal failed to attribute value to the role that precaution had played in the state's actions. Instead, the tribunal relied on traditional risk assessment principles, which only recognise risks that have already manifested. The tribunal observed that the inclusion of the report and the rationale to mitigate the future harm did not serve as a viable reason to justify the physical overtaking of the facility and regarded Ecuador's possession of the oil refinery to constitute an unlawful expropriation. In fact, the tribunal set a low threshold with respect to environmental protection and considered the implementation of the EIA as an adequate measure to meet the necessary environmental standards, thereby conflating the role of the precautionary principle with the application and function of the EIA. It did not identify the precautionary principle as a viable principle for the implementation of such measures.

The reliance of ISDS tribunals on traditional Environmental Risk Assessment is also evident from the awards in *Mamidoil Jetoil Greek Petroleum Product Societies SA v. Albani and Lone Pine Resources Inc. v. The Government of Canada*.<sup>18</sup> See Figure 3.

<sup>16</sup> *Ibid.*, (para. 102, decision on counterclaims).

<sup>17</sup> ISO (The International Organisation for Standardisation) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees.

<sup>18</sup> *United States v. Methanxe Corporation and the Kingdom of Spain v. Emilio Agus*. ICSID Case no. Arb/97/77.



**Figure 3.** The above map demonstrates the risks associated with different phases of oil and gas that might lead to worsening of global crises. The data were retrieved from the impact of climate policy on oil and gas investment report published by the International Monetary Fund.

By identifying potential environmental hazards that could compromise the achievement of project objectives, Environmental Risk Management (ERM) plays a critical role in the whole oil and gas project management cycle (Badiru and Osisanya 2013). Risk assessments are thought to be a crucial tool for assessors to detect environmental hazards and persuade a tribunal that there is a cause-and-effect relationship between events and outcomes. Environmental hazards have been recognised and classified as solid risks in the context of oil and gas operations, much like organisational, financial, and socio-political risks (Badiru and Osisanya 2013).

The criteria and standards of the environmental hazards assessment are, therefore, predicated on the risks that will be observable and quantifiable at the planning stage (Badiru and Osisanya 2013). This approach illustrates how investment tribunals have traditionally handled environmental hazards. This, however, presents a caveat: it ignores the dynamic nature of environmental harms (Adger et al. 2018). Two criteria are typically used in conventional approaches to environmental risk assessment in order to identify, evaluate, and compile risks: the possibility of unfavourable events occurring and their likelihood. It is evident that this ERA has the capacity to identify and, to some extent, avert impending dangers that have been proven to be true by science. On the other hand, because it lacks a firm foundation for evaluating probability, this technique is largely ill-equipped to handle new environmental threats, especially when faced with scientific uncertainties. Critically, in the conventional approaches, assessors do not base their evaluations on the consequences of distant or delayed threats materialising. Rather, it draws a connection between the risks that are already manifested and the alleged harm or outcome.

Thus, overreliance on the existing method of ERM makes it impossible for tribunals to put precautions in place to avoid unfavourable outcomes. What is clear is that the main goal of risk management is prevention, which is founded on well-established scientific understanding of known or predicted hazards. However, strict adherence to such method of assessment represents a misalignment with “climate conscious” policy, which proactively seeks to identify long-term environmental risks, which are usually identified using a

thorough interpretation of probability, representing the degree of belief in an event, falling beyond the purview of the existing risk assessment approach (Stirling 2007).

### 3.2. *Rockhopper v. Italy: Diverging from a Tightly Framed Doctrine of Harm*

In the long-awaited *Rockhopper v. Italy* case, a tribunal tackled a controversial issue concerning environmental harms, which subsequently provoked a lot of backlash.<sup>19</sup> The case concerned a famous marine site known as “Omrina Mare”, which is located near the coast of the Italian Region of Abruzzo.<sup>20</sup> Two businesses were granted permission by the relevant Italian Ministry in 2005 to perform exploitation of oil resources within this site. However, the community fiercely opposed this request on discernible environmental grounds. Local backlash effectively made the dispute national, and in 2010 the Italian government issued a legislative order banning any oil drilling operations within five nautical miles (nm) of the country’s baseline.<sup>21</sup>

As a result, in 2012, a new government issued a new legislative order. It was made clear that drilling was now prohibited up to 12 nautical miles from Italy’s baselines. Considering that the restriction was extended to include pending applications in December 2015, the Ministry determined in January 2016 that using the site for any purpose was forbidden. In the meantime, in 2014, the UK-based Rockhopper corporation purchased the applicant companies against a complex legal backdrop. According to an Environmental Impact Assessment (EIA) carried out by Rockhopper, the Ministry discovered in August 2015 that all applicable environmental regulations had been followed. However, due to the restriction in place, the Ministry ultimately turned down Rockhopper’s application for oil exploration.<sup>22</sup>

The tribunal determined that, in accordance with Italian legislation, Rockhopper was entitled to a final exploitation permit, which was “wiped out” by the application’s January 2016 denial, following the acceptance of its EIA in August 2015.<sup>23</sup>

Italy contended that the police powers concept was violated by the ban on oil drilling near the coast, which was based on the precautionary principle. The tribunal determined that “wiping out” the entitlement to the concession constituted expropriation in and of itself.<sup>24</sup> Italy, however, contended that the ban on oil drilling near the coast, which was based on the precautionary principle, falls within the broader purview of the right to regulate. As a result, the action could not be considered an expropriation.<sup>25</sup> In refuting Italy’s claim on the precautionary principle, the tribunal argued that initially the Ministry approved Rockhopper’s EIA in August 2015.<sup>26</sup> The tribunal held that rather than environmental concerns “[t]he more likely reason” for rejecting Rockhopper’s application was “the political and civic engagement”.<sup>27</sup> The tribunal further dismissed the relevance of the police power and established that the Energy Charter Treaty’s protection against expropriation had been violated because Rockhopper had not received any compensation.<sup>28</sup>

This Rockhopper award was much anticipated since it was believed to provide insights into how ISDS might address progressive state-level climate policy initiatives. Reducing the output of fossil fuels and erring on the side of caution was considered a critical issue. However, in determining what constitutes harm, the tribunal did not attribute weight to the interface of social and environmental policies. It appears that the tribunal in Rockhopper

<sup>19</sup> IA Reporter: Investment Arbitration Reporter “Updated: Italy’s ban on Oil and Gas Development Near its Coastline Leads to Investment Treaty Arbitration Claim” IA Reporter, 23 March 2017.

<sup>20</sup> Rockhopper Exploration PLC, Rockhopper Italia S.P.A. and Rockhopper Mediterranean LTD v. Italian Republic.

<sup>21</sup> Testo Coordinato Del Decreto-Legge 22 giugno 2012, n. 83.

<sup>22</sup> Rockhopper Exploration PLC, Rockhopper Italia S.P.A. and Rockhopper Mediterranean LTD v. Italian Republic, para. 200.

<sup>23</sup> *Ibid.*, para. 169.

<sup>24</sup> *Ibid.*, para. 149.

<sup>25</sup> *Ibid.*, para. 189.

<sup>26</sup> *Ibid.*, para. 152–54.

<sup>27</sup> See footnote 25.

<sup>28</sup> *Ibid.*, para. 199.

was aware of the high standards set for the environmental claims raised by Italy. The tribunal did decide to craft a meticulous narrative on the legitimacy of environmental claims, as evidenced by its reasoning, noting “[t]he tribunal appears and is acutely sensitive to the fact that there are strongly held environmental, civil, and political views about offshore production in Ombrina Mare. However, the outcome of this case passes no judgment whatsoever on the legitimacy of validity of those views”.<sup>29</sup>

This lengthy disclaimer seems to be in keeping with current developments in investment arbitration, which seem to be acknowledging the fundamental legitimacy of environmental policy more and more—at least when it comes to the formation of reasoning discourses. However, it appears that the final award completely ignored Italy’s actions with regard to the environment, as well as the invocation of the precautionary principle. As was previously mentioned, the tribunal rejected the police powers defence, claiming that the political controversy surrounding the application—rather than environmental concerns—was the reason why Rockhopper’s application was denied. By doing so, the tribunal purposefully ignored the fundamental fact that the environmental harms could be construed from the social and economic interface. In addition, the tribunal failed to grasp that there are uncertainties in predicting complex climate dynamics and the impacts on local communities, giving rise to societal decisions that determine future greenhouse gas emissions. Critically, the delayed and complex nature of climate change is not a unique phenomenon in environmental law ([Intergovernmental Panel on Climate Change 2007](#)). Many environmental harms are reported to occur only after an extended delay period ([Schoen et al. 2000](#)). As reported, there are three categories of climate-related hazards—slow-onset changes such as sea level rise, extreme events such as heatwaves, intense rainfall, and draught, and the possibility of large-scale non-linear changes within the local communities. For example, the harms that individuals may suffer from the exposure to a range of chemicals and drugs may take decades or even years to be fully materialised. The term “latency period” refers to this phenomenon, which is still a fundamental feature of risks associated with climate change ([Stapleton 1985](#)). In addition, the current scientific method continues to face hurdles due to the cumulative and remote character of climate-related threats ([Biber 2009](#)). The delayed and cumulative nature of environmental harms can only be identifiable by a degree of “likelihood” using scientific methods that rely upon the thorough interpretation of probability. For instance, emerging environmental risks are typically assessed by adopting a Bayesian interpretation of probability, whereby reasonable expectation is used to express if an event will occur or not ([Sahlin et al. 2020](#)).

Nonetheless, many conventional environmental risk assessment methods fail to treat probability as a degree of belief or to utilise Bayes’ theorem to compute and identify probabilities after obtaining the pertinent data. The unavoidable result would that be the remote and delayed harms are rarely established and deemed justifiable by an ISDS tribunal. Critically, the potential harms to the local populations are not deemed justifiable due to the lack of a causal link between the event and the alleged harm or outcome.

However, the seeming predominance of cause-and-effect tests in operationalising environmental damages diminishes the incentive for tribunals to take a longer-term view of climate-related risks. Adherence to such a tightly framed doctrine, however, would contradict the increasing body of scientific evidence that links human activity to changes in greenhouse gas emissions over time, including methane and ground-level ozone (smog). Major studies have shown that methane, a greenhouse gas 25 times more potent than carbon dioxide, is mostly obtained from oil and gas exploration ([Sahlin et al. 2020](#)).

For instance, conventional environmental risk assessment inevitably finds that damaging oil and gas drilling does not immediately result in GHG emissions. Because of this, it is unable to account for hazards associated with delayed climate change, such as the conclusions reached by the IPCC from its extensive natural behavioural research, which evaluated the carbon risks in Brazil, Russia, India, China, and South Africa. Risk assessments are

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<sup>29</sup> Ibid., para. 10.

unable to provide evidence for persistent and cumulative dangers—especially those that threaten the local communities—by explaining the impact of intervening activities and exposure due to methodological shortcomings (Sahlin et al. 2020).

Notable academics, such as Andre Anllaemper, have proposed that environmental harms are not just cumulative and enduring, but also that different actors and causes interact to create climate harms. Within the context of climate change, the term “collective action problems” refers to long-term environmental harms brought about by the accumulation of separate, occasionally linked actions that are not meant to have that particular result (Nedeski and Nokjaemper 2022). An example of such an action would be the persistent and cumulative release of greenhouse gases, which would cause climate change (Schwenkenbecher 2021). In order to solve the inadequacy primarily connected to the conventional causation theory, the authors proposed collective causation theory. The conventional theory view that environmental harms should result from a single isolated incident is largely refuted by the collective causation theory. As a result, it offers more room to acknowledge additional distinct but connected events that, when added together, may cause climate change.

### *3.3. Mamidoil Jetoil Greek Petroleum Products Societies SA v. Albania: A Step towards the Recognition of the Precautionary Principle*

The award of Mamidoil Jetoil also demonstrated that investment tribunals have endorsed this principle narrowly and fragmentarily, which has resulted in the precautionary principle being underutilised within investment tribunals. This award illustrates the tribunal’s approach to actions taken in accordance with the precautionary principle’s agenda. After a comprehensive search for a suitable commercial site, Mamidoil constructed and operates Durres Tank Farm, an oil tank farm for the transportation of fuel vessels in the Durres port area. Durres was constructed as part of a long-term transport sector strategy, which was required for the upgrading of Albania’s port infrastructure, and it was located next to a residential neighbourhood. During the construction of Durres, concerns arose regarding the social impact of the tank farm (Schwenkenbecher 2021). In response to these concerns, the Albanian government instituted, in tandem with the World Bank and the European Union, re-zoning proposals that would push for the relocation of the Durres site. The proposal was made in 2000 and was expected to be thoroughly implemented by the end of 2009 (Schwenkenbecher 2021). The claimant argued that the Energy Charter Treaty and the BIT had been violated by the re-zoning policy, which resulted in indirect expropriation. The re-zoning forced the investor to halt tank farm construction, which resulted in the closure of petroleum tankers (Schwenkenbecher 2021).

In order to mitigate potential damages, the port facility was gradually shut down as a result of temporary restrictions that were put in place in response to rising concerns about the facility’s detrimental effects on nearby communities. According to the Albanian authorities, the contractors had to obtain permits in 2002 before they could start working.

Nonetheless, there was a real risk of an explosion throughout the operation. Mamidoil argued that they had acted with reasonable diligence by adhering to international standards and they had not broken any public policy in operating the tank farm. Additionally, no incidents were reported while the tank farm was in operation.

In this instance, the tribunal noted that governments are required to act in a more open and non-discriminatory manner in order to meet the requirement of fair and equal treatment. The panel further stated that states must assume responsibility for ensuring legal certainty surrounding investments and that the goal of starting, finishing, and successfully operating investments should be clear (Schwenkenbecher 2021). Therefore, the tribunal considered three important aspects in deciding whether Albania behaved in an open and accountable manner. First, the tribunal noted that Mamidoil was aware that the nation was struggling with ageing infrastructure when it constructed its tank farm in 2000 and that new policies to modernise this transportation system needed to be in line with sustainable norms. Mamidoil continued with its project plan despite being aware of the impending

changes in legal policy, as well as the significant and possible hazard of an explosion, particularly during the risk assessment phase. The tribunal further stated that the state's actions were appropriate because they gave investors some degree of influence over the market and did not place onerous duties on them, allowing it to operate profitably until its complete shutdown in 2009.

The panel noted that the newly imposed policies were applied consistently, without discrimination, and without favouring local competitors, in addition to the measures being proportionate. The tribunal reviewed the concerns of hazards as significant enough to support such rules without requiring the presentation of predefined scientific findings, even though it did not use the precautionary measure as justification to shift the burden of proof to Mamidoil. The panel found that there was no indirect expropriation involved in the barrel shift.

The tribunal used certain key components of the precautionary principle to support its conclusion that the implemented policy was reasonable and equitable, even though it did not explicitly support the principle in its reasoning. To date, there is one pending case of *Lone Pine Resources Inc v. the government of Canada*, which concerns the operation of oil and gas in a dry spot of water near the province of Quebec.<sup>30</sup>

#### **4. The Precautionary Principle: The Missing Puzzle in the Legitimation of Climate Change Policy in the Investor–State Dispute Settlement Mechanism**

This section recommends that the endorsement of the precautionary principle furnishes adequate legal basis for adjudicators to invoke collective causation theory. As Rene von Schomberg has observed, applying the principle in a public policy context requires the consideration of various normative components, entailing both “prescriptive statement” and “value judgment”, as opposed to judgment based on “factual scientific statements” (Von Schomberg 2012). It also affords broader legal status to risk reduction measures aimed exclusively at protecting and conserving ecosystems.

Considering this, adjudicators and policymakers are encouraged by this approach to err on the side of caution and assign dynamic, changing risks that bear normative weight probative power. Despite the fact that different international instruments have varied definitions of the precautionary principle, all of them agree that urgency and irreversible harm are necessary elements that set the principle in motion. The adoption of precautionary principles provides considerable benefits inside the ISDS deliberative process. It permits tribunals to depart from strict adherence to the doctrine of harm by enabling them to identify dangers that may be challenging to show with an objective level of scientific certainty.

To be explicit, the precautionary principle enables tribunals to consider environmental hazards holistically, appropriately contextualising and operationalising threats associated with climate change. Therefore, it gives investment tribunals a legal foundation on which to support state environmental actions taken to lower the likelihood of probable harm that may not materialise right away but rather may do so over the medium to long term.

Notably, a climate-conscious tribunal may view measures taken by states through a precautionary lens, recognising and, when appropriate, supporting progressive climate action policies. Tribunals are entitled to assign more normative weight to evidence of hazards that are, by definition, based on “insufficient scientific evidence” under the precautionary principle. In other words, it increases the tribunal's ability to acknowledge states' preventative measures as a legitimate use of their regulatory authority.

Furthermore, the tribunal is better equipped to recognise states' preventative measures as a legitimate use of their regulatory jurisdiction when the precautionary principle is applied more frequently. This suggests that the state should, for example, improve environmental legislation in order to effectively lessen the negative effects of seismic exploration. More importantly, by giving tribunals the opportunity to learn about the concept of delayed harm and accept evidence of such harm as credible, the precautionary principle would

<sup>30</sup> Lone Pine Resources Inc. v. The Government of Canada, ICSID Case No. UNCT/15/2.

empower states to be innovative and engage in climate change advocacy when permitted. The tribunal will be better able to identify that the current risk assessment procedures have shortcomings and might not provide an all-encompassing assessment of the dangers if it adopts the precautionary principle. Tribunals can avoid discounting significant new information and intervening actions that would otherwise support reasonable and prudent actions taken by states in the exercise of their regulatory authority by recognising the critical role that prudence plays in the adoption of climate change-related policies.

Finally, the precautionary principle can be effectively applied in the context of investment arbitration, as the following points indicate, giving tribunals the ability to draw appropriate connections between the kinds of harms that have low levels of scientific certainty but a high probability of occurrence. Furthermore, this implementation would enable tribunals to take into account dangers that are fully certain to exist based on scientific evidence and that have a high probability of occurring (beyond a reasonable doubt).

Some advantages of applying the precautionary principle in the context of investment arbitration are summarised in the following:

- Encouraging states to adopt more aggressive environmental rules by assigning priorities to environmental conservation based on project specifications and factors, drawing from social and ethical grounds.
- Establishing a precise and tangible standard for implementing temporary rules based on probabilistic damages. Accepting precaution as a component of the legal justification that investment arbitration tribunals might use to help them in their ongoing efforts to balance and rebalance the definition and application of the concept of “necessity”. The precautionary principle is especially helpful as an interpretive tool that can work inside the main rule of the proportionality test because of its elasticity and contextual character.
- Establishing a presumption of harmfulness and transferring the burden of proof to parties whose actions may benefit from possible environmental harm.
- Educating and directing the kinds and quantity of evidence. Some allow for a lower degree of certainty, such as “a reasonable ground”. It also establishes the legal presumptions that must be weighed against the evidence.

## 5. Conclusions

This article examined the effectiveness of the precautionary principle as a potential tool for investment tribunals responsible for evaluating measures taken by states to tackle climate-related risks. By analysing notable cases, such as *Mamidoil v. Albania*, *Rockhopper v. Italy*, and *Burlington Resources Inc. v. Republic of Ecuador*, it was demonstrated that investment tribunals have remained agnostic to adopt a principle-based approach when assessing the impact of states’ climate action policies. They have failed to support the precautionary principle as a basis for validating specific environmental justifications for legitimising climate action policies with forward-looking elements.

The first section highlights the fundamental aspects of the precautionary principle, drawing reference from various non-binding legal instruments that serve as the primary normative framework for this concept. The article distinguished between the goals of Risk Management Assessment and the precautionary principle, emphasising the latter’s focus on safeguarding the environment and biodiversity, which are closely tied to the well-being of future generations and preservation. While recognising the elusive legal nature of this principle, the article argued that its innate amenability makes it a potent normative tool for interpreting environmental norms.

The following section emphasised the importance of the forward-looking nature of the precautionary principle in disputes involving oil and gas, particularly in cases where activities may lead to greenhouse gas emissions exacerbating global warming. It also pointed out the underutilisation of the precautionary principle in investment arbitration, highlighting how the reliance on traditional causality theory in natural resource-driven economic development challenges progressive environmental measures. To remedy this

gap, the article suggested that endorsing the precautionary principle provides a solid legal foundation for adjudicators to invoke collective causation theory. Citing Rene von Schomberg, the article noted that when applying the precautionary principle in a public policy context, various normative aspects should be considered. This includes “prescriptive statements” and “value judgments”, rather than relying solely on “factual scientific statements”. It was also emphasised that the principle elevates the legal status of risk reduction measures aimed at protecting and conserving ecosystems. Drawing on established case law, the article outlined three key advantages of the precautionary principle in investment proceedings. It was argued that the principle promotes a holistic interpretation towards environmental hazards, with a particular focus on the risks closely associated with climate change. Furthermore, it was suggested that applying the precautionary norms enables tribunals to view states’ preventive measures as a legitimate exercise of regulatory authority. Lastly, the article suggested that the application of the precautionary principle allows tribunals to consider the concept of delayed harm as a valid basis within the broader framework of climate-related disputes.

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