

SOCIO-CATASTROPHISM IN THE RISK SOCIETY: CONCEPTS, CRITICISMS, AND PRAXIS

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Abstract

The Sociology of Risk is one of the concepts used to analyze the current state of a global society. The development of risk theory has changed in recent decades. However, there is room for sociological criticism in which the concept of risk society must open up to the opportunities and possibilities of discursive debates after long period of industrial revolution to the recent issues of Anthropocene. Based on qualitative research through literature studies and conceptual-philosophical approaches, this article argues that risk governance is one of the challenges to developing the sociological discourse, especially when the community faces ecological disasters. In a later stage, it can realize the possibility of the world of many worlds, and praxis develops into a way of looking at the future of world which is increasingly eroded by the challenges of ecological crisis.

Keywords: Risk society; Sociological theory; Global crisis

Abstrak

Sosiologi Risiko menjadi salah satu konsep yang digunakan untuk menganalisis kondisi masyarakat global saat ini. Perkembangan dan pemikiran teori risiko sendiri telah mengalami perubahan dalam beberapa dekade terakhir. Akan tetapi, terdapat ruang kritik sosiologis bahwa konsep masyarakat risiko harus membuka peluang terhadap risiko yang sejatinya telah berkelindan bahkan sebelum revolusi industri sekalipun dengan cara melibatkan diskursus Antroposen. Berbasis pada penelitian kualitatif melalui studi kepustakaan dan pendekatan konseptual-filosofis, artikel ini berargumen bahwa tata kelola sosial risiko menjadi salah satu tantangan tersendiri bagi perkembangan diskursus Sosiologi. Terutama ketika masyarakat dunia menghadapi krisis risiko ekologi global. Sehingga pada tahap selanjutnya dapat mewujudkan kemungkinan the world of many worlds dan secara praksis berkembang menjadi cara pandang untuk masa depan dunia yang semakin tererosi dengan tantangan krisis ekologi.

Kata Kunci: Masyarakat risiko; Teori sosiologi; Krisis global

A. INTRODUCTION

The word *risk* often emerges during the Covid-19 pandemic, and the highest peak of cases and death around mid-2020. The term risk in the category of the global Covid-19 pandemic is also associated with the lack of public health mitigation and immune resistance in dealing with the spread of the virus. During such a crisis, people rethink the birth of ecological awareness and the different relations between human and non-human entities, such as SARS-CoV-2 virus (Mahaswa and Dharmayasa 2021). Nonetheless, prior to 2020, the 1980s was widely accepted as the time when a number of global risks emerged as a topic of interest to cultural studies and sociologists. Sociologist Ulrich Beck (1944-2015) is one of the prominent figures who popularized the notion of risk in social studies through his monumental work *Risk Society: Towards a New Modernity* (1986 German edition, 1992 for the English edition). The 1986 Chernobyl nuclear disaster shocked not only Ukraine but in many parts of Europe. It indicates that during the post-world war, risk potentialities increased, particularly after the explosion incident 'risk society' offered by Beck has become more popular among experts. It uses to analyze the relationship between a possible disaster, social calamity, and experienced risks that are incalculable and uncontrollable impacts (Beck 2014).

Intellectual thinking about this risk society theory still continues. From a sociological perspective, this idea was initiated by Mary Douglas, Anthony Giddens, Scott Lash, and Niklas Luhmann. They developed a critical sociology analysis that started with environmental, technological, and even global risks. This risk theory itself aligns with the current situation regarding the science of disaster and climate change risk. Nonetheless, the legacy of modernity influenced the progress of science and technology, but also it triggered several issues, from humanity to natural crises,

caused by the failure of modernity itself. Of course, all those thinkers criticized the promise of modernity and its impact on globalization.

The theory of risk society emerges, under the aegis of sociocultural theory, as an integrated approach from a critical, ethnographic and constructivist perspective. Generally, reading risk society invariably places the flaws of 'failed modernity' or, according to Giddens (1994), as a *post-traditional society* and justified by Beck (1992, 2005) as *second modernity* or *reflexive modernity*. In general, the criticism of the risk society leads to various risks that can possibly occur and probably will occur in a post-globalization society, such as risks arising from radioactivity, climate change, transnational terrorism, and even global economic collapse. This risk is increasingly uncontrollable, invisible, and enigmatic. This argument is strengthened by the distinction between post-modern society, which has completely different patterns of society, class, and nation-state, so the problems that occur are even more complex and ambivalent. The complexity of risk then runs with the level of trust, communication, and anticipation, especially in the post-truth era, where the most significant challenge concerns the veracity of data related to the 'risks' faced by the public.

This expansion of the analysis between Ulrich Beck's risk society has not received special attention to the catastrophic social dimension issues in the geological Anthropocene discourse. Indeed, the Anthropocene also places humans in a geological location during the process of geological shifting from the previous epoch, the Holocene. It means that the gap of geological risks based-human anthropogenic activity accelerates more anthropocentric-oriented, global synchronic events, time-scaling temporality, and radical changes. The findings of Chernilo (2021), instead in his article entitled 'One globalization or many? Risk society in the

Anthropocene age only discusses global relations in the Age of Anthropocene by integrating recent global pandemic events within Beck's risk society framework. It is merely marked by the pandemic situation but not comprehensively explained further. Likewise, many follow-up research on risk theory only considers the retrospective analysis of risk theory (Mythen 2021), natural science approaches, and technical approaches used to review risk society in advance (Goble 2021).

Thus, this article then examines that globalization is not only the end stage of risk society in terms of modern life. If we use the event of the Anthropocene from a philo-catastrophical perspective, it is a prerequisite for the risk society existing even before the Third Globalization. This rationalization can be drawn from several last Anthropocene theses about 'When and where does the Anthropocene transition happen,' so-called *golden spike*. It means that the possibility of risk society had already existed even long before the post-colonial, cold war and globalization era.

Otherwise, Beck's globalization only underlined that the risk was only a possible pre-event. Risks exist in a permanent state of virtuality, becoming 'topical' in anticipation and not real as always becoming real. At this point, I argue that Beck's does not affirm that the Anthropocene is always the 'humanature' trajectory of socio-catastrophe itself. Rather than accepting the catastrophe, Beck places this catastrophe as a 'real' anticipation and social constitution. Thus, this article challenges the Anthropocene as a socio-catastrophic trajectory in simultaneously running both as a local and global risk. As Davies (2016) states that *terra incognita* is part of the Anthropocene, so a state of uncertainty will blur the demarcation of risks, threats, and catastrophes suggested by Beck.

To answer this issue, I investigate further the concept and development of the risk society theory under the literature review and analysis of philosophical reflection. In the end, this article can

help connecting the theory of risk society with the current global Anthropocene theme, so that is not only in the philosophical and sociological findings but besides in many related relevant topics, especially among Indonesian sociologists and their epistemic communities.

B. METHODOLOGY

This research method uses a philosophical approach and a literature review. This article uses both approaches to discover a philosophical basis behind the objective so that potential criticisms and practical implications can be identified (Cappelen, Gendler, and Hawthorne 2016). In line with this, there are at least five criteria as part of the philosophical investigation ways, namely: i) a skeptical method for formulating the research hypothesis, ii) defining the problem, iii) re-articulating the issue, iv) objections and v) legitimizing arguments (Daly 2010). The steps of writing this article begin with (i) defining the risk society in general, (ii) restructuring the primary issues of the risk society, (iii) providing a different perspective from sociological and philosophical views, and (iv) providing justification for the concepts, criticism, and its praxis of the risk society

There are general stages in the preparation of a literature study, namely categorizing primary and secondary sources. First, collecting the primary research findings are taken from the general sociological perspective on the concept and theory of the Risk Society by Mary Douglas, Ulrich Beck, Anthony Giddens, Scott Lash, and Niklas Luhmann. For instance, these main books as the primary references for theoretical analysis in this article, including Ulrich Beck *Risk Society: Towards a New Modernity* (1992) and *World at Risk* (2009), and Niklas Luhmann *Risk: A Sociological Theory* (1993). Meanwhile, other secondary sources are the result of reading further interpretations of the Risk Society theory by

Mads Sørensen and Allan Christiansen *An Introduction to the Theory of Second Modernity and the Risk Society* (2013); Eugene A. Rosa, Ortwin Renn, and Aaron McCright *The Risk Society Revisited: Social Theory and Risk Governance* (2013); also Katarina Giritli Nygren, Anna Olofsson, and Susanna Öhman. *A Framework of Intersectional Risk Theory in the Age of Ambivalence* (2020).

After providing a general literature review on the risk society theory, this research conducts a philosophical interpretation to provide justification for the concepts, criticism, and practices of the socio-catastrophe on risk society supported by some findings from books, articles, journals, and other relevant references. It also introduces several connected concepts like geological Anthropocene, catastrophism, criticism of modernity, planetary boundaries, and ontological politics of pluriversal.

C. RESULT AND DISCUSSION

1. A Very Brief Story of Risk Society

Risk study, specifically risk management in sociology research, is regarded as a relatively new field, but the scope and attention on this risk society have increased in the last three decades. The implementations of the risk study have strengthened since the rising social risks caused by the environment, health, crime, media, technology, and even food security. The discussion about risks does not only stop at the connection between individual and social levels, but also it opens up to a more comprehensive sociological network. This risk management study, for instance, will also involve public trust, scientific legitimacy, governmental anticipation, and social strategies to overcome various uncertain risks.

Sociological analysis is then greatly needed to investigate the various perspectives and traditions that develop in society, which indeed involve rationality of choice, micro-sociology theory related

to the construction of self-identity as well as macro-sociology theory in a social world system that works. This fundamental assumption cannot be separated from various sociologists who examine this risk study as the results of social rules (Mary Douglas), the second modernity (Ulrich Beck), and also system theory (Niklas Luhmann).

Sociology as a social science is also based on empirical findings in investigating social, materiality, economic, and cultural structures in understanding a social phenomenon. In the context of the risk society, this understanding determines each social practice and collective experience of the consequences of late modernization, from the industrial revolution to globalization. The spirit of modern society systematically accompanies the reproduction of new risks due to the tremendous impact of social welfare distribution and inequalities among modernity issues. Global disasters force risks to expand geographical and temporal boundaries continuously, so the impact is difficult for current local societies to prevent. Anthony Giddens (1990) highlights that most global society activities are always inherently risky because of the consequences of existing a new industrial society, known as *reflexive modernization* (Craib 2011).

According to Lidskog and Sundqvist (2013), the challenge faced by sociology is then to explain public misperceptions of risk. Risks provide a systematic strategy for dealing with dangers and insecurity caused by modernity (Beck 1992) and 'always in danger' that may happen in the future (Giddens 2002). Social amplification of risk is then needed by referring to certain modeling to mitigate the dangers, and understanding how risks and risks events interact with many aspects of social life (Lidskog and Sundqvist 2013). Otherwise, the challenges of sociology of risk are about explaining how risks as social production, social events, and

positioning as the tension of social construction, not as strong relativism but following social contexts and facts.

Historically, the risk society was first introduced by Mary Douglas, an English anthropologist who works in *Purity and Danger* (1966). Douglas (1966) posited that risks could not be separated from a reflection of society, including its borders, in fact, problems are also simultaneously produced by society itself. Douglas analyzes how society perceives purity and pollution in a socio-anthropological view so that there is a distinction between cultures in understanding risks from pollution caused by societies with culturally hierarchical, individualistic, egalitarian, and fatalistic groups. These four kinds of group typologies clarify that risks can occur anywhere, regardless of cultural values and beliefs (Douglas 2003). Thus, sociology of risks needs to overcome neither the tendency too individualistic nor collectivistic that only cares about (i) personal interests, (ii) fatalism tends to ignore and blind reaction, while (iii) the egalitarian group has a strong boundary and resists to eliminate risks, and (iv) hierarchical society tends to assimilate forms of risk by adapting through the control of risk activities.

Table 1.
Ulrich Beck's defines the term of the 'risks' and 'dangers'

| Period | Example | Term | Cause | Possibility of harm anticipation |
|--------------------|-----------------------------------|-------------|--------------|--|
| Pre-modern Society | Natural disasters, epidemics | Hazards | External | People are exposed to the events and cannot avoid them |
| Industrial Society | Unemployment, accidents (traffic, | Risks | Man-made | People can (in principle) |

| Period | Example | Term | Cause | Possibility of harm anticipation |
|---------------|---|----------------------------------|--------------|---|
| | work etc.) | | | avoid or insure themselves against them |
| Risks Society | Radioactive leaking, gene technology, holes in the ozone layer, global warming, terrorism | Selfjeopardy, man-made disasters | Man-made | People are exposed to the events, cannot avoid them and cannot insure themselves against them |

Source: Adapted from Sørensen and Christiansen (2013).

Ulrich Beck systematically introduced the sociology of risk society (1992) and focuses on two primary points: a) the transformation of the industrial society produces and circulates risks society itself and b) the challenge of reflexive modernity in dealing with its impact. Beck (2014) posits that the current risk society has surpassed the nation-state basis. It has grown globally, hence, the so-called global risk. The most essential point of risk is to be a factor in the decisions of society obtained in insufficient conditions about the possibility of the future only based on current decisions. Risk is entirely different between the actual reality and the possibility of the future. Anthony Giddens (1990) argues that modernity is the key to cultural risk. Reflecting on the risk society can become a more objective reflective decision in a deliberative policy and rethinking the forms of risk management, at least based on real today's society (Callon, Lascoumes, and Barthe 2011).

In contrast to Giddens and Beck, Niklas Luhmann (1993) highlights that risk is no longer just the result of the industrial society. Instead, risk is attributed to decision-making that may result in negative consequences. The difference between the pre-industrialization and post-industrialization society is the complexity level of the system at risks work. Risk as an attribution of events or decisions that are never intended or a projection of the possibility of damage in the future, even the cause can come from outside the system as a danger (Luhmann 1993). Luhmann defines risk from the outside as something that cannot be separated from the possibility of manufactured risk or an undesired event that is possible as risk future loss. However, the dominance of manufactured risk, according to Beck (2009) and Giddens (2002), is a reflection of the paradox of modernity society, and most of the problems occur in the name of social development actually triggering new dangers that cannot be fully predicted before.

Table 2.
Typology of Risks

| Type of Risks | 'Old' Risks | 'New' Risks |
|-----------------------|--------------------|--------------------|
| Cause | Natural | Human |
| Basis Empirical Basis | Observation | Prediction |
| Epistemological Basis | Calculable | Incalculable |
| Scope | Local | Global |
| Magnitude | Limited | Unlimited |

Source: Adopted from Grande in Kingery et al. (2013).

Kingery et al. (2013) state that the concept of risk society has evolved into global risk, characterized by delocalization, incalculableness, and non-compensability. First, delocalization can

affect and be affected by a factor not limited to a specific location, area, or space. Second, incalculableness has its consequences of non-prediction, as only a matter of 'hypothetical' risks fundamentally. Third, non-compensability is uncertainty risks as threats to humanity. In addition, Beck (2013) provides global risk scenarios like global pandemics, global market collapses, and global terrorism.

In order to avoid the risks of relying on fictional imagination, suspicion, and fear in the public arena, it is crucial to maintain a clear boundary between rationality and hysteria. It will help protect the credibility of knowledge drawn from experience and science and ensure that our actions are based on evidence and reason rather than being driven by fear and suspicion. By maintaining a clear and rational mindset, we can avoid the pitfalls of hysteria and make informed decisions grounded in reality.

Concerning this issue, Beck (2005) emphasizes that global risk conditions cannot be separated from the historical dimension intertwined with changes in national political systems. Beck (2014) also criticizes methodological nationalism for not necessarily being adaptive to the current global risk situation. The legitimacy of knowledge, power, and violence in a government nation-state regime sometimes fails to address the dynamics and ambivalence of the world risk society's irony. Furthermore, Beck (2014) proposes a solution to rethink the relationship between globalization and cosmopolitanism. It means overcoming the fragmentation of transnational risks and building preventive risk management for unexpected risks.

The development of risk theory undergoes modifications and adjustments depending on perspectives from a particular disciplinary research. Roeser et al. (2012) formulate at least divided into 46 categories of cross-disciplinary research and topics on developing risk theories and their implications. The issue of risk

theory develops not only at the sociological level but also includes cognitive perceptions, rational decisions, and even intertwined with the ethical-moral attitude towards risk. In general, the development of the Sociology of Risk includes five central discussions: risk governance, public trust, democracy and risk, the realism–constructivism debate, and governmentality and risk (Lidskog and Sundqvist 2013). Therefore, this article examines not only the risk society in general, but more broadly pushes the boundary of the cross-framework in the Anthropocene as a catastrophic event to gain a new understanding that the separation of topology between old and new risk is increasingly relevant, complex, and ambivalent at the same time.

2. In the Shadow of the Anthropocene

Discussing the history of Anthropocene geology cannot be separated from the philosophical stance in the ontological understanding of existing humans with the world (Uhrqvist and Linnér 2015). Anthropocene is shifting into a new paradigm of natural and human geology that replaces a common understanding of the legacy of Enlightenment, where nature is constantly being objected, controlled, and transformed by humans. For the sake of crisis, now, humans are geological agents forcing the earth and simultaneously formed by the earth. It means that human is not active subject, and the earth is not a passive object. Both are connected in between the Anthropocene epoch (Brown et al. 2017).

However, the strong influence of dualism, separating nature from humans, inspires Comte de Buffon to write about the earth's historicity from the geology perspective, *The Epochs of Nature* (1778). Uniquely, Buffon placed the evolution of human biological life, like from the nature of barbarian communities, towards more civilized societies. His imagination of civilized humans is that

people are able to change the pattern of agriculture and exploit fossil fuels, like coal, to produce the market commodity. At least, his legacy is a new intellectual view concerning the idea of the human-geological age, particularly began the industrial era in Europe.

Before the notion of the Anthropocene's epoch, in the mid-nineteenth century, several naturalist thinkers were against theological domination in geology, thus affected human geology ratification. For example, Thomas Jenkyn (1854) placed humans in the *Anthropozoic* or the new geological era for humanity. Hughton (1865) and Stoppani (1873) instead associated the post-Christianity era with a point where the earth changed, and the theological intervention in defining the geological epoch was irrelevant.

Charles Lyell (1833) contributed to the view of a new geological epoch that replaced the Pleistocene, which refers to the current geological time scale, and Paul Gervais (1860) named it, the Holocene epoch (Davis, 2011). Furthermore, officially the Holocene was adopted by geologists worldwide through *The Third International Geological Congress* of 1885 which marked the post-Pleistocene glacial period and the increase in sea temperature. However, as a special note, the Holocene also still recognizes local human activities as a unique characteristic of the Holocene.

The ratification process of the Holocene in the nineteenth century opened humanity discourse belongs in the geological deep-time debate so far. The Holocene enters into the Quaternary period (Gibbard and Head 2009), although during an interglacial event, the end of the Ice Age, the diversity of our earlier ancestors appeared. The impact of early human intervention was not significant in terms of its impact on geological and ecological change. Afterwards, Soviet geologists were for the first time referring to the Anthropocene, but in a variety of terms like

Anthropogene by A.P. Pavlov and Vladimir I. Vernadsky pioneered the beginning of the Anthropocene idea through his book entitled *Biosphere* (1926). It essentially radicalized humans as an important part of the current planetary ecological changes.

The development of the Anthropocene concept is also inseparable from the popularity of the philosophical concepts from *Tierre Teilhard de Chardin* and *Edourad Le Roy* about the *Biosphere* and *Noosphere*. This concept places a new "Face of the Earth" because of the massive anthropogenic activities in the early twentieth century, especially after World War II and Cold War (Vernadsky, 1998). The "Gaia" by Lovelock and Margulis (1974) was then widely adopted by environmental activists to place the entire living network on earth moving together, influencing each other, and changing each other, including humans who have changed the face of the earth's surface. Currently, the legacy of Crutzen's idea of the Anthropocene (2000) is a new epistemic break for many geologists to rethink the status of humanity throughout the geological time-scale trajectory.

The effort to justify the Anthropocene has gained massive debate among the scientific communities of geologists and non-geologists. Both sides respond to the Anthropocene with different perspectives. For geologists, the Anthropocene must be proven by looking at the context of global transition points through comprehensive radiometric dating. On the other hand, the non-geological position often leads to the history of human civilization in the wide context of anthropology, archaeology, and the writing of geological history.

The ratification of the Anthropocene is not merely an idle talk among the scientific community. Jan Zalasiewicz and his colleagues established the Anthropocene Working Group (AWG) in 2009 to study the Anthropocene and officially involve a cross-disciplinary approach. The effort aims to find the golden spike and

submit a proposal for the formalization of the Anthropocene continues throughout the annual and biennial meetings of world geologists. However, Zalasiewicz strongly emphasized that the Anthropocene must be formally proven in geology context, through stratigraphical investigation, which means rejecting many interpretations of the Anthropocene from the non-geological discourse (Zalasiewicz et al. 2018). In fact, not all geologists agree on the concept of the Anthropocene because most of them doubt the research and proof of the Anthropocene ambition because the Holocene has placed humans in the sub-epoch trajectory.

The provocative issue of the Anthropocene continues to ignite the spirit of exploratory and alternative approaches progressively from independent researchers and non-geological thinkers who lead to social sciences, philosophy, humanities, literatures, and art. They criticize the Anthropocene as contradictions of capitalism, the impact of colonialism-imperialism, post-colonial dimension, feminism critique, the death of humanity, the end of the world, the white geological domination, and other relevant approaches (see Chakrabarty 2014; Tsing 2015; Davis and Turpin 2015; Altvater et al. 2016; Angus 2016; McNeill and Engelke 2016; Bonneuil and Fressoz 2016; Clark and Yusoff 2017; Hamilton 2017; Latour 2017; Yusoff 2018; Clark and Szerszynski 2020). Therefore, the Anthropocene is then understood as a certain measure of contextualizing the "deep-time" anthropogenic event that is capable of altering the earth structure. Another approach is called "multi-proxy" in stratigraphy research as an indicator of the Anthropocene (Steffen et al. 2015, 2016) as well as the planetary boundaries, which presents the critical level of the planetary and the study of the human survival limitations as survivors in the Anthropocene crisis (Rockström et al. 2009; Steffen et al. 2015; Whitmee et al. 2015).

The political issues always overshadow the final formalization and ratification, depending on the decisions of the International Commission on Stratigraphy (ICS) and the International Union of Geological Sciences (IUGS). Albeit, unofficially, the Anthropocene has received appreciation and attention for the potential of the Anthropocene geological time unit based on great acceleration changes. This means that through the search for the golden spike of the Anthropocene, it can reverse Uniformitarianism doctrine, which refers to "the present is the key to the past" or geological event regularity and what is happening now also occurred in the past. Again, the trajectory of the Anthropocene is completely different from other time scales because it unconsciously depends on anthropogenic decisions with their catastrophic effects (Sepkoski 2020).

If we can investigate the Pleistocene times by relying on sedimentation evidence, then to prove the Anthropocene also requires finding evidence based on sedimentation or radioactive synchronously and globally, as well as the durability of its site. GSSP (Global Stratotype Section and Point) poses a unique challenge to the formalization of the Anthropocene under discrete fossils and physical events in the past correlated with global geological traces. It may not be strong enough evidence at this time. The fundamental reason is that the Anthropocene time scale is ongoing. It will take dozens or hundreds of years in the future if it is assumed that the global level of anthropogenic activity is constant, *ceteris paribus*, or even increasing over time.

However, what kind of world is imagined if the Anthropocene is then ratified but with uninhabitable planetary system conditions for multispecies, or becoming the sixth mass extinction? It is time to reflect what is the relations to the risk society with the Anthropocene catastrophe event soon.

3. Catastrophism and Global Risks: Socio-Epistemological Analysis

The sociological risks assumption prioritizes industrial and risk societies' ontological and epistemological separation. This disjunction is based on the prediction between realist and constructivist dimensions in understanding the risk structure (Rosa, Renn, and McCright 2013). The fundamental question is whether risk truly exists independently beyond the human anchor or vice versa. If it only revolves around ontological inquiries previously, then the discussion of risk merely traces the origin or impact of risks. One possible proposal is to look back at the fact that risk is limited on an event or situation that exists by requiring uncertain impacts on social reality. The reality of risk is real, but our social interpretation of it is still evolving. This is because there are limits to our knowledge claims about uncertainty. These claims stand hierarchically from the realist basis, then drawn towards the constructivist.

Following the division and intersection between the ontological and epistemological dimensions of risk sociology, this article relates the choice of a three-model combination. This moderation choice by Rosa, Renn, and McCright (2013) shows that the global risk is not only due to the impact of advanced modernity or a systematic cultural system theory due to globalization. In line with this, Latour's (2004, 2005) Actor-network theory (ANT) can clarify that the dichotomy between realism and constructivism needs to be focused more on the 'risk production' condition. This conditioning means that it must go beyond the previous binary that individual actors work by themselves and the industrial society that generates risk, but rather, sociologists must be able to explain the possibility of reproducing risk through social practices. This marks the intersection of several actor activities through 'networks' that cover social interaction of nature and cultural

technological progress, which performatively produces risk, either human or non-human actors.

Table 3.
Combinations of Ontological and Epistemological Presuppositions on Risks

| | | Ontological Dimension | |
|---------------------------|---|--|--|
| | | Realist (R) | Constructivist (C) |
| Epistemological Dimension | R | 1. Standard model of science; formal risk analysis | 2. Beck's and Giddens's reflexive modernization theory |
| | K | 3. Rosa, Renn, and McCright; risk as a hybrid of real harm and our mental models of it | 4. Luhmann's systems theory; cultural theory |

Source: Adapted from Rosa, Renn, and McCright (2014).

Socio-epistemological analysis can begin by examining the trajectory of the Anthropocene in a catastrophism framework. Humans have experienced extraordinary existential anxiety about the future and tend to imagine a very bad and even destructive scenario (Sepkoski 2020). This can be marked by the Great Acceleration event, which is expected to be the strongest candidate as the golden spike because it represents how massive and global anthropogenic activity affects the global socio-economic and earth system trends (McNeill & Engelke, 2016). In addition, the threat of the sixth extinction as a non-completely natural history of the earth caused by massive anthropogenic waste becomes a great catastrophic risks (Kolbert, 2014).

A planetary *terra incognita* is possible because the established global capitalism system has mapped almost all areas of natural resources, but paradoxically, the near future of crisis is very difficult to predict and mitigate in the unknown and uncertain world system. The Anthropogenic rift becomes a geological marker because the capitalistic system works in global society and undoubtedly determines ecological rift, planetary boundaries, and the threat of massive extinction increases due to the loss of natural ecosystem damage for the sake of industrialization acceleration.

Andreas Malm (2016) criticizes that the definition of Anthropocene can become an *indefensible abstraction* or its ratification cannot be maintained if it ignores the social reality of the accumulation of fossil capital, called the Capitalocene epoch. This hypothesis emphasizes the extraordinary capital production wastes (*Capitalian* age) that begin since the Great Acceleration event, which pushes globalization of plastics and petrochemical-use massively and globally, directly proportional to the demand for developmentalism industrial, global growth, and capitalization power over natural resources (Royle 2016). That is, the historical origins and transformation of capitalism into a new world system is a transition point for a strange Anthropocene crisis. Capitalism itself is a critical part of the growth of industrial society leading to unknown global risks.

In order to overcome the Anthropocene catastrophic risk, there must be an effort to advance naturalization of the Anthropocene as a single natural entity and evolve beyond the human dimension. New Anthropocene can be seen with a reconstruction of political ontology, *socializing geology* and *geologizing social*, by placing the critical discussion about power, knowledge, social capital, and discourse in the epistemological stance. By bridging the epistemological and ontological dimension, humanity in the time of the Anthropocene will always be the

subject and object simultaneously since the Anthropocene break the myth of human exceptionalism (Mahaswa and Widhianto 2020). However, the redefinition of social reality not only reduces all social power manifestations as the causal power property of the planet but should be understood as the co-relations from geological properties to the sociological dimension, and vice versa (Clark and Szerszynski 2020). Thus, the equalization of two perspectives between social and geological is bridged by a socio-epistemological dimension plus onto-geological power in terms of the Anthropocene meeting points when ecological properties of the Earth determine the social world. At the same time, the future of geostructure is also affected by social power decisions.

Tabel 4.

Risk society versus industrial society

| Industrial society | | Risk society |
|---|---|--|
| Production of wealth | → | Production of risks |
| Elimination of scarcity/need | → | Elimination of risks |
| Wealth distribution | → | Risk distribution |
| An aim to achieve | → | An aim to avoid |
| Combating reality | → | Combating possible futures |
| Positive focus on the possibilities of the future | → | Negative focus on the future's potential disasters |
| Being determines consciousness (materialism) | → | Consciousness determines being (idealism) |
| Poverty | → | Anxiety |
| I am hungry | → | I am afraid |
| Us/them distinctions (rich/poor, American/Russian etc.) | → | Us/them distinctions are diluted and lose meaning |
| Need is hierarchic | → | Smog is democratic |
| The industrial process is apolitical | → | The industrial process is political (the sources of wealth are also the sources of |

| Industrial society | Risk society |
|---------------------------|---------------------|
| | pollution) |

Source: Adapted from Sørensen and Christiansen (2013).

Based on Table 4, comparing the risk society with the industrial society, one extension can be drawn in the socio-epistemological framework, namely the risk society with the ontological catastrophic. This topological division is depicted in Table 5 with three hierarchies of risk society, global risk, and catastrophic global risk.

Table 5.
The topology of Socio-Catastrophism in the Risk Society

| | Risk Society | Global Risk | Global Catastrophe Risks |
|--------------------------------------|-----------------------------------|---|---|
| Ontological Dimension | Anthropocentric | Planetary | Pluriversal |
| Epistemological Dimension | Limitations of Anticipatory | Risks Projection | Risk Existential |
| Social Dimension | Social Product | Beyond Locality | Capability and Resilience |
| Normative Dimension | Shifting in ethical motivation | Replacing the normative romanticization | Affirmation and Adaptation |

We can summarize this study through the topology of the risk society socio-catastrophe projection, following the sociological argument of the risk society that it needs to be expanded by placing self-criticism between two risk theories previously, from Beck to Giddens. This emphasis is intended to bring the catastrophic event as inherently part of the global society in the

possibility and necessity at once. Here, the outlining philosophical analysis is divided into ontological, epistemological, social, and normative dimensions to explain the new global catastrophic risks.

First, the projection of the social-catastrophic topology of the risk society is the ontological distinction between the risk society, global risk, and global risk (plus) catastrophe. Sociologically speaking, the risk society positions post-industrial or advanced modernity as the reality in which humans cause existing risks. In contrast, risks involved in global society go beyond our Western society understanding that the risks are the inevitable consequence of advanced modernity. Late capitalism opens the possibility of a planetary crisis, such as global pandemic, technological risks, climate refugees, and mass extinction.

Searching for an additional global marker in the Anthropocene can bring us to experience that in the catastrophe scenario, a more pluriversal worlds is possible. Pluriversality means a world of many worlds exist where the modernity binary is no longer. Everything is still connected to each other in many worlds of understanding. Transnational hospitality is less important than before, because in the face of Anthropocene ambivalence, global calamity will have simultaneous impacts on all geographic areas, but what distinguishes them is the level of catastrophic occurrence. The differences in the experience of the climate change reality between us, you, they, them, and I, perhaps differently, like people living in Southeast Asia will experience the crises differently than their European counterparts. However, all of the geographical territorials are in the Anthropocene planetary trajectory. It can be a blessing or in disguise for humankind.

The second epistemological defense shows how the hierarchy among the three definitions works. The need for anticipation is always critically urgent when the risk society faces difficulties in anticipating or predicting the future due to the relentless risk

production. Global risks, such as the pandemic, always place historical projections involved previous pandemic events and forcing existential risks. Socio-epistemological analysis of the Anthropocene integrates the two social and geological entities together and intersects, but its impact becomes a projection of existential risks. We are being anxious species.

Third, the social dimension shows that society risks and global risks have similar understandings, but what distinguishes them is the effort to go beyond the working locality. Its social handling will be directed at the capabilities of the government, the role of actors, and anticipation in the resilience, especially in critical conditions. The Covid-19 pandemic can be a simple example that catastrophic risk goes beyond risks that arise from society, but rather the risk that is possible because of epidemics spreading, ease of cross-geographical access, supportive natural conditions, and uncontrolled global transportation.

Relatively, at the normative level, there are changes in ethical motivations and the transcendence of romanticized modernity value. The global catastrophic risk society is understood as a normative motivation in order to affirm and adapt. Nature and humanity, intertwined, have transformed into the Anthropocene epoch. There is no longer the need to obfuscate naïve by recalling with naïve political-romanticism, calling for the glory of the past because nothing is truly natural or purely social. The world is limitless in an ambivalence way beyond strong demarcation.

Both the social world and natural earth are moving towards catastrophe. For now, it really needs to be followed up through strategic adaptation instead of fear of catastrophic risk. Various modeling of future civilization adaptations has been formulated, but only at the normative level. Therefore, it needs to be reviewed again to see whether the modeling applies only to certain limited community groups or again truly humanity sustainability in the

next century. It reminds us that sometimes sociologists forget on risk studies retrospectively, at what has happened before and future projections, but ignores the intertwined everyday situation, namely an ongoing catastrophic risk, from unpredictability of human activities to uncertain natural calamity.

4. *The Future of Sociology of Risk: A Critical Review*

The implementation process of the Sociology of Risk should naturally bring a cross-disciplinary framework to understand how risk works and can be anticipated. However, control over risk is a contradiction, as the principle of risk works in an area that may not be able to be absorbed by the general understanding of its risks. This means that the universalization of risk can be easily broken if social facts about it no longer work consistently. Nygren, Olofsson, and Öhman (2020) state that risks work with ambivalence in contemporary global civilization. This ambivalence works 'in-between,' transcending dualism, between and both, or even more. The reflexivity of Ulrich Beck, for instance, as a self-confrontation of society in the face of ambivalence, as the idealization of Enlightenment resulting in the catastrophic risk side and unforeseen consequences. This dimension of ambivalence is able to force social awareness of the situation that is truly happening, that is, the global catastrophic risk society.

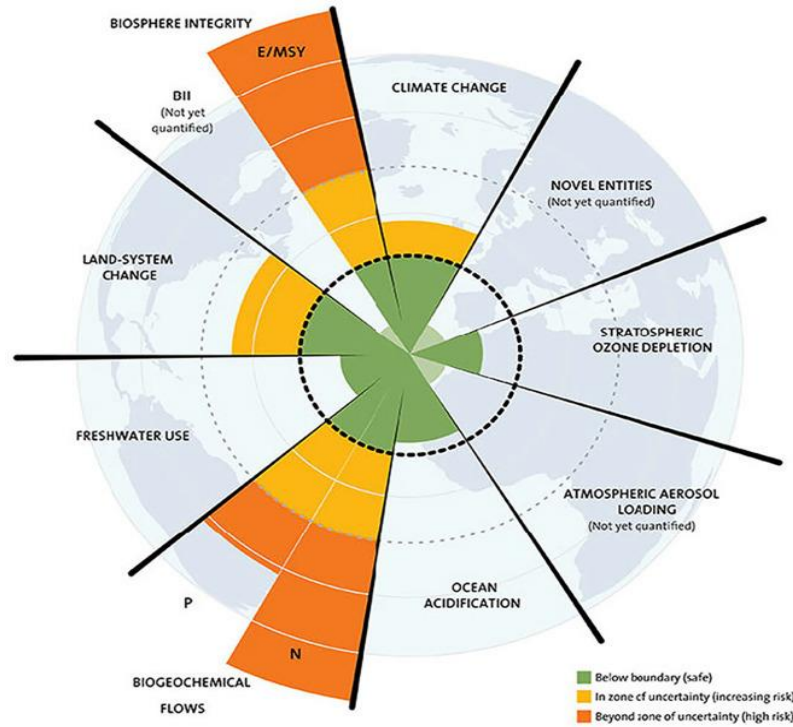
This article implies a need for a critical review of the sociology of risk by offering the Anthropocene trajectory as an inherent part of catastrophic global risk. This Anthropocene ambivalence implies a planetary dimension entanglement with the social world, which produces risks in society and reproduces catastrophic risks in the earth's geological structure. Thus, every individual or community around the world is socializing risks and cannot be projected very accurately, in a way symptoms or catastrophic risk experiences are felt in a daily life. After COVID-19

pandemic, most people today are tacitly haunted by the unknown risk of zoonoses or haunted by the spectrality of the end of the world because of extreme climate change. In several places, real threats begin to be seen, for example, the forgotten asylum seekers wave caused by global climate change, and thus called climate refugees.

An example of global risk is related to the planetary threshold within the adaptability of the human life framework. In general, Planetary Boundaries (PB) is a new study of reference linked to Global Catastrophic Risk (GCR), which can be used to understand global community risks. This threshold is not only linked to one side. PB only emphasizes the natural dimension independently, while the GRC only evaluates risks or threats to humans. Baun and Handoh (2014) highlight that both must be integrated to explain how risk is not only for the benefit of humans but also many aspects of the threat of uncertainty and the impact of future disruptions of uncertainty.

Figure 1.

The Nine Planetary Boundaries



Source: Stockholm Resilience, 2021

Figure 1 shows that three of the nine planetary boundaries (climate change, biochemical cycles of phosphorus and nitrogen, and biodiversity extinction) become the necessary background for how global societal risks work with catastrophic dimensions. Seeing the conditions of the global catastrophic risk scenario that increasingly threatens the extinction of multispecies of life, including humans, it is necessary to approach and target a global sustainable planetary system. It considers preventive and reactive policies to ongoing crisis problems (Cernev 2022). On the other hand, various reasons, such as the use of carbon, accelerating technology, nation-state development, and global economic flows actually, often hinder how social policies integrate into the context

of a catastrophic risk society. Despite latent risk of our late capitalist society, the hidden risk constantly shifts to the most significant catastrophe silently.

The future of risk theory can also present the Anthropocene timeline as both a challenge and a hope. The form of Anthropocene society can be a turning point in the narrative that empowering perspectives about the current situation regarding risk must always refer to the gaps of ecological rifts between the world of the living (life-world; socio-cultural perception) and the earth (literally [E]arth; as a habitat for biological species) which is increasingly broad interpretation (Mahaswa 2022). Humans can be considered not only biological species and social agencies but being geological agents with new political geology values.

The challenge of the Anthropocene rift that triggers this risk can unite the struggles of values and even social class for collective change in overcoming the current global ecological crisis. Ontologically speaking. The 'hyper-object' of the Anthropocene climate crisis simultaneously provides the materialization of simultaneous perception of a certain collectivity level because the hyper-object of climate change cannot be determined only by global policy but by its manifestation-mediated localization. Likewise, the traces of techno-fossils and capital fossils are collected by local anthropogenic interferences. They are materialized by technological society collectively in the technosphere (Zalasiewicz et al. 2014). This techno-fossil record is deposited in recent outer layers of geological structures that align with deposits of anthropogenic activity. On the other hand, the concealed techno-capital fossils do not merely place technology as only Heideggerian-like, defining technology under the present-at-hand (*Vorhandenheit*) and the ready-to-hand (*Zuhandenheit*), yet in fact, thanks to technology that is always living and lived in our world-life, not the death of artefact.

The existence of the Anthropocene rift is a form of the flexibility of self-criticism of the current normative-universal ethics of ecology. Nowadays, every human being has equal responsibility for the contribution of anthropogenic waste. All of us know that we cannot compare between local community or *adat* tribal people and early industrial revolution societies having the similar and equal responsibility for this Anthropogenic rift. But then again, we are geological agent, even very small and limited activity, it may still be regarded as contributive to (geo)anthropogenic.

This means that the collective movement to overcome the risk of catastrophe must have the courage to affirm the real situation as a crisis without getting stuck in the romantic idealism and glorification of the past and being able to understand the complexity of the world without boundaries. This global ecological risk crisis can open up the possibility of the world of many worlds because geographical differences are directly proportional to undeniable complexity of knowledge about the Anthropocene and the perceptions entangled with everyday life worldings (de la Cadena and Blaser 2018).

Finally, this form of criticism of basic risk society within a socio-catastrophic framework can be corrected by re-questioning 'flat universalism', which places globalization only as a background and not as an ontological integrality and ethical motivation. Chernilo (2021) calls it a social fact that requires shifting the term 'one globalization' to 'many globalization' to justify and social image of different globalization in every catastrophic risks timeline. Thus, social governance of risk becomes aware of challenges for the development of sociological discourse, especially when anticipating the future of ecological world resilience, not only grappling based on cultural issues and social matters but also *milieu* or the natural environment that makes a social world possible.

E. CONCLUDING REMARKS

The Anthropocene rift indicates the crisis of humanity and ecology, but still in accord with anthropocentrism values. Human is no longer subjects but objects of geology. It is because, in the direction of a risk society, the social world will become larger and beyond the planetary scale.

Human being is a curious species. They always try to find the real solution but sometimes forget that the real socio-catastrophism happens around them, very close. Thanks to science and technology, it is what only humans have to anticipate a higher existential risk. However, this early study still has some shortcomings, especially in terms of empirical evidence of existing social risk facts based on previously presented concepts and critiques.

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