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Article

Approaching Foresight through Critical Realism: Lessons Drawn from Thailand

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Abstract

What approach should one choose to practice foresight and how should this approach be framed? Previous studies have proposed empiricism, constructivism, post-structuralism, and pragmatism as the core approaches. Critical realism, however, seems to be neglected, especially in its key element of intransitive reality, which can be explicated in both concrete and abstract senses. Its absence is important to the Global South, where injustice and authoritarian control influence the future of society. In order to illustrate the potential of critical realism, this article draws lessons from foresight practice in Thailand.

Keywords

Foresight Approaches, Epistemology, Critical Realism, Interpretive Methods, Air Pollution

Introduction

Foresight practice has attracted the attention of many organizations because being future-ready seems like the only way to survive in the modern world of risk and uncertainty. While we do not need further discussions on the importance of foresight, it is noticeable that most foresight studies have focused attention on the development of foresight tools. For example, the United Nations Development Programme (UNDP) developed a toolset for foresight in the form of a step-by-step manual for newcomers (Global Center for Public Service Excellence, 2014). A practical foresight guide with a collection of popular tools is readily available online, as in Shaping Tomorrow by the future lab based in London (Jackson, 2013).

However, beyond choosing a tool for foresight practice, the consideration of framing its approach should not be overlooked. To date, serious discussion of framing is quite rare. Some foresight works use the term "approach," but frankly, the discussion is not sufficiently engaged with the ontological and epistemological foundations of the analysis (e.g., Bell, 2003). Notable exceptions are the proposals by Inayatullah (1990) and Piirainen and Gonzalez (2015). They refer to empiricism, constructivism, post-structuralism, and pragmatism as the core approaches. While empiricism focuses on a predictable and measurable future, constructivism seeks different opinions and aims toward the common future agreed upon by different stakeholders. Post-structuralism, on the other hand, attempts to deconstruct and reconstruct the future. At the same time, pragmatism pays more attention to a possible future that can be handled properly.

Critical realism seems to be ignored in foresight studies, especially in its key essence of intransitive reality, which can be explicated in both concrete and abstract senses. This insufficient recognition of critical realism as a potential foresight approach is a knowledge gap from previous studies and the entry point of this study. This study aims to bridge the gap by examining the potential of critical realism in approaching foresight in the Global South. Framing critical realism in foresight practices is crucially needed in the Global South, where injustice and authoritarian political control persist and determine society's future. Critical realism's advantage is in unpacking the social reality embedded in the structure, which constrains the development towards a better future for all. Such reality cannot be measured by empirical evidence. However, an investigation into the underlying economic, social, and political

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structures is required to unpack the event generated by causal mechanisms and conditions. The presence of injustice and authoritarian control is also existent in the society rather than inside one's interpretation. This article draws lessons from foresight practice in Thailand to illustrate a suitable critical realism approach to futures studies. Knowledge about the future is projected from the present reality of strong social and cultural conditions. Without a critical reflection of such social reality and the emancipating role of foresight from unconscious exploitations, a better future cannot be imagined.

Different approaches to foresight studies: The theoretical backgrounds

To understand the foresight framework, we mainly refer to Piirainen's (2015) work, which mentions "empiricism," "constructivism," "post-structuralism," and "pragmatism" as the philosophies behind the practice.

Empiricism, Constructivism, Post-structuralism and Pragmatism as well-recognized foresight approaches

Empiricism, also known as positivism, marked the early period of foresight study that dates back over 60 years ago (Bell, 2003). During this era of scientific inquiry, future predictions were supported by reasoning and scientific proof, distancing itself from "groundless" prediction, science fiction, religious applications, and mystical belief. Positivists perceive reality from the phenomena we can observe, experience, and measure, thus rejecting anything beyond that. Science is the only gateway to the knowledge of reality; therefore, knowledge creation is drawn from a deterministic view of the world under the laws of cause and effect (Fischer, 1998).

Based on the empirical science model, foresight activity was mainly used as a foundation to build a case for an accurate prediction of the future. However, these science-based facts are not free from the biased assumptions of scientists (human beings with their own value sets); and it can be politicized to steer the understanding of society, which leads to dominating definitions of social reality (Inayatullah, 1990; Piirainen and Gonzalez, 2015). Furthermore, for it to work, all of the world's events and reality need to be captured and modeled to their fullest capabilities. Unfortunately, there is still a great deal that cannot be explained by science. Also, even if science could create such a model, society changes every moment, causing previous models to become obsolete.

Positivism assumes that universal laws can explain and predict events accurately (Gorski, 2013: p. 661). However, with the concept of truism, Hume and Millican (2007) suggest that knowledge of the future is uncertain because the structure of the world changes within the period of interest. Therefore, tiny margins of error or the least probability have unexpectedly sizable impacts. As criticized by Inayatullah (1990: p. 115; 2013), positivist epistemology reasserts the present and predicts the future linearly from the past. Limited to only the observable and isolated events on the surface, positivists ignore the deeper reality and validate some political agendas (Bell, 2003: p. 196).

While empiricism seems to be the target of criticisms, it has evolved over the years due to the advancement of prediction methods by empiricists. As observed by Pang (2010), many computing and forecast models have been developed, and they work well with sports, elections, and the stock market. In the foresight field, the limitation of positivism was acknowledged early on with the rise of the neo-positivist movement by which scientific evidence and opinions are taken into account. However, both positivism and neo-positivism still make the strong claim on the role of scientific methods with inadequate recognition that such methods also contain conceptual and cultural biases, which can raised caution in accepting scientific theories without insight into the investigator's personality, background, and social position. Constructivism (also known as interpretivism and hermeneutics) fills this gap by prioritizing interpretation over explanation, emphasizing interpretation and description rather than causation.

Constructivists believe that knowledge and reality are socially constructed and subjected to various interpretations, emphasizing description rather than causation. Through human discourse, visions of the future are constructed and reconstructed continuously in the present; therefore, the reality of the future already exists in the present thoughts and emotions of the people (Hideg, 2007: p. 37). The goal of foresight practice is to integrate futures from multiple perspectives through the deliberative process. Each participant is empowered to share his or her views and should receive equal value consideration regardless of their expertise.

According to Latour (2003, p.17), constructivism raises the question of "*How can it be built better*?" He defends constructivism against fundamentalism by showing that constructivism is the construction of facts, a collective process requiring the collaboration of many disciplines and skills with heterogeneous ingredients. Although the

inclusive nature serves well in a democratic society, Fuller and Loogma (2009: p. 78) argue that *"Relativism can be extremely dangerous in the creation of futures… Some socially constructed knowledge is fallible, partial, privileged and contestable.*" Naive constructivists would accept all relative views without questioning their saliency, accuracy, or relevancy, thus perpetuating false beliefs that could be harmful to society, such as fascist opinions and the views of climate change deniers.

Although some shades of constructivism do not perceive the world in a relative way (e.g. Latour, 2003), without strong beliefs in truth, it is hard to deny the condition of relativism to compare what is right and wrong. In the same vein, this does not mean that all shades of constructivism reject the existence of universality that scientists believe. For example, Øverland (2013) points out that constructivism can be based on scientific activity by adopting empirical research methods. However, it is unforgettable that the main reason that constructivism has emerged is to challenge the scientific trap of universalism.

While desirable visions of the future based on different interpretations advocated by constructivists seem ideal, utopian, and voluntary, history has shown that policies based on desirable futures, as seen in communism which was mistaken in "*..sizing up and interpreting the impact of the outside world on the society and on the different visions of the future.* (Hideg, 2007, p.39). As well, the desirable future of democracy can give a false definition of "freedom," as can be seen from the people who are unwilling to follow professional medical experts' mask-wearing guidelines during the COVID-19 pandemic in many parts of the world.

To a certain extent, social sciences by hermeneutic means "*do not attempt to explain what happens in the social world."* (Gorski, 2013: p. 661). They merely consider the construction of the meaning and intention. Thus, value judgments cannot be separated from the knowledge of knowing. Consequently, there is concern about cognitive bias from participative foresight, stemming from the limitations of human cognition, as addressed by Piirainen and Gonzalez (2015: p. 5). With that, whether a unified moral code or a universal ethical conduct exists is quite debatable in philosophical and practical terms. Therefore, foresight practices in many cases end up serving the interest of one group's preferable futures instead of anticipating possible and probable futures for all (Piirainen and Gonzalez, 2015: p. 5).

While constructivism pays most attention to the construction of the social world, post-structuralism, another foresight approach, looks for the deconstruction and reconstruction of the future without a commitment to particular subject and structures (Inayatullah, 1990). By aiming to 'reconstruct,' it intends to be reflexive by realizing that any social and political construction of reality needs to be recurringly investigated. Also, constructivism gives priority to each individual in framing the reality, while post-structuralism focuses mainly on how the reality is framed politically by the collective unit (Miller, 2002). This assumption seems critical, as well as radical, especially when the future is perceived as an unfinished construction. With that, we need to deconstruct and reconstruct all the time to move forward with these dynamics. On the one hand, this makes post-structuralism look similar to constructivism in that there is no ultimate goal out there. On the other hand, with the assumption that "everything goes" (Rorty, 1990), post-structuralism agrees with the foundation of pragmatism, which proposes that "*what works, is true*" (Peirce, 1878 cited in Piirainen and Gonzalez, 2015: p. 10).

Escaping the debate on theory, pragmatists bypass the knowledge-creation objective and narrowly serve as a means to an end to fill the skyrocketing demand of foresight in the current period. This approach is currently the most popular. Although it is recognized in the same line with post-structuralism as aforementioned, practicality is its essence. In its view, any foresight method that is useful in producing intended output and timely action is valid. Knowledge creation derives from the utility of action within a logical plan and its practical functionality. Rather than producing a description of the present stage or having a deep understanding of the interpretive world, the pragmatists set goals based on practical and actionable results (Piirainen and Gonzalez, 2015: p. 5).

Widely adopted, the pragmatist perspective adopts strategic foresight activities to find solutions (policies) to problems (issues). In both the private and public sectors, the process entails bringing together stakeholders and experts to contemplate possible and probable futures; exchange views, and assemble a consensus at the community level, ultimately leading to decision-making or policy design. The aim is to increase forecast accuracy, in order to deliver a roadmap of short, medium, and long-term solutions.

Consequently, foresight approaches based on pragmatism are expected to produce actionable results from the consensus of desirable futures. Because the practice is confined to solution inquiry, the framing of the questions in

the assignment is left unchallenged. The pragmatic orientation has created some unfavorable implications in the foresight field. First, the open character of the future is eliminated by simplifying the process of policy implementation. Second, foresight specialists do not evaluate their practices from the aspect of their theoretical and practical returns. The assessment is misplaced by focusing on the result of the development after the recommendation has been implemented. Third, they merely consider their ideas instead of producing self-reflective knowledge from foresight activities (Hideg, 2007).

All approaches have both advantages and disadvantages. However, there is insufficient power in approaching foresight as native to reality by counting only the empirical elements. At the same time, other approaches do not take reality into account by perceiving it as either the outcome of social constructions, deconstructions, and reconstructions or as practical means and ends. The next section will explore an alternative approach called critical realism that is not truly recognized in the field. However, it is an eligible candidate that has its potential to fulfill many existing gaps.

Critical realism as the missing approach

The field of futures studies can be traced back to 1945, with a history of over 70 years. As suggested by Son (2015), modern Western futures studies can be divided into three phases, including the scientific inquiry and rationalization of futures (1945 through the 60s), the global institution and industrialization of futures (1970s through the 80s), and the neoliberal view and fragmentation of futures (the 90s to the present). This historical evolution has influenced the philosophy and foundation of futures studies development. For the past twenty years, futures practice has been predominantly commissioned by public and private sectors towards organizational improvement and strategic planning. Futurists are framed by their assigned topics to a manageable practice and assessed by economic advantages and management targets. This mainstream futures practice in this current era that favors pragmatism has been naturally reacted to by the rise of critical futures studies (Ramos, 2002). Because of the expanding hegemony of western influence, Richard Slaughter (1996) posed a concern about its long-term implication on ethics and utility. He suggested a search for *transformative possibilities* by using "*more socially critical, empowering approaches, particularly with communities, the marginalized and mainstream education*" (Slaughter, 1996, p.810).

From the emergence of critical futures studies, Sohail Inayatullah (2003) proposed the further developed theory, which is categorized under the umbrella of post-structuralism. In this view, reality is created by discourse in society and differs according to cultures and norms. Language and perception influence the relationship between subjects and objects. Therefore, politics play a significant role in shaping "the reality." The regime of truth lends itself power by overshadowing other configurations of truth and other knowledge paradigms (Inayatullah, 1990). This attempt to regain the original focus on philosophy and rationalization by critical futures studies is the low-hanging fruit that calls for examination, including an explicit ontological claim, behind the foresight approaches adopted by futurists.

In addition, critical philosophy has been mentioned in previous works on foresight studies as a perspective under the umbrella of constructivism (Piirainen and Gonzalez, 2015). "Critical" in this sense, thus, is the term used for explaining a more progressive pathway beyond empiricism toward preferable futures. It is not used as a well-framed foundation for approaching future studies in a specific way that is based mainly on the interpretation of social reality.

Alternatively, critical realism (CR), a philosophy of social science originally developed by Roy Bhaskar, was welcomed by academics disappointed by the weakness of positivism and the shortfalls of post-structuralism in addressing oppression and resistance (Mahoney, 2018). It also provides a consistent commonsensical view of the reality of the world. With its own ontological and epistemological background, CR is not in the same line with constructivism and post-structuralism. From the beginning, CR was mentioned as "*an appropriate epistemology for future studies. Since it is based on fallibilism, critical realism claims only knowledge that is conjectural and incorporates justified beliefs about the future"* (Bell, 2003, p. 236). Although future studies aim to project towards possible and probable futures, they also serve as an investigation unit to interpret past and the present evidence, so that the foundation of possible and probable futures can be constructed with validity and reliability (Bell, 2003). Unfortunately, since 2009 few strong foresight works have been developed that advance Bell's points.

Situated in between the scientific form of positivism and strong interpretivism, CR offers an alternative paradigm, emphasizing the philosophical positions of realist ontology, causation, structure, agents, and relationship explanation. The investigation of past and present reality is based on the assertion that "*much of the reality exists*

and operates independently of our awareness or knowledge of it" (Archer et al., 2016: p. 2). Our beliefs cannot be limited to only empirical data, as many important characteristics of the world are not observable or verifiable. At the same time, reality is not something that we make up. It is out there beyond our perceptions of it. The iceberg model illustration is commonly used to explain the three layers of reality: The empirical, the actual, and the real, as shown in Figure 1.

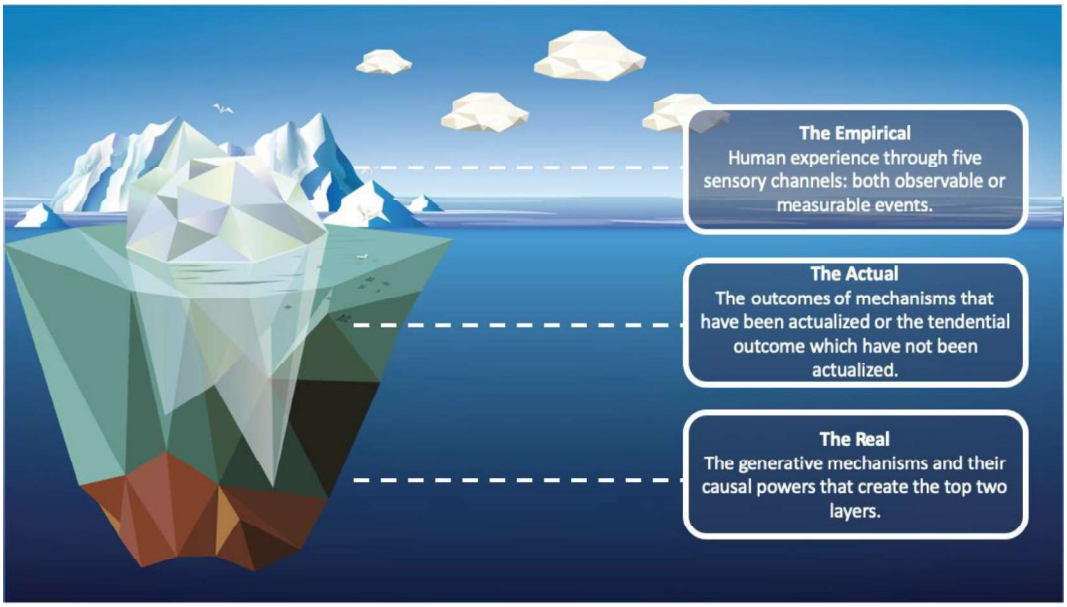


Fig. 1: An Iceberg metaphor explaining the three layers of reality: The Empirical, The Actual, and The Real

> The Empirical is the experience or human observation domain using our five senses—sight, hearing, smell, touch, and taste. While one might assume that this domain consists of only tangible objects, such as structures, organizations, or households, it also includes intangible objects, such as measurable values and opinions in society.
>
> The Actual describes the ongoing interaction of the system mechanisms which exist but are unnoticed. If activated, it possesses power to create phenomena. The key point is that what has been experienced or proven is not all that can exist. There could be more mechanisms that have yet to come to the surface. Therefore, the laws applying to real objects at a given time fall short of the ability to predict what could happen.
>
> The Real is everything existing in the universe, tangible or intangible, both at the natural and social level. It also refers to the realm of objects, structures, mechanisms, and causal powers which basic empirical methods cannot measure. This layer is interchangeable with the concept of "truth."

These three layers serve the purpose of futures studies in describing, understanding, and explaining the past and the present; raising awareness of the hidden layers underneath the iceberg and understanding their functions and operations. It empowers us to design, assess, and make decisions about desirable futures. In addition, the CR concepts of *open systems and conditionality* requires that forecasts are subjected to uncertain conditions: multiple processes and mechanisms (such as homeostatic causal loops) and the responsive modes resulting from learning and self-regulation. It is the responsibility of humans not to adjust ourselves to designated future realities but to actively take actions toward desirable worlds that are yet to come (Patomäki, 2006).

Given that the world has entered the post-normal era with increasing complexity, chaos, and contradictions, we can no longer rely on a linear forecast of continuous growth as has been the dominant notion during modernization

(Sardar, 2010). In the post-normal era, ethical imagination is required to serve as mental tools that shape our behaviors and expectations. The ethical debate, foundationally essential to CR, must rise above the dilemmas of tradition and modernity. We need to investigate ethical principles underlying every social, cultural, political, philosophical, and religious outlook. Regardless of the ethical debate, we must start with accepting the post-normal proposition that "*..there is no monopoly on truth..*" (Sardar, 2010: p.443). Finding solutions calls for the contribution of multiple perspectives towards our collective problems.

The question then comes back to the subjective account of "desirable futures." Despite the commitment to realism, the recent proposal of *cautious ethical naturism* by Archer et al., (2016), goes beyond the debate of "what is and what should be." Rather, the focus is on the conditions of a good society where humans can collectively flourish. "*Given that (other things being equal) it is better to believe what is true than what is false, it is also better (other things being equal) that the institutions that cause false belief should be replaced by, or transformed into, those that cause true ones"* (Collier, 1994: p. 172). The institutions oppressing a large number of people are protected by false beliefs, especially in the era claimed as "post-truth." Advocating for the truth criticizes not only their function but also weakens their legitimacy. CR can shed light, unite, and provide ethical discipline for Futures Studies and society through the concept of *judgmental rationality* (Al-Amoudi, 2011). The below table compares the differences among approaches mentioned in the previous section and CR.

	(Neo-) Positivism or Empiricism	Interpretivism/ (Critical) constructivism	Post-structuralism	Pragmatism	Critical Realism
Ontology	There is a single reality or truth.	There is no single reality or truth. Reality is socially, culturally, and contextually constructed.	It shares much with constructivism, but looks over individual constructions of reality to focus mainly on political constructions	Debated, negotiated, reinterpreted reality, in accordance with its function in different situations.	Reality exists independently of human knowledge. Such reality is stratified. Critical thinking is required to judge human's perception.
Epistemology	Evidence, formulation, theory, prediction, causation, forecast	Interpretation of meaning (discourse, language, signs) Multiple realities → judgmental relativism	Critical assessment of the construction of reality as narratives (discourse, language, signs)	Knowledge is based on experience. Research through design. Action taken from existing available knowledge. Consequences from useful practice.	Prioritize ontology. Acknowledge the limited perception of knowledge. Knowledge emerges from causal mechanisms. Multiple realities → Epistemological relativism.
Methodology Orientation	Trend analysis, regression models, formulas, extrapolation	Accounting of and comparing multiple views and alternative interpretation.	Framing and reframing (for deconstruction and reconstruction)	Mixture of different methods. Design-based research. Action research.	Systems mapping. Structure of subsystems. Causal mechanisms.
Projection	Deterministic futures	Desirable futures	Preferable futures	Actionable futures	Alternative futures Tendencies based on generative mechanisms.

Table 1: Comparing different approaches of foresight studies

Methodology

To claim that CR is productive as an approach for framing foresight, apart from conducting a review of the literature (documentary research), a demonstration of its utility is provided by way of a case study involving Causal Layer Analysis (CLA) through CR in Thailand—in particular, the foresight towards clean air in Chiang Mai. As mentioned by Robert Yin (2009), case study research helps us understand complex social phenomena and real-life events such as particular processes. With this case study, it is possible to investigate the foresight process in depth and within a real-life context.

The foresight study on the future of clean air took place in Chiang Mai and was facilitated by the School of Public Policy (SPP) at Chiang Mai University in cooperation with the Department of Environmental Science, Faculty of Sciences on 21 February 2019. Chiang Mai has faced terrible haze pollution for more than a decade. Regulatory policies and strategic plans adopted so far had been ineffective as the problems are complex and go beyond individual behaviors. SPP introduced foresight practices to understand the issues better, aiming for a different approach, especially in developing policy designs based on careful considerations of their root causes. To approach CLA with CR was chosen under the expectation that complex causes of the problems could be unpacked and linked to concrete transformative scenario planning.

This case study involves critical and interpretive policy research. By taking part in the study of clean air in Chiang Mai, we become subjects in this case study. This "participatory observation" method focuses on how insightful the study is rather than how valid the data is (Schwartz-Shea and Yanow, 2012). It is adopted widely in action research beyond the positivist research tradition, which assumes that researchers can be value-free. The analysis reflects the lessons drawn instead of an objective explanation from stakeholders' voices. While biases can influence social research, this approach lays the biases on the table to be seen explicitly instead of hiding them under the name of scientific research of the social world.

Approaching foresight for progressive policy design in Thailand through critical realism

Thailand is a small country located in South East Asia. A recent ranking by Credit Suisse (2018) placed Thailand on the list of highest income inequalities in the world. The Credit Suisse Global Wealth Report 2018 indicates that 1% of the total population owns roughly 70% of the total prosperity of the country. As a low-and middle-income country, where conservative forces have formed the government, politicians govern the people by using hard and soft powers through authoritarian top-down mechanisms, especially by commanding and controlling through regulations.

One of the challenges Thailand faces is haze pollution. This problem covers many parts of the country, but the most severe is observed in Chiang Mai city. Since 2017, Chiang Mai has been ranked among the world's top ten cities with hazardous air quality by the Air Quality Index (AQI). As a popular tourism destination, Chiang Mai has received some help from the central and local governments. However, the solutions aim to fix the problem on the surface level by preventing marginalized hill tribe minorities from burning their agricultural wastes after seasonal harvests. Based on the regulatory policy instruments used, the issues were interpreted as harmful behaviors by poor local farmers who were less sensitive to environmental stability. Following the popularity of strategic planning, the government imposed concrete actions related to sanctioning the burners and rewarding the protectors (Moran, Nasuwan, and Poocharoen, 2019).

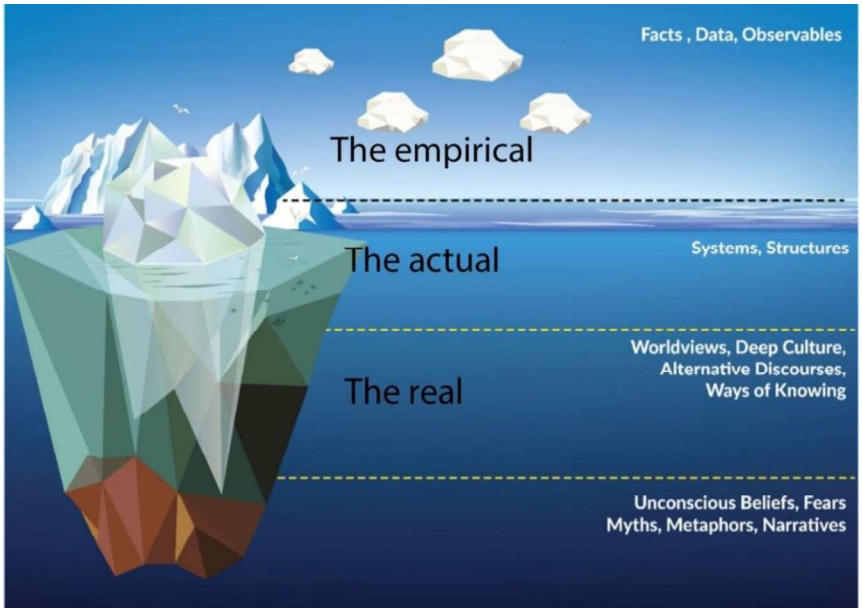
However, the carrot and stick policy interventions failed to solve the haze problems. Without insight into the entire system, the government continued to impose strict measures. In cooperation with the Faculty of Sciences at Chiang Mai University, the think tank team at the School of Public Policy (SPP), stepped in and proposed a foresight workshop involving transformative planning. The entry point came from the notion that the previous policy interventions mostly touched upon its surface of the iceberg. However, the workshop attempted to dig deeper into the root causes of the problem and design a plan for transformation in a different time frame.

Although SPP chose CLA as a tool, the intention was not to interpret the haze pollution in different layers but to explore the common perception of citizens towards the problems. In other words, an attempt was made to move away from subjectivities to inter-subjectivities, which is essential for transformative and collective actions. SPP acknowledges that CLA can be used with different assumptions. According to Sohail Inayatullah (2008), different interpretations and pluralistic views are embraced, as shown by the multiplicity in the deeper layers like worldviews,

deep cultures, alternative discourses, ways of knowing, unconscious beliefs, fears, myths, metaphors, and narratives. These elements can be variously perceived and interpreted, which is the strength of this method, paving the way towards alternative futures. The multiple layers in CLA are mainly grounded by constructivist ontology, under the belief that reality is in the eyes of the beholder.

Regarding the haze issue in Ching Mai, the limitations of ontological assumptions in constructivism led to a misleading reality under post-truth politics. In this context, many climate deniers explain that climate change is a merely a made-up problem (the construction of reality). Economic depression was prioritized as a real disaster. Consequently, the attention was diverted away from problems related to climate change, which deserved serious consideration from the government. Most Chiang Mai locals perceived the cause of the problem was irresponsible rural farmers and hill tribe minorities. This subjective view created anger and hatred, resulting in a strong sense of "us" versus "them." Different interpretations are acceptable in some contexts, but they cannot do away with a false consciousness. As an alternative, SPP applied a CR ontological framework to CLA tools, attempting to reveal unmeasurable real conditions which truly existed. At SPP, the notions of discourses, metaphors, and narratives were conceptualized as the representatives of reality in the form of common understanding.

From the above conceptualization, the foresight framework used for this case study connects the first causal layer to the empirical perspective of CR. This part is about existing facts, data, and other observable conditions. The second layer connects to the actual perspective of CR, in which the focus is on existing systems and structures. The last layer, the real, can be linked to the two bottom layers of CLA: worldview, myth, and metaphor. One does not seek different interpretations, but rather one finds the common perception that determines a preferable future. The real is where the generative mechanism lies, possessing power and waiting for the right conditions to manifest in the actual and the empirical (Sayer, 2000). Existing worldviews, deep cultures, alternative discourses, ways of knowing, unconscious beliefs, fears, myths, metaphors, and narratives are analyzed keeping in mind the inter-subjectivity among participants. All these findings (see figure 1) were investigated to understand the root causes, paving the way for the transformation process in both consciousness and society.



Source: Chiang Mai University, The School of Public Policy

Fig. 2: Approaching Causal Layer Analysis through Critical Realism

Who engaged in this foresight workshop? 84 participants took part – 15 officers from central and regional governments (including major departments, such as the Department of the Interior, Department of Natural Resources and Environment, Department of Forestry, Department of Public Health, and Department of Disaster Prevention

and Mitigation), 6 officers from four local governments, twenty-two researchers (scientists, engineers, agriculturalists, and policy scholars), 4 leaders of cooperative associations (e.g., the President of the Chiang Mai Tourism Industry Association), 3 key members of non-governmental organizations (including the Sustainable Development Foundation), 11 community leaders, 5 representatives of political parties, 6 journalists from well-known media outlets, and 12 active citizens (including members of a youth club). Although minority tribe members and poor farmers could not attend, the forum encouraged participants with different backgrounds to speak for themselves and the disadvantaged people out there.

Regarding the results of discussion, the empirical perspective, warranted by facts, measurable data, and observable phenomena, argued that the problems were created by forest fires, burning agricultural wastes, hot weather, and insufficient air purifiers in public spaces. The discussion of the actual perspective moved to the analysis of systems and structures, resulting in an agreed upon conclusion that the existing interventions under the highly centralized governmental system were slowing down the process. An emerging problem was an ineffective information system, which led to the failure of monitoring and prevention phases. Furthermore, the pooled analysis by the participants concluded that an actual condition was the lack of incentive structures for alternative practices for farmers and hill tribe minorities. For example, some farmers cannot avoid burning because they cannot afford the high transportation cost of removing agricultural wastes from their farms.

Moving to the deeper layer of the real perspective of CR, the discussion was on common perceptions about "shared" worldviews, deep cultures, discourses, and/or ways of knowing. It was undeniable that prejudice towards rural farmers and hill tribe minorities exists since they were blamed as the agent who caused the problem. Meanwhile, the climate denial group refuses to take equal responsibility for the problem. In fact, any car owner, air traveler, or dairy producer are part of the global warming problem. This way of knowing was also related to the actual condition of weak collaboration between neighboring countries to help each other cope with this cross-boundaries climate issue, which goes beyond merely the issue of irresponsible farmers.

This CR perspective aimed at discovering "shared" unconscious beliefs, fears, myths, metaphors, and/or narratives. These points were not perceived as different interpretations but conceptualized as the common perception of the reality mentioned above. The first inconvenient truth was about the existing problem of the exploitation of the environment by large corporations in the country. The mass production of corn in this area is promoted as part of the food industry, contributing to the gross national product. As a result of large-scale farming, burning after the harvesting season is necessary and common. Further investigation shows that such corporations have a very close tie to the government in power. This vicious cycle tends to perpetuate in the near future, as many large corporations have established in-house foresight units to create foresight scenarios and strategic plans using mega-trends to maintain their economic competitiveness.

Such truth was a small part of the big picture of the co-existing problems of inequalities persistently reproduced by capitalism. Under false consciousness, it would not have been easy to accept it as reality. However, now it is obvious that farmers and hill tribe minorities are marginalized in our capitalist society. The state and most citizens have reproduced an unequal structure for them, leaving them without much choice. Haze pollution is just a spillover of this unfair treatment.

Our examination shows that the deep reality is that haze pollution has become a serious problem in Chiang Mai due to modernization and over-consumption. The city has an increasing number of domestic and international flights, and no research has been conducted to measure the pollution from the planes during take-off and landing. Chiang Mai is also faced with traffic jams as a result of a disproportionate increase in automobile ownership. Even without specific data support, we can assume that all economic activities create pollutions. Zooming out to see the bigger picture, Thailand is in a disadvantageous position in the global market for two reasons: 1) it provides agricultural products to the global mass consumption market and 2) it serves as the last jigsaw of supply chains of advanced industries. Pollution is released into the country without appropriate green technologies or sound policy by the government.

Critical realist perspectives	Causal layer analysis	Haze pollution problems in Chiang Mai	Transformative scenario planning for the better future
The Empirical	(Existing) Facts, data, observables	Forest fires, burning agricultural wastes, hot weather, insufficient air purifiers in public spaces	Provisions/ allocations/ distributions (rather than regulations); community-based mechanism support
The Actual	(Existing) Systems, structures	Highly centralized governmental system, ineffective information system, poor incentive structures for alternative practices	Improve decentralization, technology for information generation and circulation; alternative practices on agricultural wastes, green infrastructure
The Real - *do not seek for different interpretations, but for the common perception (inter-subjectivity) - preferable future*	(Existing) Worldviews, deep cultures, alternative discourses, ways of knowing	Bias towards rural farmers and hill tribe minorities; climate denial; weak collaboration among neighboring countries	Promote fair treatment, mutual understanding, climate action, international agreement
	(Existing) Unconscious beliefs, fears, myths, metaphors, narratives	Exploitation by large corporations; reproduction of inequalities by capitalism (The big fish eats the small one), modernization and over-consumption (the creation of demands); comparative disadvantages in global markets (rich countries take more advantages)	Impose environmental/ pollution tax; encourage haze-free life-style (e.g. buy products that do not crate haze) and global regime shift (promote equal and fair relations between North and South)

Table 2: The foresight framework, the analysis, and the suggested actions

SPP included all these suggestions from the foresight activity in a report that was published and submitted to the Chiang Mai governor. There have been some actions and changes in preparing for the next haze seasons (2020 and 2021). So far, some municipalities have provided more air purifiers to create haze-free zones within each community. A civil society movement was formed that encouraged community-based mechanisms. Chiang Mai University promoted technology advancement for information generation and circulation and alternative practices involving agricultural wastes. Also, fewer people deny that haze pollution is not partly due to climate change. Yet, most of the medium and long terms' plans still require a series of reforms.

Advantages and disadvantages of using critical realism as an approach for framing foresight

Using both theoretical foundation and the results of the case study, we have demonstrated that CR provides many advantages in framing foresight. Importantly, it paves the way towards a social reality beyond simply using accurate prediction or individual interpretation. Digging deeper into the real conditions embedded in economic, social, and political structures, one can discover the causal powers and their generative mechanisms to understand and foresee the "tendency" of the possible futures. This feature means that unpacking such structures could be the pathway towards critical assessment of reality rather than promoting the interpretation of individual opinions to legitimizing a biased value-driven transformation in the name of reality.

Compared to other approaches, what contributions does CR offer to the foresight field? To begin with, CR shares the ontological position of positivism, which is based on realism. However, as shown by this case, CR provides for a stratification of the realities, while positivism investigates only one layer at the top of the iceberg. As mentioned

by Mingers (2011), foresight practice based on the philosophy of CR offers holistic analysis and a comprehensive map of the entire system starting from empirical evidence. Each piece of fragmented information from different layers is put together to reflect a holistic view of social reality. In addition, CR perceives that foresight is contingent upon the knowledge of existing structures in the past and present to extrapolate into the future. Applying formulas derived from scientific methods can distort our understanding of the future. Given that society operates in open systems consisting of ever-changing variables, the underlying causal laws of positivism deduced from prior conditions are prone to produce erroneous outcomes.

In contrast to constructivism, CR moves away from the notion that the analyzed problems are in someone's imagination but postulate that they, in fact, exist. As illustrated by the case study, the process framed by CR is steered towards the elaboration of real structures and powers, rather than focusing on the propositions or statements driven from scientific data and individual opinions based on personal experiences, as traditionally used in CLA. The outcome of the analysis is both the description of the event itself; and the identification of the underlying structures and mechanisms that produce it (Gorski, 2013).

Contrary to post-structuralism, CR does not deny the role of the human as agency within the existing structures. Diverse individual views and expertise are truly important in the collective process of unpacking reality. As each view could be partial or prone to error, with a reflexive perspective, CR proposes that consolidating them through discussion and analysis yields a system map that captures reality beyond pre-existing notions. The role of CR, in this view, is to deconstruct the meaning of systems and powers and use open imagination to reconstruct their preferable futures. Instead, the participants were conscious of the existing structural barriers impeding all essential changes, even before the foresight practice. With such awareness, it is important to highlight that CR redirects the focus to problems and ideas and their relationship to social reality and social change (Aligica, 2011). Under the rise of post-truth politics, CR can timely rescue an endangered democracy and solve for the social injustice caused by the misidentification of causes and solutions by authoritarian governments worldwide (Zotzmann and Vassilev, 2020). In the same vein, climate denial, as previously discussed, is not an exception. Our planet urgently needs a serious climate action to deal with the existing problems rather than allowing the construction, deconstruction, and reconstruction of contesting meanings, ideas, and values, to continue among different communities.

Unlike pragmatism, CR aims to make an essential change in sustainable problem solving and not just offer a practical solution. Of course, some suggested actions might not be easy to implement under the current situation, but we live in a complex world where we cannot just go with the flow. Apart from showing us how to solve the problems at their root causes, CR also informs us why some problems have not been solved so far. As illustrated in the case, the lack of serious attention to their structural constraints is the missing core element that pragmatists have overlooked.

Society can be viewed as a set of habits accumulated by human behavior. Ironically, this process reflects the complexity of the human mind and body in evolution. Our minds, full of values and ideals, are driving our behaviors. Each activity of ours is marginally contributing to the habit formation process. Once the habit is established, it becomes unnoticeable how the system automatically drives our action towards certain behaviors, reinforcing its cycle and governing our mind. We unknowingly repeat the same decisions under the influence of this "default" thinking system, which is now ruling our lives. When a negative symptom is observed at a physical level involving our body, we then know something is wrong. A widely accepted direction is to seek advice from Western medicine. The diagnosis on the physical level (as in positivism) involves prescriptions that either cure the ailment or temporarily suppresses the symptoms, with the possibility of creating some side effects or other symptoms later on.

On the contrary, adopting remedies based on cultural practices or traditional beliefs (as in interpretivism) will not lead to consistent outcomes. As argued by Gorski (2013: p. 662), *"we are not fully transparent to ourselves, nor is the social world fully transparent to us."* To cure the physical symptoms at the root cause, we must move the analysis beyond the physical level to the source where our belief is situated, which is influenced by historical, social, and cultural norms. Breaking the cycle is to be aware of the underlying systems, identify the intervention point, and refraining from those undesirable activities. Unfortunately, a deep-rooted system can be difficult to detect and painstakingly difficult to change. Curing chronic symptoms with this approach takes a long time and might not yield immediate results, but certainly, we need to acknowledge that this direction will lead us towards a better life.

CR reminds us that habits (social structure) exist in our behavior (systems). Decoding these habits reveals their

inherent power, which is real, though unnoticeable. Foresight process based on a CR approach brings to the surface this ongoing formation process, enabling us to be aware of the conditions and their impact within the system, empowering us to foresee the possible consequences, and entitling us to make individual decisions using the circumspection of realities.

However, like all other epistemologies, CR has its limitations, particularly its descending roots from Marxist tradition to fight against oppression and justice. Generally speaking, foresight activities are organized towards certain objectives, so CR can be accused of not aligning with practical needs. Secondly, a long-term and shared commitment to CR ideology is required to defy the existing hegemony of social, economic, and political powers. The revelation of the structures and powers is merely the initial tiny step towards emancipation. It takes a long time to change the course of deep-rooted traditions and widely accepted norms, as illustrated in the case study. Without some noticeable or immediate change, this approach might not be well-received in the foresight arena. Lastly, the CR approach is bounded by its ethical responsibility towards *human flourishing* (Archer et al., 2016). Suppose "goodness" towards humans' well-being can be objectively evaluated; there is not much left for decision-makers to work on, as Tapio and Hietanen (2002) argued. The perception of CR's image and its overt normative political views towards (liberal) democracy might be regarded as a threat to the establishment, therefore, it will not be welcomed by the pre-existing groups in power as suggested by Joseph (1998).

Conclusion

In the current era of fragmentation in futures studies, as observed by Son (2021), most foresight practices are steered towards strategic planning and policy design by mixing the use of foresight tools without careful considerations of ontological and epistemological backgrounds. The future is built upon the foundation we stand on; without proper philosophical approaches for understanding society, information about the past and present might be overlooked, misguiding us with a distorted perception of reality.

Undeniably, most futurists unintentionally become pragmatists who pick up tools from the foresight menu to provide actionable solutions towards management goals. These people pay attention to possible futures in order to handle them properly. Others are empiricists, constructivists, and post-structuralists. While empiricists focus on a predictable and measurable future, constructivists seek different opinions and aim toward a common future agreed upon by different stakeholders. Post-structuralists, on the other hand, attempt to deconstruct and reconstruct the future.

CR is a missing approach that is productive and that can make a difference in framing foresight. As mentioned by Bell (2003), it has been neglected as a suitable foundation of foresight. We add that its essence is of high value, especially in a context where injustice and authoritarian control take place and influence the future of society. To unpack such reality is a progressive way to present a more accurate analysis of the present and open a space within society to seek a better future. Empirical evidence cannot measure such a reality alone, but one needs to intentionally dig deeper into the economic, social, and political structures to uncover the underlying truth. At the same time, injustice and authoritarian control are also out there rather than inside one's interpretation.

We have illustrated the potential of CR through a case study of foresight practice in Thailand. The case confirms that CR deserves recognition as a valid foresight approach. This philosophy deserves more attention, particularly in the Global South where uniformity is promoted and diverging views are instantly labeled as defiance. Critical thinking based on objective reasons is urgently required to raise awareness of the invisible structures and investigate their powerful roles in protecting the dominant conventions while suppressing opposing views.

It is clear from the case study that the reality about the future should be perceived as real social conditions. Without the critical reflection of such social reality and the role of foresight in emancipating the people from unconscious exploitations, a better future cannot be imagined. Thus, CR is truly helpful in approaching foresight, and the foresight field has a lot to gain from CR theory. We posit that its concepts are crucially necessary to provide foundational insight into the de-resolution of history, the re-description of the present structures and powers, and the reconstruction of better futures for all. In this vein, it is time to recognize futures studies as a form of human sciences for the benefit of all people. Critical Realism concepts can be utilized in an attempt to "find the new world through criticism of the old" (Bhaskar, 96).

As for the skepticism regarding CR's feasibility, we realize that transformation is difficult and time-consuming, but it is attainable. Dinerstein (2021) and Bloch (1995) suggested that future salvation is always about hope, and when we hope, possibilities are always there as a gift. Hope is wishful and an inspirational wish is willful, which keeps us going. We hope, we keep going, and we create change: the only condition is that such hope must not be just a belief but a genuine feature of our ongoing, expected reality.

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