

Health for Export?

A WPR and World-Systems Analysis of the OECD's
Construction of Pharmaceutical Pollution

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Abstract

The issue of pharmaceutical pollution has recently gained attention on the international political agenda. Several actors have raised concern for its negative impact on ecosystems, human health, and livelihoods in emerging economies where an increasing share of the pharmaceutical production is located due to the cheaper labor and less stringent environmental regulations. In 2019, the OECD published a report with policy recommendations on how to manage pharmaceutical residues in freshwaters, being one of the first international actors to address pharmaceutical pollution from manufacturing as a problem. This study seeks to understand how the problem of pharmaceutical pollution has been constructed by the OECD and to scrutinize how their problem representation affects global environmental and social inequalities. By employing Bacchi's methodological approach 'What's the problem represented to be?', the OECD report is analyzed through the theoretical lens of the world-systems theory and the concept of environmental load displacement. The study has shown that pharmaceutical pollution predominantly is understood as a threat to global health and that the report, by disregarding the systematic unequal distribution of environmental load, might contribute to reinforce the environmental and social inequalities caused by pharmaceutical pollution.

Key words: OECD, pharmaceutical pollution, WPR, world-systems theory, environmental load displacement

Words: 9990

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List of Abbreviations and Acronyms

AMR	Antimicrobial Resistance
API	Active Pharmaceutical Ingredient
ELD	Environmental Load Displacement
ERA	Environmental Risk Assessment
EQN	Environmental Quality Norms
GMP	Good Manufacturing Practice
OECD	Organization of Economic Co-Operation and Development
SSNC	Swedish Society for Nature Conservation
TRIPS	Trade-Related Aspects of Intellectual Property Rights
WHO	World Health Organization
WPR	What's the problem represented to be?
WST	World-Systems Theory
WTO	World Trade Organization
WWTP	Wastewater Treatment Plant

1 Introduction

In the last decades, the pharmaceutical sector has rapidly grown to meet an increasing global demand for affordable medicine (Swedwatch 2020: 9). The production of pharmaceuticals has become increasingly globalized and a large share of the global production has been outsourced from the pharmaceutical majors in the Global North to emerging economies in the Global South (primarily India and China) where environmental restrictions of the manufacturing processes are less stringent. This has enabled the production to become more economically profitable as well as sharply increase the supply of pharmaceuticals on the market (Changing Markets Foundation & Ecostorm 2016: 4).

Although the globalization of pharmaceutical manufacturing has been essential to the economic development of several emerging economies, there is mounting evidence that the industry is responsible for alarming levels of environmental pollution (Swedwatch 2020: 22; Changing Markets Foundation 2018; Reddy et. al 2012). This has caused a detrimental situation for local ecosystems as well as for the populations in the areas surrounding production plants as pharmaceutical residues are released into local waterways (Swedwatch 2020: 25, 28, 33; EEB n.d.). The industrial pollution also poses a serious threat to global human health as the release of antimicrobial bacteria contributes to the spread of antimicrobial resistance (AMR) (Swedwatch 2020: 10-11; Changing Markets Foundation & Ecostorm 2016: 5; WHO 2018).

Despite massive pressure from various actors (Leetz 2017; HCWH 2014; Swedwatch 2020), it is first until recently that influential international organizations have chosen to address the issue (EC 2019; UN Environment 2018; OECD 2019). However, as most measures taken have been directed towards the consumer-end of pharmaceutical pollution, they have been heavily criticized for failing to recognize the issue of environmental pollution from manufacturing as a question of global environmental and social injustice (Leetz 2017; HCWH 2014; Swedwatch 2019). Hitherto, the Organization of Economic Co-operation and Development (OECD) is alone to have adopted a life-cycle approach to managing pharmaceuticals in the environment and proposed manufacturing-directed recommendations as an addition to other more user-oriented and end-of-pipe measures. Furthermore, the organization is one of few that strongly encourages the inclusion of environmental criteria in the current regulatory and voluntary frameworks (Swedwatch 2020: 10; OECD 2019: 14-16).

1.1 Purpose and Research Questions

The issue of pharmaceutical pollution from manufacturing comprises an interesting North-to-South dependency dynamic. While a greater part of the world's pharmaceuticals is manufactured in India and China, the largest markets for pharmaceuticals are still found within the OECD countries (Swedwatch 2020: 9, 22). As the manufacturing of pharmaceuticals is proved to have far-reaching negative effects on local ecosystems, human health and social conditions, this means that most countries consuming these pharmaceuticals are not affected by the industry's negative impacts. With the OECD being the first organization to include pharmaceutical pollution from manufacturing in its strategy, this study aims to examine whether the organization still risks favoring the economic, environmental and social interests of the Global North at the expense of other countries and thus reinforces global inequalities between core and periphery.

The study is based on the post-structuralist premise that the construction of a problem affects how it is acted upon and will thus have material effects (Bacchi 2009: 1). Against this, the purpose of this study is to identify how the issue of pharmaceutical pollution is constructed by the OECD by looking at the measures proposed by the organization. By this, the study seeks to increase the understanding of how the OECD's representation of the problem affects the global environmental and social inequalities within the world-system. To do this, the study will apply Carol Bacchi's discursive analytical framework What's the problem represented to be? (WPR) under the theoretical lens of the world-systems theory and environmental load displacement (ELD). Hence, the study seeks to answer the following questions:

1. *How is the problem of pharmaceutical pollution constructed by the OECD in the report "Pharmaceutical Residues in Freshwater"?*
2. *What effects does this representation of the problem have on global environmental and social inequalities?*

1.2 Previous Research

Initially, many studies have sought to document and establish the pharmaceutical industry's impact on environment and health by measuring the levels of pharmaceutical residues in manufacturing areas (e.g. Fick et. al. 2009; Reddy et. al. 2012; Lübbert et al. 2017). High levels of heavy metals, toxic contaminants, antibiotics, and anti-infectives have been observed in waters surrounding manufacturing sites, notably in India and China (Reddy et. al. 2012; Fick et. al. 2009). This cocktail of chemicals is assumed to have far-reaching impacts on ecosystems as active pharmaceutical ingredients (APIs) persist and accumulate in the environment (EEB n.d.; Swedwatch 2020: 25).

Other scholars have focused their research on the impacts on human health (e.g. Nijssingh et. al. 2019). Locally, several studies have observed health issues such as respiratory problems and skin conditions in the surroundings of the production sites

in India and China. The pollution has negatively affected the living conditions of surrounding populations due to the contamination of freshwaters (Swedwatch 2020: 4; Changing Markets Foundation & Ecostorm 2016: 5). High concentrations of antimicrobial bacteria have been observed in manufacturing areas. This contributes to the development of AMR (Swedwatch 2020: 10-11) which is considered a major health threat as it menaces the ability to treat common infectious diseases. The spread of AMR is, however, also attributed to other sources such as the over- and misuse of antimicrobials (WHO 2018).

Several scholars have explored pollution from pharmaceutical manufacturing from a policy perspective (e.g. Larsson & Fick 2009; Bengtsson-Palme, Gunnarsson & Larsson 2018). A Swedish study from 2009 (Larsson & Fick) sought to identify the deficiencies within the existing regulatory frameworks and propose possible ways to stimulate action in local and international regulations. The result suggested the possibility to implement environmental standards within industry guidelines were hampered by the lack of transparency throughout the production chain. The study also connected Swedish drug consumption to pharmaceutical pollution in India proving that approximately a third of the APIs on the Swedish market originates from Indian manufacturing plants documented to release unprecedented amounts of pharmaceutical residues into freshwaters (Larsson & Fick 2009: 161-163).

Although pharmaceutical pollution has received some scientific attention, the overall uncertainty of how widespread the pollution from manufacturing is and how it affects environmental and human health in emerging economies is noteworthy (Swedwatch 2020: 49). Due to the lack of knowledge, several non-governmental organizations have conducted their own research to further document the industry's impact in the areas surrounding manufacturing plants. The main purpose of these studies has been to reveal how outsourcing of pharmaceutical production to emerging economies affects these populations but also to force policy action by suggesting international policy and management recommendations (e.g. Changing Markets Foundation & Ecostorm 2016; Swedwatch 2020).

Beyond foregoing studies that critically seek to develop new recommendations using a human-rights and justice approach, no research has yet attempted to discursively scrutinize current strategies of pharmaceutical pollution. Regarding this study, the gap in previous research is not viewed as negative as it notably can be explained by that it is only recently international organizations have developed strategies for pharmaceutical pollution from manufacturing. On the contrary, the relevance of this study can rather be confirmed by the new appearance of such strategies which is further supported as various actors have raised their concern for the lack of scientific attention that has been paid to the issue (e.g. Swedwatch 2020: 25, 49). Against this background, this study aspires to fill one part of a bigger knowledge gap considering how the problem of pharmaceutical pollution is understood by the international political organizations and the global impacts it might have.

2 Theory

This chapter presents the study's theoretical approach. The theoretical framework is a combination of the world-systems theory (WST) developed by Immanuel Wallerstein, which is presented in the first section, and Alf Hornborg's idea of environmental load displacement (ELD), which is described and elaborated in the following section. Subsequently, the chapter is concluded with a reflection on the theoretical framework's implications on the study's validity and reliability.

2.1 World-Systems Theory

WST is a theory conceptually rooted in Marxism, aimed to explain the construction of the modern world-system and its global inequalities. The theory offers a perspective on social reality based on the idea of the world as a globalized capitalist economy in which a country's prospects are shaped by global "economic processes, commodity chains, divisions of labour, and geopolitical relationships" (Klak 2014: 121). Wallerstein's theoretical position is often described as neo-Marxist as, in conformity with Marxism, economic factors are considered the driving force of long-term patterns of change. However, the Marxist view that capitalism eventually will promote economic development in all parts of the world is questioned. Furthermore, WST objects to the Marxist understanding that states can be analyzed separately from the world-system and underlines the necessity to understand western prosperity as a historically derived result of the exploitation of colonized and peripheral people (Linklater 2013: 126-127; Klak 2014: 122).

WST is clearly inspired by Andre Gunder Frank's dependency theory. Frank introduced the notion of "the development of underdevelopment" which illustrates how the capitalist world-system is constructed to further enrich the wealthy states (the core) at the expense of the more underdeveloped states (the periphery). According to this conceptual framework, the development of the core causes further dependency and underdevelopment within the peripheral countries, making underdevelopment a direct consequence of historical capitalism (Wallerstein 2004: 11-12; Conway & Heynen 2014: 111, 113). WST can be said to complement and expand upon dependency theory as it seeks to "understand the wider reach and more diverse spatial realignments of commercial capitalist relations in contemporary times" (Conway & Heynen 2014: 114) and thus, avoid the former dualist division between core and periphery (Linklater 2013: 126).

According to WST, the modern world-system is viewed as a capitalist world-economy that is not bounded by a unitary political structure but understood as "a large geographic zone within which there is a division of labor and hence significant

internal exchange of basic or essential goods as well as flows of capital and labor” (Wallerstein 2004: 23). This implies that the world economy is not unified by a common geoculture, but primarily by the division of labor constituted within the system. Capitalism is defined as a system that “gives priority to the endless accumulation of capital” (ibid: 24), which means that structural mechanisms within the system encourage and reward those who act to accumulate capital to keep accumulating more capital and penalize those who don’t.

As the world-system is considered unequal in its construction, global inequalities are assumed to rise as the global economy gets further integrated (Klak 2014: 123). The global division of labor divides production into core-like and peripheral products which cause “unequal exchange” in international trade of labor and resources. In this context, core-periphery refers to production process profitability of which core-like production processes have a strong competitive position while peripheral production processes have a weak competitive position. This leads to unequal power relations and the creation of a core-periphery as the strong states, which contain the greater part of the core-like processes, protect their share while the weaker states are forced to accept the division of labor as they lack the power to change it (Wallerstein 2004: 28-29).

Based on this understanding Wallerstein divides countries into three categories: the core, the semi-periphery, and the periphery (ibid: 28-29). The countries of the core are the most developed, wealthy, and influential countries. They possess global economic and political control, especially in terms of the production processes as they provide higher-skill, more capital-intensive production. This political control allows the core to enforce the rules of the world-system and enables them to appropriate surplus from less developed countries. The semi-periphery enjoys some of the characteristics of the core, such as industry, export power, and prosperity, but is also characterized by poverty and primary product reliance, making them vulnerable to the decision-making of the core. Within this category, countries hope of joining the core but also risk falling further down the global hierarchy. In the periphery, countries are characterized by poverty and poor living conditions and have bleak prospects of development. The industry features low-skill production and is largely limited to the provision of raw materials for other industries. Although a state’s position within the world-system is considered historically path-dependent, it is possible for states to change position over time (Klak 2014: 123). There is no general agreement on the categorization of countries, but commonly the modern world-system is categorized as illustrated below:

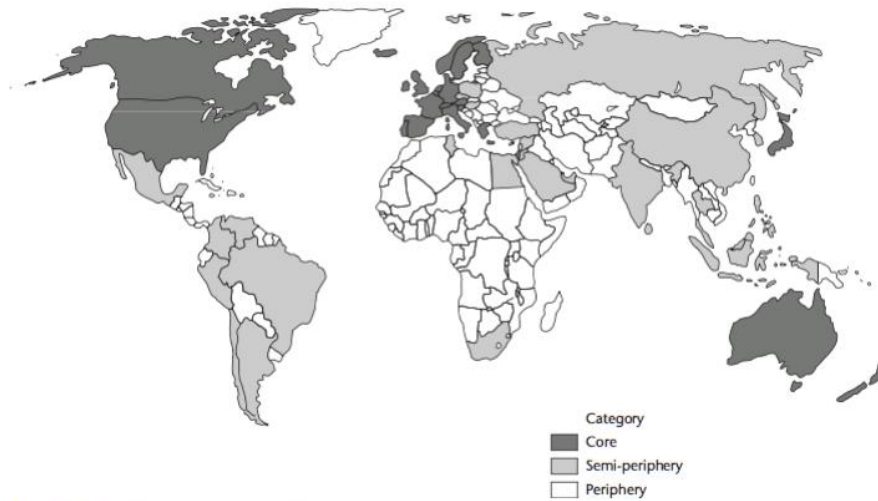


Figure 2.8.1 The world-system at the dawn of the twenty-first century

(Klak 2014: 123)

2.2 Environmental Load Displacement

Heavily inspired by Wallerstein, Alf Hornborg (2013) draws upon WST to construct a theory applicable to socio-ecological injustices. In line with Wallerstein's theoretical approach to development, Hornborg questions the presupposition that economic growth of the core eventually will benefit the peripheries. Development is rather viewed as a zero-sum game in which the core countries' economic and technological expansion has occurred at the expense of the periphery (ibid: 14). Building upon an ecosocialist theoretical framework, Hornborg claims that inequalities within the global economy also have negative socio-ecological effects as the unequal exchange between core and periphery generally leads to accumulation of resources in the core and environmental deterioration in the peripheries. This displacement of the environmental impact from the core to other areas, populations, or social categories is what Hornborg calls environmental load displacement (ibid: 15, 18-19, 47).

ELD is viewed as a world-systemic process generated by economic globalization and integration of trade (ibid: 6, 54). Based on a historical outline of ELD processes, Hornborg explains how the new technologies of ELD have enabled developed regions to "shift much of the industrial degradation of soil, air, water, and vegetation to their 'developing' peripheries" (ibid: 54) and points out North-to-South export of polluting industries and hazardous waste to illustrate how "peripheral areas can be exploited both as sources of negative entropy and as sinks for entropy" (ibid: 55). Building on this, ELD contests the idea that an economy becomes less of a burden to the environment as it gets more developed, in other words, the dematerialization theory. In line with the pollution haven hypothesis that posits that industrialized countries generally outsource production to avoid stringent environmental regulations and high costs, Hornborg argues that economic

development rather enables a country to displace its environmental burden to a less developed economy with laxer environmental norms (ibid: 57-58).

Subsequently, the theory asserts that we have been unable to stop this development for two reasons. Firstly, the emphasis is put on discursive power as the way we think and talk about the world shape and constrain our capacity to treat these problems at the source. Furthermore, drawing on Wallerstein's idea of unequal exchange, Hornborg argues that the language of policy and management currently avoids questions about environmental and social inequalities, power, and conflict as the social groups with power and influence over the discourse systematically benefit from the current world order and thus have no incentive to address the unequal division of labor, nor its environmental and social consequences. Accordingly, the language of policy and management prevents us from seeing the problem as driven by systemic mechanisms (ibid: 6-7).

2.3 Theoretical Reflections

WST is a deeply historical approach and although Wallerstein's analysis of economic cycles has empirical support, the theory is still considered controversial by some critics. WST purists may instead reject attempts to apply the theory to modern economic dynamics, although most WST-inspired scholars in practice use the theory to explain phenomena within the contemporary global political economy (Klak 2014: 125-126). Against this criticism, and as the aim of this study is not to identify any historical changes but rather to analyze the dynamics of the contemporary global economy, I will thus apply a less rigorous interpretation of WST. The theoretical framework has also been criticized for neglecting and underestimating the importance of local activities as it essentially focuses on global economic mechanisms (ibid: 125). By acknowledging the theory's inability to consider local dynamics, I still believe that the systemic approach of WST will benefit the purpose of this study as it enables the analysis to scrutinize the global dynamics between core and periphery.

Furthermore, Wallerstein's three-category spatial division of the world-system can be rejected as too simple. Countries can rapidly move from one category to another, for instance, China can be considered to have moved past the semi-periphery in many regards while still being an important location for foreign production. Against this criticism, WST will be used as a loose frame of analysis rather than a theory that aims to explain the global dynamics of a predetermined categorization (ibid: 125). Given the systemic approach, the categorization of countries into the core, semi-periphery, and periphery will only be adopted theoretically to explain the logics of the world-system and the power relations between OECD countries and more peripheral economies.

Subsequently, as processes of North-South interdependencies have changed over time, the explanatory capacity of classical dependency thinking on contemporary conditions has been increasingly questioned. For the validity of the study, it is thus wise to supplement WST with a theory that builds upon the modern

state of the world (Linklater 2013: 115). Hornborg's theoretical framework serves as a suitable complement to Wallerstein's theory as it shares the principal theoretical assumptions and can be treated as a methodological expansion of WST. In addition, Hornborg's enlargement will also provide a theoretical approach to environmental and social injustices within the modern world-system and thus allow the analysis to take such aspects into consideration. For these reasons, I believe that WST and ELD will function well as a combined theoretical framework in the scope of this study.

3 Methodology and Material

The method applied in this study is Carol Bacchi's discourse analytical approach What's the problem represented to be? (WPR). The first section introduces the philosophical presuppositions of Foucauldian post-structuralism upon which Bacchi's approach relies. The following section presents the premises of WPR and explains how it will be applied to answer the research questions. Lastly, the material used is presented and discussed, followed by a methodological reflection.

3.1 Foucauldian Post-Structuralism

WPR is a linguistic discourse analytical approach that draws upon a post-structuralist philosophy heavily influenced by Foucault (Bacchi 2009: 34; Bergström & Ekström 2018: 271). In line with the Foucauldian approach, WPR sees discourses as "practices that systematically form the objects of which we speak" (Foucault 1972: 49) that should be understood as a system of meaning in which the social world is constituted. In this view, discourses are not only thought of as linguistic practices but rather a result of social practices as language itself comprises social identities, relations, and actions. Beyond being constitutive, discourses are also viewed as constituted. This implies that discursive practices shape other dimensions of social practice in the same way they shape the discursive dimension. The world is, therefore, said to function according to discursive logics together with different logics such as economic logics or institutionalization of particular forms of social action. Consequently, discourse analysis is a tool that enables the study of discursive practice while other tools are needed to study other aspects of the social world (Winther Jørgensen & Phillips 1999: 15-16, 25-26).

Based on this conception of a discourse, the notion of knowledge is closely connected to that of power. Knowledge is created in social processes by social interaction and is thus constructed within discourses. Power is not thought of as something exercised that prevents people from doing something they wish to do, but rather as something that circulates between people. It fundamentally shapes who we are as well as our conception of ourselves and the world is thus seen as something productive rather than something possessed (Bacchi 2009: 37-38). In this view, knowledge, as well as truth, are "embedded in, and produced by, systems of power" (Winther Jørgensen & Phillips 1999: 21). As our understanding of the world and what we see as truth are products of certain discourses, objective truth cannot exist. However, this does not imply that reality does not exist independently of the observer, the physical world is real, but it is through our linguistic

representation of reality it gains meaning (Winther Jørgensen & Phillips 1999: 10-11, 15; Bergström & Ekström 2018: 255).

Discourses are historically and culturally specific and contingent (Winther Jørgensen & Phillips 1999: 11) which implies that our understanding of the world and ourselves are “products of historically situated interchanges among people” (Gergen 1985: 267). The way we see the world and identify ourselves could have been different given another social context which presuppose that a discourse will change accordingly to its social context. Furthermore, the way we understand the world has social consequences as the social understandings produced by discourses will approve of certain social actions while deprecating others. Accordingly, discourses directly shape the way we act. A changed discourse will thus ultimately cause change in the social world and affect our material realities (Winther Jørgensen & Phillips 1999: 10-12; Bacchi 2009: 17).

3.2 What’s the Problem Represented to Be?

WPR was initially a method for policy analysis based on the idea that policies are constitutive of problems. This means that policymakers by framing issues in a certain way, are active in producing a certain understanding of the problem. However, building upon post-structuralism, this is not thought of as active manipulation or misrepresentation by the government, but rather a natural and inevitable part of policymaking. In this view, the representation of a problem is a more interesting object of analysis than the problem itself as the way a problem is represented “carries [...] implications for how the issue is thought about and for how the people involved are treated and are evoked to think about themselves” (Bacchi 2009: 1). This is because, as previously described, the way we understand things is said to shape our social actions. The representation of a problem will, consequently, have direct social consequences (ibid: 1).

WPR can, in this context, be used as a tool to critically question taken-for-granted understandings of social and political problems as well as the power relations they create or maintain. By analyzing the representation of a problem, WPR thus seeks to show how certain understandings are created and legitimized and by extension what effects these discourses might have (Bergström & Ekström 2018: 271). Against this background, I consider the WPR approach to be a relevant choice of method as the aim of this study is, to understand, not only how the problem of pharmaceutical pollution is strategically addressed by the OECD but also the global power relations created and maintained by this representation. WPR will function as a tool to critically question how the problem is constructed by identifying what is taken for granted and left out in the representation of the problem as well as the effects of this representation.

3.2.1 Structure of the Analysis

Based on these premises, WPR proposes a set of analytical questions to systematically guide the analysis. However, the structure of the analysis is not a strict formula, the idea is rather that the purpose of the study determines which questions are applicable. Consequently, there is no need to apply all analytical questions but only those which correspond to the research questions (Bacchi 2009: 101; Bergström & Ekström 2018: 273). The complete set of analytical questions provided by the WPR approach are as follows:

1. What's the 'problem' [...] represented to be in a specific policy?
2. What presuppositions or assumptions underlie this representation of the 'problem'?
3. How has this representation of the 'problem' come about?
4. What is left unproblematic in this representation? Where are the silences? Can the 'problem' be thought about differently?
5. What effects are produced by this representation of the 'problem'?
6. How/where has this representation of the 'problem' been produced, disseminated, and defended? How could it be questioned, disrupted and replaced?

(Bacchi 2009: 2)

The analysis will be delimited to the first (Q1), second (Q2), fourth (Q4), and fifth question (Q5) as they correspond with the study's aspiration to understand how the problem of pharmaceutical pollution is constructed and to identify the effects of this representation. Hence, the third and sixth question will be left out of the analysis seeing that the study does not seek to identify the historical conditions that explain how the prevailing discourse of pharmaceutical pollution has developed, nor to explore how the current representation can be challenged (Bacchi 2009: 11, 19; Bergström & Ekström 2018: 274). The purpose and operationalization of each selected WPR question are further described below:

Q1. What's the problem of pharmaceutical pollution represented to be in the OECD report?

This question is used to identify how the problem is fundamentally understood in the material. The idea is that policies reveal how the problem is thought about given that the way a problem is understood determines how it is acted upon. This is considered a challenging task since policies are complex and often combine more than one proposal. For this reason, there might be more than one problem representation to identify within the same policy (Bacchi 2009: 2-3).

Q2. What presuppositions or assumptions underlie these representations of pharmaceutical pollution?

Based on the problem representations identified in Q1, or possibly the one considered dominant, this question aims to analyze the conceptual logics that underpin the representation by identifying what is assumed or not questioned. It is important to elucidate that the assumptions are not those of the policymaker but rather those that lodge within the problem representation. By this distinction, the question is not why the problem representation has come about, but rather what meanings that need to prevail for it to happen (ibid: 4-7). This is done by “identifying and interrogating the binaries, key concepts and categories operating within a policy” (ibid: 7) as keywords attest to the “unequal power relations involved in shaping the meaning of concepts” (ibid: 60) while binaries can reveal hierarchies between different groups of people (ibid: 7).

Q4. What is left unproblematic in these representations? Where are the silences? Can the problem of pharmaceutical pollution be thought about differently?

This question builds upon the discourse analysis performed in Q2 and seeks to identify the perspectives left outside the representation by asking what is failed to be problematized. The idea is not only that the problem could have been thought about differently, but also that “specific policies are constrained by the ways in which they represent the problem” (ibid: 13). By critically questioning the tensions and contradictions within the problem representation, Q4 enables the study to problematize and reflect upon the representation’s limitations or inadequacies (ibid: 12-13).

Q5. What effects are produced by these representations of pharmaceutical pollution?

Given the presumption that discourses have material effects, the goal of Q5 is to identify which aspects of the problem representation that need to be rethought to curb the negative effects on certain social groups (ibid: 18). This is done by critically assessing the discursive, subjectification, and lived effects caused by the problem representations. The discursive effects are linked to the assumptions and presuppositions in Q2 and Q4 and are described as “effects which follow from the limits imposed on what can be thought and said” (ibid: 15). The idea is that problem representations limit the option of social intervention which affects certain groups negatively. As discourses construct social relationships and make us assume certain subject positions within them that affect how we feel about ourselves and others, subjectification raises questions of how policies create opposition between groups, but also considers the effects of attribution of responsibility (ibid: 16-17). Lastly, the lived effects refer to material impacts, that is how the problem representation

affects people's material lives (ibid: 17-18). As suggested by Bacchi, the following sub-questions will be applied to guide the analysis of Q5:

- What is likely to change with this representation of the 'problem'?
- What is likely to stay the same?
- Who is likely to benefit from this representation of the 'problem'?
- Who is likely to be harmed by this representation of the 'problem'?
- How does the attribution of responsibility for the 'problem' affect those so targeted and the perceptions of the rest of the community about who is to 'blame'?

(Bacchi 2009: 18)

3.3 Material

The analysis is based on the OECD's report "Pharmaceutical Residues in freshwater: Hazards and Policy Responses" (2019). The report is approximately 130 pages and consists of four chapters. In the first chapter, recent relevant literature is summarized and the OECD's view is presented while the next chapter seeks to identify the strengths and weaknesses of different monitoring and modeling approaches to assess the impacts of the issue. The third chapter documents present policy approaches and subsequently, the organization's policy and management recommendations are presented in the last chapter. WPR is originally designed for analyzing policy texts but has come to be applied in various fields of research (Bacchi 2009: 20; Bergström & Ekström 2018: 271) and although the report is not a policy document in a legislative sense, it can, however, still be treated as a policy as it presents policy recommendations (OECD 2019: 14-16).

Bacchi establishes that it might be necessary to include other related material beyond the policy text (Bacchi 2009: 20) and while additional material from the OECD would have been beneficial for the validity of the analysis, there is no relevant material available other than the proposed report. However, this is not assumed to limit the analysis. I consider the content to be sufficiently extensive as the study does not aim to identify a change in the discourse over time but rather to uncover the current discourse. Hence, I am confident that the report will provide sufficient data to identify the OECD's representation of the problem.

Beyond this, additional material will be consulted to strategically elucidate the silences within the problem representations and the effects produced. The parts of the analysis regarding silences and effects will thus, in addition, consider the report "The Health Paradox" by Swedwatch (2020). Swedwatch is an independent non-profit organization and the report (based on extensive literature analysis, field studies in India, interviews with key experts, state authorities and pharmaceutical companies) is written in accordance with its aim to "contribute towards reduced poverty and sustainable social and environmental development through research, encouraging best practice, knowledge-sharing and dialogue" (ibid: 2). Swedwatch, like the OECD, presents policy and management recommendations but with a

human rights approach to the issue's environmental and social aspects. Although representing a Swedish perspective, I believe that the report functions well as an additional source of data that will help identify the silences within the OECD report as it seeks to critically address the Swedish and European responsibility in the pharmaceutical production chain (ibid: 14).

3.4 Methodological Reflections

There is an issue of reflexivity built into the discourse analytical approach due to its post-structuralist philosophy. Since the analysis assumes that all knowledge is a product of social interaction, the veracity of the representation offered by the own study might be questioned (Winther Jørgensen & Phillips 1999: 29). However, this is simply a question of ontological positioning. As the analyst renounces all production of knowledge as subjective, the issue of reflexivity is overcome by accepting the theoretical premises of the method. Thus, the study should not be confused as an attempt to produce an objective truth but rather be understood as one interpretation amongst many possible.

Furthermore, the analyst is assumed to have a predetermined understanding of the material which raises the question of confirmation bias in the selection of material. There is especially a risk that some presuppositions are taken for granted when the discourse under examination is close to the analyst's social context (ibid: 28). When an analyst interprets his or her data in a certain way, the interpretation attributes the analysis one meaning and at the same time forecloses several others (Gee 2005: 113). Thus, I am aware that my social context as a white university student from the Global North will affect my understanding and limit my interpretation of the material since my understanding is shared with the discourse under examination.

In discourse-analytical studies, the result can be seen as relativist due to the nature of the analysis (Bergström & Ekström 2018: 292). Although the result always is a product of the analyst's subjective understanding, it is still important that the material is examined as objectively as possible and that the study is permeated by a high level of intersubjective verifiability (Winther Jørgensen & Phillips 1999: 30). I thus aim to distance myself from my taken-for-granted understandings through a stringent application of theory and method. The validity is furthermore strengthened by the use of distinct methodological tools, which are the analytical WPR-questions. In consideration of reproducibility, I will consistently present all steps that have been undertaken throughout the analysis and validate my interpretations using examples from the text. By these collective actions, I hope to legitimize my results as scientifically produced knowledge within the framework of the WPR approach.

4 Analysis

This chapter presents the study's analysis and result. *RQ1 (How is the problem of pharmaceutical pollution constructed by the OECD?)* relates to the WPR-questions *Q1, Q2, and Q4* which are treated in the two first sections of the analysis. The first section treats *Q1* while the following section addresses *Q2* and *Q4* in an integrated analysis. The subsequent section relates to *RQ2 (What effects does this representation of the problem have on global environmental and social inequalities?)* and treats *Q5*.

4.1 The Representation of Pharmaceutical Pollution

The opening part of the analysis relates to *RQ1* and treats *Q1 (What's the problem of pharmaceutical pollution represented to be in the OECD report?)* by examining how the problem is understood and constructed in the material. This is done by examining the issue areas that the OECD addresses, ultimately expressed in the management and policy recommendations suggested in the material. Pharmaceutical pollution is presented as a complex issue that requires a wide combination of actions as it stretches over many sectors, and has various sources and effects. By asking *Q1* to the material, three overarching problem representations of pharmaceutical pollution have been identified:

1. *An environmental problem*
2. *A health problem*
3. *An economic problem*

4.1.1 An Environmental Problem

Firstly, there is an overarching representation of pharmaceutical pollution as an environmental problem as both the source-directed, use-oriented and end-of-pipe recommendations are designed to directly or indirectly curb the level of pharmaceuticals let out into the environment (OECD 2109: 14-16). The report continuously emphasizes the urgency of addressing pharmaceutical pollution since many effects on the environment are unknown and the damage on ecosystems may be hard to repair. For instance, the report encourages governments to “[a]dopt precautionary measures when scientific evidence is uncertain, and when the possible consequences of not acting are high” (ibid: 14). Amongst other environmental-directed measures, the report recommends the inclusion of

environmental criteria in the regulatory framework for good manufacturing practices (GMP) and for sustainable procurement of pharmaceuticals. It is also suggested that environmental risks should be considered in the authorization of new pharmaceuticals and that the availability and transparency of environmental risk assessment (ERA) data and information should be improved (ibid: 15, 121). The environmental risks are considered serious if these actions are not put through (e.g. ibid: 14, 19, 31, 66). Accordingly, this understanding considers the problem to be the direct threat pharmaceutical pollution poses to environmental health.

4.1.2 A Health Problem

The second identified problem representation is pharmaceutical pollution as a threat to human health. This understanding builds upon the previous representation as the effects of human health emerge *via* the environment and is principally identified through the descriptions of the recommendations rather than the actual recommendations as they largely are directed to the environment. Pharmaceutical pollution is considered to pose a direct risk towards human health through exposure of pharmaceuticals in the environment, but also indirectly through disruptions in ecosystems (e.g. ibid: 31, 35). However, the major concern within this problem representation is the risks related to AMR which the report repeatedly calls a “global health crisis” (e.g. ibid: 14, 20, 38, 93). The actions proposed to curb the spread of AMR are predominantly use-oriented and seek to reduce unnecessary and inappropriate use of antibiotics. Amongst other actions, the report suggests bans or restrictions on antibiotics for preventative use (ibid: 92) and promotes new business models that “balance access needs, appropriate use, and adequate return” (ibid: 15) as current models are considered to encourage increased consumption of antibiotics.

Furthermore, the recommendations presented in the previous section (e.g. inclusion of environmental criteria in GMP and improvement of ERA) are constructed to improve ecosystem health. However, as the report systematically links ecosystem health to human health, the environment-directed measures can be interpreted as aimed towards the improvement of human health (e.g. ibid: 18, 20, 31, 35, 40). For instance, it is suggested that:

[C]urrent policy approaches to manage residues are inadequate for the protection of water quality and freshwater ecosystems upon which healthy lives depend (ibid: 13)

This implies that the ultimate reason for improving ecosystem health is the impacts it has on human health. For this reason, the representation of pharmaceutical pollution as a health problem is considered to dominate the former representation of pharmaceutical pollution as an environmental problem.

4.1.3 An Economic Problem

The subsequent problem representation builds upon the two previous problem representations and takes hold of pharmaceutical pollution as an economic problem. It suggests that the issue of pharmaceutical pollution will have enormous economic consequences as it causes health costs to rise (e.g. *ibid*: 3, 34, 69). This is partly considered to be a consequence of the loss of biodiversity or other disruptions in ecosystems that might lead to an increase of certain diseases or illnesses (*ibid*: 34-35) but predominantly because of the predicted global spread of AMR (e.g. *ibid*: 3, 36). Furthermore, the report expresses that a more proactive policy approach to pharmaceutical pollution is needed to prevent future costs, partly in terms of health costs but also in terms of the costs that will be required to address environmental damage caused by the pollution (*ibid*: 124).

4.2 Legitimizing Policy Responses

This section relates to *RQ1* and treats *Q2* (*What presuppositions or assumptions underlie these representations of pharmaceutical pollution*) and *Q4* (*What is left unproblematic in these representations? Where are the silences? Can the problem of pharmaceutical pollution be thought about differently?*). The two analytical questions are applied in an integrated analysis based on the three problem representations accounted for in the previous section. Furthermore, the conceptual premises of these understandings are analyzed by identifying underlying arguments, key concepts, and binaries within the OECD report while the silences are identified through the theoretical lens of WST and ELD using Swedwatch's report.

4.2.1 Distribution of Environmental Load

In terms of environmental impact and occurrence of pharmaceutical pollution, the OECD report continuously differentiates *between emerging economies, developing economies* or the *developing world* on the one side and the OECD member countries, designating the *developed world*, on the other side (e.g. *ibid*: 18, 23, 30, 121). For instance, the report suggests that:

Monitoring data is particularly under-represented in Asia, Africa and South America - the very regions of the world that are likely to have the highest consumption and release of pharmaceuticals due to high population density, limited wastewater treatment [...], and in some locations, pharmaceutical manufacturing (*ibid*: 64)

Based on this, the report recognizes that these regions (Asia, Africa, and South America) for several reasons are likely to have the highest levels of pharmaceutical pollution and, furthermore, that “[w]here studies have been undertaken [in these

regions], higher concentrations of pharmaceutical pollutants have been found (in comparison to developed nations)” (ibid: 28). It is thus implied that the level of environmental pollution in these regions is likely to be higher than currently documented due to a lack of monitoring. Although municipal wastewater effluent is considered to be the most dominant source of pollution (ibid: 18), the report states that pharmaceutical manufacturing can be an important source of pollution in the local context (ibid: 64) and that since a large share of the production takes place in developing regions, “this is where most of the pollution related to manufacturing occurs” (ibid: 23).

Although it is recognized that the occurrence and sources of pharmaceutical pollution vary between developed regions and peripheral regions, the reasons behind these differences are not accounted for, nor problematized. The report does not propose adjusted measures targeted toward peripheral regions, on the contrary, the recommendations are designed to meet the conditions within the developed regions (e.g. ibid: 12, 14-16). Accordingly, the differences in environmental impact between different regions cannot be understood as a problem of global inequality or displacement environmental load which could be explained by the outsourcing of production from core to more peripheral economies (Hornborg 2013: 57-58). Thus, the global distribution of environmental load between core and peripheral regions is rather understood as unproblematic, which illustrates the hierarchy implied in the binary of the OECD and less developed regions, within which the environmental health of the is valued higher than that of the periphery.

4.2.2 A Global Health Crisis

Closely connected to environmental health, pharmaceutical pollution is also presented as a global issue in terms of human health consequences. Within this discourse, attention is exclusively drawn to AMR, which is repeatedly referred to as a *global health crisis* (e.g. OECD 2019: 14, 18, 23). Throughout the report, AMR is predominantly implied to be attributable to the use of pharmaceuticals. For instance, the report suggests that:

A successful response to AMR will address not only antimicrobials and the over- and mis-use of antibiotics, but also diagnostics, vaccines and alternatives to antibiotics for human and animal health (ibid: 92)

Beyond this, the report recognizes that pollution from manufacturing can contribute to the spread of AMR and thus “have global consequences from a human health perspective” (ibid: 23). However, the acknowledgment of pharmaceutical pollution from manufacturing as a source of antimicrobial bacteria is contradicted as the measures explicitly targeted against AMR remain use-oriented (e.g. ibid: 12, 92). As a large share of the global production of pharmaceuticals is located outside the core (Swedwatch 2020: 4), the report thus neglects the impact antimicrobial bacteria have in more peripheral regions in favor of the primary source of AMR within developed regions. The pollution from the pharmaceutical industry is,

regarding impacts on human health, rather brought up as a *local problem* without much global relevance (e.g. OECD 2019: 12, 18, 23). The following quote exemplifies this inclination:

Municipal wastewater effluent is considered the most dominant pathway to freshwater bodies globally, however, emissions from manufacturing plants, hospitals, and intensive agriculture and aquaculture practices can be important sources locally (ibid: 18)

However, the report raises an example from India where a wastewater treatment plant (WWTP) serving 90 pharmaceutical manufacturers was proved to contain bacteria multi-resistant to antibiotics (ibid: 23). This suggests a contradiction within the representation of the problem as the spread of AMR from manufacturing later is disregarded as having little global relevance. Thus, although admitting that a large share of the production takes place in emerging economies (ibid: 121), there is a dominant understanding of pollution from manufacturing as a local problem. Beyond the issue of AMR, the report does not address how manufacturing as a source of pollution in other ways can be of harm to human health and livelihoods, for instance, how the pollution causes respiratory problems and skin conditions for the populations surrounding the manufacturing plants (Swedwatch 2020: 4-5). By overlooking local health consequences and the effects linked to manufacturing, the report thus favors the health interests of the core countries where pollution from manufacturing is systematically lower.

4.2.3 Global (In)equity

The arguments presented in the previous sections rests upon the understanding of a hierarchy within the world-system within which global inequalities are disregarded in favor of the interests of the core. However, there is one paragraph that explicitly touches upon the connection between the pharmaceutical industry and global equity:

[E]quity should be considered in decision making regarding policies and investments to ensure that the needs of the most *vulnerable populations*, and that the allocation of costs, risks and benefits, are distributed in an *equitable* manner. This especially relates to *pharmaceutical companies* and *manufacturers* in two ways: i) a responsibility to prevent pollution and contribute to the costs of treating wastewater in line with the polluter pays principle, and ii) a responsibility to not simply *outsource pollution* to developing and emerging economies where environmental regulation and enforcement may be less stringent. [italics added] (OECD 2019: 121)

According to this extract, the report argues that *equity* should be an overall principle in the controlling of pharmaceutical residues in freshwater regarding policies and investments and suggests that pharmaceutical companies and manufacturers have a responsibility to not outsource production to avoid environmental regulations. By

requiring that equity is considered to protect vulnerable populations in emerging economies, the report acknowledges the unequal distribution of effects that follows from outsourcing production to peripheral economies. However, although the lack of equity is presented as a problem within the current economic system, the report does not elaborate on or further problematize the issue. It is not explained what *equity* refers to, how it is included in the policies, or what is meant by *vulnerable populations*.

The absence of recognition can be further illustrated by the OECD's lack of trade-directed recommendations. The only measure targeted towards international trade of pharmaceuticals is the call for sustainable public procurement controlled by environmental criteria (ibid: 86). It is designed to "create an incentive for manufacturers to strive towards the production of more green products, as well as to integrate environmental criteria into manufacturing practices" (ibid: 89) and by that reduce the release of pharmaceuticals from manufacturing. Apart from this, trade is not mentioned within the report, let alone implied to contribute to pharmaceutical pollution. Ultimately, the report thus excludes an alternative understanding of the mechanisms behind the issue as it fails to recognize pharmaceutical pollution as driven by global economic dynamics where the development of core is maintained at the expense of more underdeveloped states (Wallerstein 2004: 11-2). This becomes further apparent as Swedwatch, using India as an example, asserts that:

The pharmaceutical industry's pollution in India has been described as a form of "slow violence" that particularly *victimises marginal populations* [...] over a long period of time. This situation is facilitated not only by the social injustice and politics in India, but also by *structural injustice* of the *global pharmaceutical production and trade*, and regulatory lapse of global institutions, such as the GMP [italics added] (2020: 40-41)

4.3 Analysis of Effects

The subsequent section of the analysis seeks to answer *RQ2* and treats *Q5* (*What effects are produced by this representation of the problem?*). The analysis of effects aims to assess the discursive, subjectification, and lived effects of the identified problem representations and is guided by the following sub-questions:

- What is likely to change with this representation of the 'problem'?
- What is likely to stay the same?
- Who is likely to benefit from this representation of the 'problem'?
- Who is likely to be harmed by this representation of the 'problem'?
- How does the attribution of responsibility for the 'problem' affect those so targeted and the perceptions of the rest of the community about who is to 'blame'?

(Bacchi 2009: 18)

4.3.1 Unequal Distribution of Environmental Load

As the discourse analysis in the previous section has unveiled, the report fails to problematize the unequal distribution of environmental load from the pharmaceutical industry. The policy recommendations do not consider that regions are affected differently which might prevent pharmaceutical pollution from manufacturing from being understood as an unequal displacement of environmental load from core to periphery. Based on the WST presupposition that the capitalist world-system by its structure generates further economic globalization and thus reinforces the unequal division of labor (Wallerstein 2004: 28-29), peripheral economies are likely to undertake an increasing share of the production of pharmaceuticals. Consequently, these countries will shoulder a larger part of the global pharmaceutical pollution from manufacturing. In line with the presuppositions of ELD, this development within the world-system is unlikely to change as the discursive power lies within the core who have little to gain from addressing global inequalities on the international agenda (Hornborg 2013: 6-7).

On the one hand, the report explicitly assigns manufacturers and pharmaceutical companies “a responsibility to not simply outsource pollution to developing and emerging economies where environmental regulation and enforcement may be less stringent” (OECD 2019: 121). However, as the report fails to acknowledge the effects on ecosystems, human health and livelihoods in these regions as well as the unequal distribution of environmental load, the report implicitly renounces the responsibility to act upon the outsourcing as a source of pharmaceutical pollution. Based on the logics of WST, the populations most affected by the pollution from manufacturing are, to their disadvantage, forced to accept the distribution of environmental load as they are likely to remain at the bottom of the global hierarchy and thus without discursive or economic power to affect the division of labor (Wallerstein 2004: 29). For this reason, the pollution from pharmaceutical manufacturing in vulnerable regions is likely to continue and spur an environmental race to the bottom as ecosystems are increasingly disrupted. Since people’s livelihoods and health are highly dependent on the natural environment, this might have serious effects on human health and wellbeing (Swedwatch 2020: 11).

4.3.2 Pollution from Manufacturing

As illustrated in 4.2.2, the report rests upon the presupposition that the increasing threat from AMR is predominantly a result of the mis- and overuse and unsustainable disposal of antibiotics. Although the release of antimicrobial bacteria from manufacturing in India is acknowledged, the silences of how surrounding populations are affected show that the report does not consider the emissions from the manufacturing plants to be a health threat of global relevance. The release of antimicrobial bacteria from manufacturing is rather presented as something that goes beyond the cross-cutting recommendations set out within the report. Accordingly, the responsibility for the pollution from pharmaceutical manufacturing in peripheral economies is explicitly attributed to those affected by

the pollution although the unequal distribution of environmental load could be seen as driven by global economic dynamics. As illustrated in the previous section, the silence of manufacturing as a source of AMR also rests upon the hierarchy built into the binary of developed countries on the one side and emerging economies on the other. Although the report undertakes a life-cycle approach including source-directed measures, the disregard of local impacts of pollution from manufacturing is likely to lead to further promotion for user-directed measures which, given the premises of WPR, will influence the policy responses and its outcomes.

Given the discursive power assumed within WPR and ELD, we may assume that further economic globalization will allow pharmaceutical companies to expand and intensify their activity in emerging economies such as India and China. In the short term, this is likely to benefit the countries that have outsourced the production (and thus the pollution from manufacturing) to more peripheral economies while also profiting from the import of pharmaceuticals from the same countries. This allows the core to benefit financially, ecologically and human health, from the production as well as from the continued consumption of affordable pharmaceuticals. Based on ELD and the “development of the underdevelopment”, this does not mean that the core will become less of a burden to the environment but rather that this development occurs at the expense of the emerging economies who are likely to suffer from increased health-related issues such as AMR, respiratory problems and skin conditions as well as other socio-ecological problems caused by, for instance, decreased access to water (Swedwatch 2020: 4).

Furthermore, such a development may also intensify the peripheral countries economic dependency of the core. As increased pollution is likely to cause social and economic vulnerability to rise, the revenues from the pharmaceutical industry’s relocation will gain further economic importance and, consequently, prevent more stringent environmental regulations. However, as AMR can spread between country borders, the release of antimicrobial bacteria from manufacturing in vulnerable regions will ultimately have global consequences on human health (OECD 2019: 23). Building upon this representation of the problem, it is thus possible that the release of antimicrobial bacteria from manufacturing will gain further attention as AMR from manufacturing spreads beyond the peripheral regions. However, it is not certain that such a development would be followed by a reattribution of responsibility for the pharmaceutical pollution from manufacturing as the more peripheral regions may retain a low influence over the discourse.

5 Concluding remarks

The subsequent chapter returns to the purpose of the study and seeks to answer the research questions in a discussion based on the results from the analysis. Subsequently, based on the conclusions drawn, the final section aims to contemplate further scientific prospects of the study.

5.1 Conclusion

The purpose of this study is to, through the lens of WST and ELD, understand how the problem of pharmaceutical pollution is constructed in the OECD report “Pharmaceutical Residues in Freshwater” (2019) and examine if this representation risks favoring the interests of the core at the expense of more peripheral countries and thus reinforce the structural global environmental and social inequalities. Four analytical questions of the WPR approach have been selected to correspond to the study’s research questions by asking how the problem of pharmaceutical pollution is constructed in the report and how the problem representation affects global environmental and social inequalities.

The analysis has identified three interrelated problem representations of which pharmaceutical pollution as a human health problem is considered dominant. Within this representation, the analysis has shown that the most crucial problem is understood as AMR, predominantly attributable to use and disposal of antibiotics rather than to industrial pollution. Although the representation of pharmaceutical pollution as an environmental problem is fundamental, the proposed measures targeted towards environmental impacts can be interpreted as ultimately aimed at improving human health rather than at the environment itself. In addition, the report, conjointly, aims little attention at economic factors although an understanding of pharmaceutical pollution as an economic problem continuously permeates the other problem representations.

Furthermore, the analysis has revealed that the identified assumptions, presuppositions, and silences that underlie the problem representations illustrate an understanding of the global division of labor and environmental load between core and periphery as unequal yet unproblematic. Although acknowledging that peripheral regions are more affected by pharmaceutical pollution and that manufacturing, being primarily located in these regions, is an important local source of pollution, the global differences are systemically disregarded since the measures proposed fails to take these differences into account. Regarding global health risks, pollution from manufacturing is talked about as a problem with little global relevance as the report mainly focuses on the spread of AMR while effects

concentrated to peripheral regions are overlooked. This is further illustrated as the proposed measures directly aimed at AMR remain exclusively use-directed.

By neglecting local impacts in more peripheral regions, the analysis has shown that the construction of the problem encloses an economic hierarchy within which the report differentiates between more and less developed regions. While global equity is presented as an overall principle that will prevent systematic outsourcing of pollution, the displacement of environmental load from core to periphery is, however, ultimately neglected as the report fails to integrate the principle into its policy recommendations. Anchored in the theoretical framework, the report can thus be said to favor the health interests of the core at the expense of the periphery where pollution from manufacturing is systematically higher.

Building upon these results, the analysis of effects has illustrated that this construction of the problem that systematically fails to problematize the global environmental and social inequalities is likely to prevent pollution from manufacturing in developing regions from being understood as a displacement of environmental load from core to periphery. Based on the premises of WST and ELD, a continued disregard of systemic inequalities is likely to spur the current division of labor that might make peripheral economies shoulder a larger share of the production and thus, also the pollution. In the short term, this will presumably benefit the core at the expense of the periphery causing a reinforcement of the negative environmental and social effects documented in the peripheral regions. This will intensify their economic dependency of the core and so, the global inequalities. The peripheral economies will likely be incapable to change this course of deepened dependency as the economic and discursive power lie within the core, while the core (the OECD included) will lack economic incentives to act upon the increased global inequalities caused by further displacement of environmental load.

The core's assumed reluctance to address global inequalities is further illustrated as the analysis has shown that the report implicitly renounces its responsibility for ELD by disregarding the local effects caused by pollution from manufacturing in peripheral regions. However, as the global spread of AMR is predicted to increase, it is possible that pollution from manufacturing will gain further attention as the core will be progressively affected. This could lead to a general recognition of the peripheral pollution that might encourage global actors to act. In turn, this could generate improved environmental and social conditions in the most affected regions, decreasing global inequalities between core and periphery. However, due to the stiffness characterizing the division of economic and discursive power within the world-system, it is uncertain if this would lead to a reattribution of responsibility, let alone give the core incentives to explicitly address the global environmental and social inequalities attributable to pharmaceutical pollution. For these reasons, it is more likely that the report's construction of pharmaceutical pollution will contribute to a reinforcement of global environmental and social inequalities.

5.2 Recommendations for Future Research

Building upon the premises of post-structuralism, it is important to reiterate that the conclusions are contingent on both the analytical and theoretical framework undertaken and the predetermined understandings of the analyst. Accordingly, the conclusions should not be understood as an objective truth but should rather be interpreted as a product of its social context. This does not mean that results produced in this study are inconsequential, it simply means that they represent one understanding amongst others possible. For this reason, I welcome future research as additional studies will contribute to a broadened understanding of the construction of the problem and give further prominence to the intrinsic complexity of policy-making.

As many of the short-term and long-term consequences of pharmaceutical pollution from manufacturing are yet to be identified, I believe that future observations will open up for further research in the field. With more available knowledge of the occurrence and effects of pharmaceutical pollution, it is likely that governments and other global actors will follow the OECD in formulating strategies to address manufacturing of pharmaceuticals as a source of pharmaceutical pollution. Against this, it would be interesting to see more extensive studies look into and compare the problem representations of several organizations as this could provide a fuller picture of the discourse from a WPR and WST perspective. Due to the current lack of policy documents addressing the issue, I would encourage a study with more in-depth capacity to inquire into the OECD's construction of pharmaceutical pollution by directed interviews.

Subsequently, as this study concludes that the OECD's policy recommendations risk reinforcing the environmental and social inequalities encapsulated within the global economic system, this could be an indicator that other organizations act similarly. For this reason, it is important that more strategies are studied to further chart how the promotion of core interests might occur at the expense of less developed countries. By drawing attention to this issue, further research could thus lead to an increased awareness of how the construction of policies can impact environmental and social conditions in the other end of the production chain. By extension, I thus hope that this study, together with additional research, can encourage future policies with capacity to actively reduce global inequalities.

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