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## **INTRODUCTION**

In October of 2018 the then Prime Minister of Denmark, Lars Løkke Rasmussen, unveiled the initial plans for a new large artificial island off the coast of Copenhagen. “Lynetteholmen” was described as being a proverbial Kinder egg, containing solutions to some of the most pressing challenges to Copenhagen in the future; the housing crisis, the storage of surplus soil from construction-sites, and the protection of the city against storm surges and rising sea levels (The Ministry of State, 2018). Since then, various aspects of the project, its construction, uncertain environmental and climate impacts, and democratic process has been problematized by grass-roots organizations and experts leading to political blowbacks and a functional discontinuation of the construction. (Lauritzen, 2022) This paper will examine some of these points of criticism not only as ethical controversies in a Danish environmental and climate political context, but in the broader discussion of climate justice and the moral obligations of Global North countries like Denmark and their responsibility to rapid mitigation of the ongoing climate crisis.

According to Roser et al: “(...) the redistribution required to prevent climate change is unprecedented. It is the largest and perhaps the most difficult redistribution in human history” (Roser et al, 2017: 106). This redistribution refers to the financial and political distribution of mitigative policies and interventions required from all global nations in accordance with their historic responsibility and respective capabilities. (*ibid.*) The construction of Lynetteholm may seem insignificant in terms of related financial and greenhouse gas emission stakes but can be examined as an expression of the Danish authorities’ moral handling and understanding of just climate politics, and a case for understanding ethical controversies in environmental interventions in light of broader notions of distributive justice.

## **PROBLEM**

*How can ethical controversies raised in light of the construction of the artificial island Lynetteholm in Copenhagen be seen considering moral perspectives on climate and distributive justice?*

## **METHOD & PROJECT DESIGN**

This paper will examine various aspects and controversies surrounding the construction of the artificial island Lynetteholm through the gathering of relevant articles, governmental press-releases, and scientific reports. The choice of literature used in the outline of the case, is done with regard to what is perceived as relevant for a discussion of the environmental and climate impacts of the construction of Lynetteholm, and additional perspectives relevant to an examination of distributive justice in light of the chosen theoretical framework. As this project done as part of the MSc program in Climate Change, it will build on the general scientific consensus of the IPCC that global average temperature rise, generally caused by human activity, pose a fundamental danger to human society and life on earth and this normative foundation and relevance for scientific practice will not be further described than deemed relevant for answering the research question. (IPCC, 2022) The literature-analysis will be approached with the theory on the ethics of climate change, mainly through Roser et al, 2017 and the radical environmental justice framework by Svarstad et al, 2019. An additional clarification of concepts will be done on the notion of climate justice based on Roser et al with supplementary literature from bodies of global political authorities such as the UNFCCC and IPCC, theories on degrowth and climate justice from Jason Hickel and others, as well as additional research on global distribution of wealth and CO2 emissions to expand on Roser et al's argument of an unjust balance of global responsibility in responding to rapid mitigation of the climate crisis.

## **LYNETTEHOLM**

### **THE HISTORY AND GOALS OF LYNETTEHOLM**

To examine the ethical perspectives on the Lynetteholm project, and to relate it to the Danish climate politics and global climate justice, I will firstly outline the chronology, environmental and climate impact of the project, and some of the critiques of the procedural, economic and scientific basis of the project.

On October 5<sup>th</sup>, 2018, the Danish Prime Minister at the time Lars Løkke Rasmussen, took the stage at a press conference in The Ministry of State, alongside the Mayor of Copenhagen Frank

Jensen, Minister of Transportation Ole Birk Olesen and Minister of Trade and Industry Rasmus Jarlov, to announce the: “(...) principal agreement on an expansive, long-term, and visionary port project” (The Ministry of State, 2018). The agreement was developed as a joint venture between The Municipality of Copenhagen and The Danish Parliament, with the intent of constructing a “large island” between Refshaleøen and Nordhavn in Copenhagen, to be overseen and administered by the municipality and state-owned company By & Havn (Københavns Kommune & Regeringen, 2018). The stated goal of the island was to solve three things; the city’s housing crisis, transportation infrastructure in the city at large, and climate protection (The Ministry of State, 2018). The housing crisis would be addressed by creating up to 2 million square-meters new buildable land, with the potential of housing 35.000 people and an equal number of jobs. (Københavns Kommune & Regeringen, 2018). The earnings from which would fund the construction of a new metro-line that would connect Lynetteholm and Refshaleøen to the existing grid, and a new highway with access to Christianshavn and Copenhagen Airport, allegedly easing car-traffic off the central parts of the city (ibid). Lastly, it would recycle excess soil from construction-sites in and around Copenhagen to establish the island that would partly secure the city against rising sea-levels and storm surges from the north. (ibid)

By 2021, under the new government of the Frederiksen Cabinet, the bill to establish Lynetteholm was proposed in parliament by the Ministry of Transportation, and the law was agreed upon by 85 to 12 members of parliament, and to be put into effect by July 1<sup>st</sup>, 2021. (Folketinget, 2021) The bill was supported by most major parties, and opposed by Enhedslisten, Nye Borgerlige, Alternativet and Frie Grønne. (ibid) The law states the official plans and particulars of Lynetteholm, the process, including the demand for an environmental impact report (VVM) and the two phases of established perimeter, and the authorization of the different actors in the project. (Retsinformation, 2021) And on January 7<sup>th</sup>, 2022, the ground-breaking ceremony was held, despite noticeable protest, and the construction is officially in progress. (Kraul, 2022)



(Rambøll, 2020: 13)

## **ENVIRONMENTAL IMPACT, CO2 EMISSIONS, AND CLIMATE PROTECTION**

The process around authorizing, developing, and releasing the various environmental impact reports has caused some debate about the legitimacy of the scientific foundation for the planning of Lynetteholm and the uncertainty of the project's consequences on local marine life, CO<sub>2</sub>e emissions and other harmful impacts (Ankerstjerne, 2020). As per the political agreement, By & Havn is obliged to do fundamental and supplementary environmental impact reports called VVM, [short for Vurdering af Virkninger på Miljøet in Danish] to qualify political decisions on the consequences of the construction and make the public aware of these impacts (Københavns Kommune & Regeringen, 2018). By the estimates of the VVM: “(...) the total climate impact of the construction and maintenance phases (...) will cause moderate impact. (...) For other circumstances, little to insignificant impact is concluded”. (Rambøll, 2020: 10) A conclusion which is shared by the current Minister of Transportation Trine Bramsen as well as Minister of Environment Lea Wermelin. (Folketinget, 2022) The method of developing the environmental impact reports, and the correlating decisions to move forward

with the project, is done according to what is referred to as the “salami-approach” (Bredsdorff, 2021). Meaning the impact of the various stages of construction is examined independently and gradually, instead of being estimated and processed based on the expected consequences of the entire project. Meaning the project has been greenlit politically in spite of knowing only the impacts of the next phase, and not the project at large. (ibid) No comprehensive research into the impacts of building infrastructure and expanding housing for 35.000 people until the year 2070, nor the consequences of increased traffic and indirect environmental impact and greenhouse gas emissions, are known at this point. (Rambøll, 2020: 326) This critique was raised by the organization Klimabevægelsen i Danmark, who filed a complaint and subsequent lawsuit against the Danish government, on the claim that the salami-approach was against EU-regulations and otherwise irresponsible in light of the climate crisis. (ibid)

This to say, that the numbers available on the expected CO<sub>2</sub> emissions for use when comparing Lynetteholm to the Danish climate law and other climate goals, seem to be fundamentally debated and most likely manyfold larger than reported by Rambøll and By & Havn themselves. (Ankerstjerne, 2020) In the VVM report, the total CO<sub>2</sub> emissions are expected to be 242.920-ton CO<sub>2</sub>, which entails the construction phase, maintenance phase, and upstream phase of the establishment of the island. (Rambøll, 2020: 322-326)

Another concern, raised by Morten Holtegaard an independent researcher with a Ph.D. in hydrology and oceanography from DTU, is the consequences Lynetteholm might have for marine-life, ecosystems, and marine-based carbon sequestration. (Holtegaard, 2022) According to Holtegaard, the scale of the island, and its position overlapping with Kongedybet and other marine-life areas, will have consequences for the flow of saltwater going into the Baltic Sea. (ibid) The blocking of central pumps of salt from the North Sea might have severe impacts on the cod stock, other marine-life, and the survival of eelgrass in the entire Baltic Sea. (ibid) The latter of which is related to the uncertain CO<sub>2</sub> emissions caused by the project, as eelgrass sequester comparable levels of greenhouse gases to those of forests on land; namely 60 tons of CO<sub>2e</sub> per hectare. (Svennevig, 2021) According to the VVM report, the question of impacts on eelgrass in the Baltic Sea have been addressed by moving the perimeter: “(...) further away from Trekroner Søfort to concerve eelgrass” (Rambøll, 2020: 98). But the impacts of the salt-streams, as opposed to the direct destruction of eelgrass caused by onsite construction, have not been properly addressed according to Holtegaard. (Holtegaard, 2022) Holtegaard also argues that the alleged need to build Lynetteholm as a necessary precaution to protect Copenhagen against storm surges and rising sea levels, build on a false premise as the same amount of climate protection could be achieved by building a dam or embankment. (ibid)

This seems to correlate with The Municipality of Copenhagen’s “Storm Surge Plan for Copenhagen 2017”, that prior to the idea for Lynetteholm outlined a plan to protect Copenhagen against storm surges and rising sea levels from the south, east, and north. (Københavns Kommune, 2017) This plan similarly suggested using surplus soil from construction-sites to build barriers not only as embankments between Nordhavn and Refshaleøen, but also along the east-coast of Amager and by Kalveboderne in the south. (*ibid*: 13-29) As such, the scale and infrastructure suggested in the plans of Lynetteholm, as opposed to those of the 2017 plans, are left with the arguments of economic development and housing projects, traffic to and from Copenhagen Airport and additional roads, as seen in Lars Løkke Rasmussen’s initial argumentation.

## ECONOMY & RESOURCES

According to the previous Minister of Transportation Benny Engelbrecht, Lynetteholm: “(...) is economically self-sustaining” (Krog et al, 2022). By this he soom to refer to the fact that the expenses of constructing Lynetteholm and its related infrastructure is expected to be covered by revenues from the subsequent investments and income from housing projects, landfills, public transportation, and workplaces. (Københavns Kommune & Regeringen, 2018: 3-4) It is to be noted that an analysis ordered by the Transport Committee shows an uncertainty of 31 billion DKK in the span of the expected revenues between “(...) 8,6 [and] 39,8 billion DKK”. (Transportudvalget, 2020: 19) By own estimations, the construction of the island perimeter was initially announced as 3,4 billion Danish kroner by By & Havn. (Geil, 2022) The price of the construction has since been appended with 900 million DKK from expected inflation. (*ibid*) And recently with 320 million DKK from added expenses from finding an alternative to the dumping of sludge in the bay of Køge. (Bredsdorff, 2022). No official economic budgets on the island and connected expenses leading up to 2070 have been released, though calculations that include a new metro, tunnel, roads, and buildings done by Ingeniøren estimate a total budget around 80 billion DKK. (Lindqvist, 2020)

As such, the economy seems to be uncertain, and the potential budget will be used in a discussion of the ethical implication of priorities in relation to global climate policies and finance.

Lastly, the construction and infrastructure of Lynetteholm requires large amounts of various resources. Namely, the island needs an estimated 80 million tons of soil to be built in its current scale, the plan for which is to reuse surplus soil from the many expected infrastructure and

building projects in Copenhagen the coming years. (By & Havn, 2021) Additionally, the construction is going to require a certain workforce and equipment as the transportation and placement of the 80 million tons of soil is going to last an estimated 30 to 40 years to complete, followed by 10 years of additional expected construction until 2070. (*ibid*)

## THE ETHICS OF CLIMATE CHANGE

As examined, there are many technical and political aspects to the construction of Lynetteholm. Certain points of criticism have been included, but to bring the technical arguments for and against the island into a broader ethical perspective in context with the climate crisis and questions of geopolitical solidarity, the notion of climate justice, the principle of distributive justice, and the radical environmental ethics framework will be examined and subsequently compared to the challenges of Lynetteholm.

Dominic Roser and Christian Seidel outlines the climate crisis as an ethical challenge in terms of answering not what can be done about climate change, but of answering questions of what should be done and by whom; what is a just international climate policy, and what is the duty of the present generation, with its different agents of context, privilege, and responsibility, to the well-being of future generations and the global community? (Roser et al, 2017: 12-15) They identify three overarching moral questions that lay the foundations of the: “(...) ethical controversy over climate change”, they are: “(I) Do we have a duty to do anything at all in the face of climate change? (II) Assuming that we are obliged to do something, how much should we do? (III) How should these duties be distributed?” (*ibid.*: 15). The last of which will be used the most extensively in answering the research question.

Roser et al assert that it is the role of ethics to fill the gap between climate science and politics: “There is a close connection not only between science and ethics, but also between ethics and politics—for what is ethically right in the face of climate change should also ultimately be translated into practice.” (*ibid.*: 16) As such, they examine the first question in the face of the obvious scientific consensus and warning from the Intergovernmental Panel on Climate Change [IPCC], but with the added challenges and peculiarities of climate change compared with other ethical challenges. The question of the responsibility of contemporary society is challenged by inter-generational, global, and temporal nature of climate change as a problem, but it is ultimately debunked by Roser et al who claim that: “(...) we have a fundamental moral obligation to engage in climate mitigation.” (*ibid.*: 99)

They then examine how much this covers in terms of the level of well-being sought after in an intergenerational scope. Whether or not we have a moral obligation to secure that future generation have as much well-being as we have, more than we have, or enough to survive, determines the level of response from ourselves and world leaders. (ibid.: 67-85) To which they define that: “We should ensure that future generations will be at least sufficiently well off, and perhaps even just as well off, as we are.” (ibid.: 99) Their definition of sufficiency building on a threshold of needs satisfaction, rather than the level of well-being experienced by the present generation. (ibid.: 70-72) Which becomes relevant when discussing the current CO<sub>2</sub> emissions correlating with the accumulation of wealth and the propelling of economic growth. This leads to the aspect of climate justice, unequal responsibility, and distribution; the question of who the ‘we’ is in the previous citation.

## **CLIMATE JUSTICE**

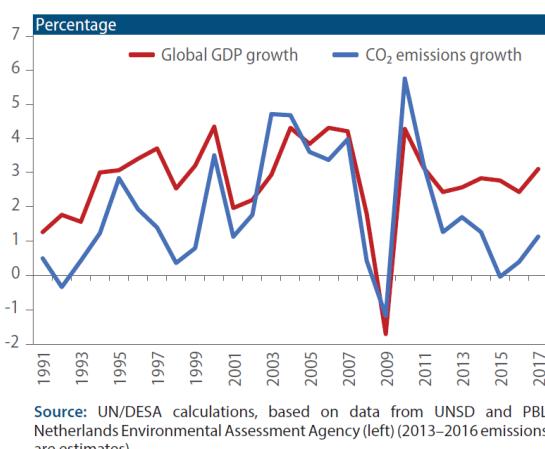
The notion of climate justice builds on the understanding that the responsibility, advantages, and disadvantages of the systems that have created the climate crisis are unequally distributed among the global population. As the Global North cause the biggest share of global greenhouse gas emissions and biodiversity-loss, contrasted with the worst consequences of the climate crisis generally hitting nations and populations least responsible for the crisis, and least resourcefully prepared to adapt to the changing conditions. (Roser et al, 2017: 99-108)

The share of percentage of CO<sub>2</sub> emissions by the world population are distributed with 49% emitted by the world’s 10% richest, with the poorest 50% responsible for 10%. (Oxfam, 2020) This fundamental unbalance was addressed by the United Nations in 1992 with the principle of Common But Differentiated Responsibilities, in so far as they acknowledge that: “(...) the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions” (UN, 1992: 2) According to Roser et al, this principle in its unspecificity attest to the importance of thorough ethical contemplation. The uncertainty of whether *responsibility* refers to a nation’s greenhouse gas emissions or the economic and social advantages made possible through past emissions, speaks to different morality principles; be they the principle of the *polluter pays*, the *beneficiary pays*, the *ability-to-pay*, or emissions *egalitarianism*, and in turn political policies that support these principles. (Roser et al, 2017:

99-158) Likewise, the phrasing of *respective capabilities* could both: “(...) refer to the ability to reduce emissions—which depends essentially on technological know-how—or to the ability to pay the costs of climate mitigation—which depends essentially on economic prosperity” (*ibid.*). Nonetheless, the geopolitical arena is speaking to the notion and narrative of climate justice and differentiated responsibility, notably with the agreement at COP15 in Copenhagen in 2009 wherein rich nations: “(...) promised to channel US\$100 billion a year to less wealthy nations by 2020, to help them adapt to climate change and mitigate further rises in temperature” (Timperley, 2021) As of writing, the richest nations have yet to pay their promised shares; officially missing the target by about \$20 billion, and when accounting for loans, loan guarantees, and general development aid repurposed as climate related funds, instead of the new and additional funds promised in 2009, estimates show that 81% of climate finance to the Global South, is still missing. (*ibid.*) As for when analyzing Denmark’s role in the context of climate justice, the country’s share of the promised \$100 billion is stated to be about \$5 billion, of which \$2 billion was announced to be funded from 2020, though including loans and already existing development aid expanded to account as climate aid. (Jørgensen, 2021)

In terms of economy, climate justice also raises the question of the richest nations’ historical responsibility in terms of economic growth as the main driver of climate change. When comparing the global development of GDP with the global development in CO<sub>2</sub>e emissions through the last century, the correlating developments grow and dive at the same points in time following economic developments such as the global financial crisis in 2008. (Holland et al, 2019)

Figure 1  
GDP and CO<sub>2</sub> emissions growth



(Holland et al, 2019: 2)

The countries with the most accumulative economic wealth are also the ones with the most historical cumulative CO<sub>2</sub> emissions, herein the United States, the European Union, China, and the Russian Federation. (Mengpin et al, 2017) Countries with either direct historical links to the European history of colonization and exploitation of the Global South, or economic or resource-transactional relations to colonial powers. (Fisher, 2015)

This correlation between GDP and CO<sub>2</sub> emissions is widely known but challenged by the theory of green growth which is: “(...) promoted by leading multilateral organizations and is assumed in national and international policy. It rests on the assumption that absolute decoupling of GDP growth from resource use and carbon emissions is feasible.” (Hickel et al, 2020: 469) This theory is challenged by Hickel et al, who claim that: “(...) there is no empirical evidence that absolute decoupling from resource use can be achieved on a global scale against a background of continued economic growth, and [that] absolute decoupling from carbon emissions is highly unlikely to be achieved at a rate rapid enough to prevent global warming over 1.5°C or 2°C, even under optimistic policy conditions.” (ibid.) Nonetheless, the proverbial interest of continuing the path of economic growth, albeit green or not, is historically benefitting the Global North and have only brought minuscule economic development to the Global South (Hickel, 2019). So, the insistence on economic growth at the cost of the global ecosystem and well-being of the global population and future generations, generally benefit the countries most historically responsible for, and least susceptible to the consequences of, the climate crisis.

## **DISTRIBUTIVE JUSTICE & CLIMATE MITIGATION**

The outline of injustices inherent in the climate crisis begets a global moral evaluation of the balance and distribution of responsibility and resources: “(...) the redistribution required to prevent climate change is unprecedented. It is the largest and perhaps the most difficult redistribution in human history” (Roser et al, 2017: 106) In this context, they compare the global ethical controversies of distributive justice, to the case of an urban gardening cooperative. A group of people have: “(...) leased a plot of land on which to grow vegetables. In addition to their financial contributions to the lease, the members must also perform work assignments so that the potatoes, carrots, cabbages, and so on can thrive. Throughout the year, the vegetables harvested are distributed among the members.” (ibid.: 100) This is an example of the issues of distributive justice in so far as: “(I) It involves the distribution of something important—namely, food. Not only is food inherently important (without it we could not

survive), but also it has special importance for the members of the cooperative (they have decided to take their food supply into their own hands instead of shopping at the supermarket). (II) There is a group of people who contribute to the good to be distributed—namely, those who pay membership dues and perform work assignments. (III) There is another group of people who benefit from the good to be distributed—namely, the recipients of the harvested vegetables” (ibid.: 101). These three features fit equally well with the case of mitigation to climate crisis, firstly, with the scientific consensus on the vital importance of timely mitigation. (ibid.) Secondly, the process of mitigation and the green transition demands extensive changes to all structures of society, and herein an active effort from all institutions and industries, and an expected global expense of a trillion dollars. The groupings of global society benefit differently from mitigation; the economic and infrastructural benefits from the technological solutions to various challenges predominantly fall on groups in the Global North, where the benefits of avoiding the most dangerous consequences of climate change may be most extensively experienced in the Global South. (ibid.: 100-102)

As for the case with the unspecificity of the UN’s Common But Differentiated Responsibilities principle, the definition of distributive principles, as well as common understanding of the goal and means of acting on the climate crisis, need to be thoroughly built upon and a common consensus found among the most responsible parties. Contrary to the example of the urban garden, the *good* that is to be distributed are not necessarily understood by all parties to be the same. It is to this, that Roser et al assert the need for clear goals on climate mitigation in accordance to delegated emissions budgets (i.e. the permitted GHG-emissions within countries over a certain amount of time) based on the necessary balance of GHG in the atmosphere, as opposed to focusing the global effort on adapting to the changing conditions over time. (ibid.: 103-106) This is important as although certain consequences of the ecological crisis are already experienced globally, and some changes are already too late to mitigate, the necessary adaptation strategy varies greatly between nations and areas. Some areas will demand an expensive and resource intensive adaptation through dams and barriers, drought-resistant crops, or geo-engineering, where others might benefit from milder temperatures or new possible crops, and yet others will become uninhabitable due to changing conditions, some of which are impossible to prevent; what is also called “loss and damage”. This and other pitfalls of ambiguous or negligent climate policies, assert the need for addressing rapid large-scale climate mitigation when approaching a just transition. (ibid.)

This then becomes a question of what a fair distribution of the finance, work, and harvest according to needs and physical, temporal, and monetary resources among the members of the urban gardening cooperative, or in the case of the climate crisis; among the global society.

## **THE RADICAL ENVIRONMENTAL JUSTICE FRAMEWORK**

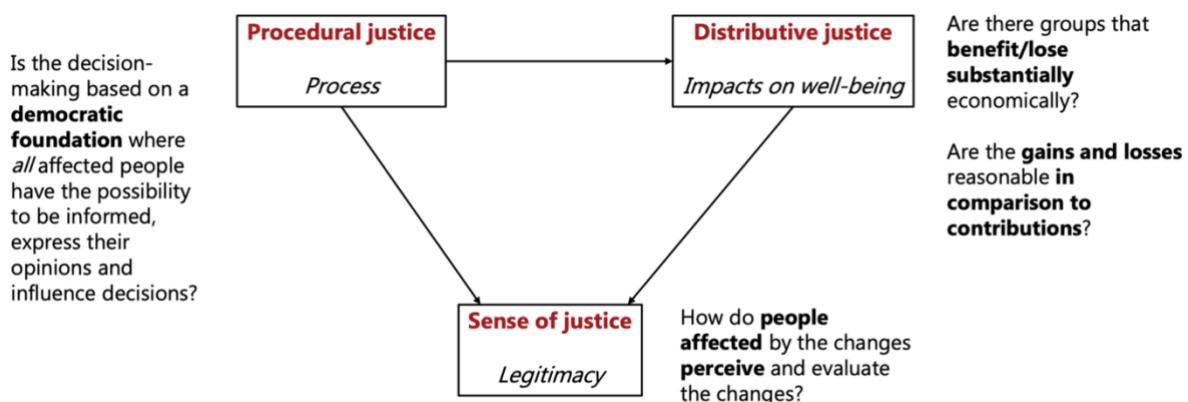
To include a more structured framework for discussing the ethical controversies of a case like Lynetteholm in light of climate-, environmental-, and distributive justice, I will include the radical environmental justice (EJ) framework by Svarstad et al. The framework was developed as a “cross-fertilization” between the schools of environmental justice and political ecology and connects theories from these two aspects to a joint approach to socio-environmental controversies. (Svarstad et al, 2019) The radical EJ framework focuses on three elements: distributive justice, recognition and sense of justice, and procedural justice. (ibid.)

Distributive justice, as mentioned above, is concerned with who is affected by an intervention, and how: “The first question asks who the recipients of justice are (...) This implies a need to establish who enjoys the benefits and who shoulders the burdens that might result from an environmental intervention. The second question addresses what there is to be distributed that might result from environmental interventions.” (ibid.: 3) In general, this element enables and examination of the inherent imbalance in who is affected in a greater sense than others, and what their various capabilities are for recovering: “Needs vary among population groups and this should be considered when benefits and burdens are distributed (...) those who have caused any problems should cover the costs of repairing the damage and compensate those who have carried the costs.” (ibid.)

Recognition examines the sense of justice missing or displayed in the affected groups in an intervention. It is fundamentally a reminder to preemptively locate marginalized opinions and voices in an intervention, and to as objectively as possible include or highlight these senses of justice or injustice in the process. “Some social groups and individuals are poorly recognized compared to others, and this is seen as a justice dimension in itself, as well as an underlying cause of unjust distribution.” (ibid.: 4) This can be done to a greater extend by doing narrative analysis of local groups: “(...) in order to recognize marginalized people, they need first to be listened to. Narrative analysis may be a way to present voices that are often not heard, nor taken seriously.” (ibid.)

Lastly, is the element of procedural justice where the eventual environmental policies or interventions themselves are examined, as well as whether the procedural process was done inclusively and with the democratic principles needed for affected groups to influence the intervention. This element is concerned with the role of power in decision-making and seek to align unjust power dynamics in both local and global contexts; be they undemocratic influence by wealthy or politically powerful agents, or historic and colonial power relations that influence the foundation of the different group's possibilities. (ibid.: 6-8)

These three elements are interdependent in the analysis of environmental interventions, and can be seen to influence each other accordingly:



As a final disclaimer, the analysis and discussion will, for the sake of space and specificity, focus on the ethical controversies and consequences of the Lynetteholm project with a predominantly anthropocentric approach. Many of the environmental interventions of the construction of Lynetteholm that impact the global ecosystem through greenhouse gas emissions and the consequences to water-flow and marine-life present obvious dangers and injustice to non-human species. And the radical EJ framework and general moral examination could just as well take these into account. As Roser et al, I will not deny the rights and moral standing of non-human species addressed by an ecocentric approach, but in relation to an examination of Lynetteholm, I will assert that: "if we can show that a moral duty to protect the climate can be justified solely on the basis of the less contentious appeal to human (and animal) welfare and interests, then a lot has already been gained and we do not have to concern ourselves further with the moral status of plants or of inanimate nature in connection with our duties to protect the climate." (Roser et al, 2017: 14-15)

## **ANALYSIS & DISCUSSION**

I will now explore the included ethical controversies alluded to in the presentation of the Lynetteholm project from a climate justice perspective and with the radical environmental justice framework. Firstly, I will delve into the specific aspects of the case to examine the moral implications of critiques such as the local environmental impact (separate from the negative contribution to global greenhouse gas emissions), questionable climate protection and adaptation, the controversy of financing, and use of resources in the construction. Secondly, I will bring the Lynetteholm project into the larger perspective of global climate justice as examined above, with a focus on the CO<sub>2</sub>e-emissions from the project in light of global climate goals and responsibilities, the ethics of Lynetteholm as an adaptation project in a Danish/Global North context, and the prioritization of public money and resources in a climate finance perspective. Lastly, I will discuss Lynetteholm as a political symbol and metaphor for certain construction and expansion projects.

### **THE JUSTICE OF LYNETTEHOLM IN A DANISH CONTEXT**

First of all, the construction of Lynetteholm brings possible injustices to the local context of Copenhagen and Denmark as raised by grassroots-organizations and experts. Through the radical EJ framework, the first question to ask under the theory of distributive justice, is *who* the recipients of the alleged benefits made possible by the environmental intervention of the construction of Lynetteholm (Svarstad et al, 2019: 3). As stated by Prime Minister at the time Lars Løkke Rasmussen, the first goal of the project is to house 35.000 people as a sum of the expected population growth in Copenhagen going forward (The Ministry of State, 2018). The question of who these 35.000 people might be in terms of income or group, is difficult to answer, as very few official plans or budgets for the expected apartments, can be found. Nonetheless, the historical precedent for newly constructed apartments in Copenhagen, such as in Nordhavn, as well as the projected income needed from the apartment buildings to retroactively finance the island need to be high. (Henriksen et al, 2022) In fact, civil-engineer Hans Schjær-Jacobsen raise the critique that the Lynetteholm plans so poorly address the

moving of the Lynetten sewage plant needed to grant housing license on nearby area, that the island is going to house less people than expected and require a high rent for tenants and buyers. (ibid.) This to say, that even though a percentage of the expected apartments are said to be public housing, the majority of the hypothetical 35.000 people living on the island in the future, with some certainties are going to be of high-income or financially capable of loans. Aside from this, the beneficiaries of the Lynetteholm-project might be politicians and local entrepreneurs, as the project is said to be of high prestige as one of the largest construction enterprises in Danish history. (Helles et al, 2022) If this is compared to the critique that the unstable financial situation might lead to public expenses through taxes, the project seems to financially benefit a minority of citizens in Copenhagen. (Henriksen et al, 2022)

As for who “(...) shoulders the burdens that might result from an environmental intervention”, one has to adjust for the temporal and geographic shift in the consequences of the Lynetteholm project. (Svarstad, 2019: 4-5) The contemporary burdens lay mainly on daily users of the Margretheholm recreational harbor who report a reoccurring phenomenon of sludge and foam from the construction site around their ships and swimming areas (Eriksen, 2022). But the imposing consequences of Lynetteholm on the salt-stream in the Baltic Sea might impact a much larger number of people and non-human species. As previously presented, Lynetteholm might block the deep parts of Øresund which, according to Morten Holtegaard, could disrupt the flow of salt from the North Sea to the Baltic Sea to severe impacts on the breeding of cod, eelgrass, and other marine life in the entire Baltic Sea. (Holtegaard, 2022) This would impact fisherfolk, marine-life and people along the coast of not only Denmark but Germany, Poland, Lithuania, Latvia, Estonia, Russia, Finland, and Sweden too.

Additionally, the distributive injustice of Lynetteholm could be argued in terms of prioritization of resources when it comes to coastal security and climate mitigation of Copenhagen instead of Denmark at large. As outlined, the construction of Lynetteholm requires large amounts of soil, workforce, and finance for decades to come, and will inherently seize means from securing other areas of Denmark from storm surges and sea level rise. Granted, Copenhagen is the most densely populated city in Denmark, but as stated by Holtegaard: “You don’t need an island, you could do as well with a wall or a dam. You don’t need an island.” (Holtegaard, 2022). So, the question becomes if the hypothetical housing of 35.000 people on the artificial island, instead of finding the accommodation on land, is worth prioritizing money, resources, and work force for instead of coastal adaptation in the rest of Copenhagen and Denmark. Moreover, the current strategy of the sitting Danish government and the Ministry for Climate, Energy and

Utilities to reach the stated goal of a 70% reduction in CO2 emissions by 2030 compared to 1990, is heavily reliant on an expansion of domestic wind-energy with the construction of other artificial islands, “energy-islands” in the North Sea to collect and produce green energy. (Ministry for Climate, Energy and Utilities, 2021) In relation to the energy-island in the North Sea it is stated that under the: “(...) present circumstances, it is deemed difficult to realize the island before 2033”, the same goes for the smaller energy-island off of Bornholm. (KEFM, 2020) To which degree the construction of Lynetteholm is obstructing or slowing down the establishment of green-energy infrastructure or other adaptation projects, is unknown. But to speculate that the extensive resources needed to construct the island in its current form, compared to the urgency of transition needed to mitigate climate change and added ethical controversies entailed in the project, recalls a need for greater consideration of distributive justice in the planning of Lynetteholm. Add to this the point of criticism of the ambiguous nature of the project’s masterplan in relation to expected CO2 emissions, mainly through the use of the “salami-method” as raised by the organization Klimabevægelsen i Danmark, and the project seem uncertain as a piece of domestic climate policy. (Bredsdorff, 2021)

As for the elements of sense of justice and procedural justice from the radical EJ framework, the public backlash against Lynetteholm, and in turn the democratic process behind the decision to construct it, speaks to a certain disagreement and sense of injustice. Firstly, the controversy of Lynetteholm has led to the founding of the union STOP Lynetteholmen that funnel public disagreement with the project through petitions and demonstrations, and who administer a Facebook-group with 15,5 thousand members as of writing. (STOP Lynetteholm, 2022) They state that: “The process behind Lynetteholm is a low point in the planning in and around Copenhagen. A large and invasive project such as this, with dire impacts on nature, climate and environment should happen on the basis of a much more thorough process with a true inclusion of citizens, relevant experts, and the time to propose and discuss alternatives”. (Selvig, 2022) In addition, several protests by different social movements and groups have challenged the project, like an illegal banner drop outside of the municipality that read: “Lynetteholmen is a catastrophe for democracy and the climate” (Berlingske, 2021), a one-person blockade of the ground-breaking event of the island (Kraul, 2022), some hundred activists blocking the entrance to the Ministry of Transportation on the day of a hearing to pause the construction (Klitgaard, 2022), and a demonstration and march with a thousand participants (DR, 2022). This to say that a certain percentage of the population directly oppose

the Lynetteholm project, many with a specific critique of the unjust democratic process behind the political agreement and construction.

In terms of procedural justice, the negligence of public influence and a disregard of critical experts seem to permeate the public debate around the project. As with the examples brought up by Svarstad et al on problematic judicial processes around environmental interventions, such as the pesticide drift in California where affected citizens were overturned and powerful industrial agents trumped public protest with following impacts on drinking water and public health of nearby communities deemed out of reach and irrelevant by the industry, Lynetteholm too has been criticized for overlooking democratic and relevant influence in the process. (Svarstad et al, 2017: 6-7) An example is the controversy of a disregarded warning and plea from neighboring country Sweden's Minister of Environment. In a letter on March 18<sup>th</sup>, 2021, the then Swedish Minister of Environment Annika Strandhäll wrote an official letter to the relevant political bodies in the Danish parliament, stating among other: "The Swedish authorities have during our consultations clearly underlined that the areas of dumping in the Bay of Køge are inappropriate, especially concerning toxic sludge". (Berlingske, 2022) Neither relevant Danish ministry responded to the letter and claimed that it was not their responsibility to respond or consult with the presented criticism, resulting in an official reprimand (a so called 'nose') to both Minister of Transportation Trine Bramsen and Minister of Environment Lea Wermelin for improper handling of the process (Lauritzen, 2022). Additionally, the right of appeal of citizens were closed at an allegedly atypical stage in the process for a project of the size of Lynetteholm, making any judicial impacts on the agreements to move forward with the project inaccessible for the public outside the court of law. (Loftlund, 2021)

Through the lens of the radical EJ framework, there seems to be a string of raised critiques that question the distributive justice at play in the impacts and benefits of the Lynetteholm project at a local Danish scale, a sizeable sense of injustice among the local population, and procedural injustices if not judicially unjust then subject to official reprimands and public lawsuits.

## **THE JUSTICE OF LYNETTEHOLM IN THE REALM OF GLOBAL CLIMATE JUSTICE**

As with the examination of critiques of Lynetteholm in the context of Copenhagen and Danish national climate politics, the radical EJ framework and notion of climate justice will be used to

discuss the ethical controversies of Lynetteholm in the global context of climate mitigation and climate justice.

With regards to distributive justice the first question of who benefits from the environmental intervention is more or less the same as in a strictly Danish context; namely the hypothetical 35.000 people who could live on the island, as well as the Danish politicians and entrepreneurs benefitting politically or economically from the construction. In addition, the people of Copenhagen could also experience a local protection against storm surges or sea level rise in the future and the added benefits of a possible new transportation infrastructure in and around Copenhagen - albeit that the climate protection could have been achieved differently according to Holtegaard. (Holtegaard, 2022) In a broader sense, the group benefitting is a small part of the population of a high-income country in the Global North.

As for who: “(...) shoulders the burdens that might result from an environmental intervention”, in the global context would be the people experiencing the worst consequences of the global temperature rise caused in part by the CO<sub>2</sub> emissions from Lynetteholm. (Svarstad et al, 2019: 3) As detailed prior, the exact direct emission levels from the construction and infrastructure are yet unknown, though expected to be considerable due to the size and environmental impact of the project. But the hypothetical emissions and impact caused by a failure to meet Denmark’s climate goal of a 70% CO<sub>2</sub>e reduction by 2030, speculatively made more difficult by the resources and workforce seized by the Lynetteholm-construction until 2070, are more expansive. In addition to the already included financial controversies, the budget of Lynetteholm, with the highest estimates reading some 80 billion DKK, this prioritization of money could be questioned in contrast to Danish Minister of Climate, Utilities and Energy, Dan Jørgensen’s statement that reaching the Danish climate goal will cost: “(...) between 16 and 24 billion Danish kroner a year” (Jørgensen, 2019) With 7,5 years left [as of writing] of reaching the 2030-target, the financial wager on Lynetteholm, considering its known and unknown CO<sub>2</sub> emissions and financial timeline, seem to possibly play a considerable role in the Danish climate mitigation effort and deliverance on global pledges under the Paris-accord. Furthermore, the political strategy of Dan Jørgensen and the sitting government, of promoting Denmark as a green leading nation for others to follow (Jørgensen, 2022), could pose a possible threat in the emulation of Lynetteholm as an adaptation strategy used in other countries at the risk of similar prioritization of money and resources in the transition of infrastructure as well as expected and unexpected CO<sub>2</sub> emissions. This also speaks to the need for climate mitigation, as opposed to climate adaptation, in light of the global geopolitical strategy, as the expenses and plans for Lynetteholm benefit a few people living in Copenhagen in the year 2070, as

opposed to the necessary mitigation needed to be executed within the decade, benefitting the global community by staying below the 1.5- or 2-degree global average temperature rise. (Roser et al, 2017: 103-106)

All this to say, that considerable CO<sub>2</sub> emissions are at stake related to the construction of Lynetteholm, and as outlined in relation to the moral obligations of Global North countries such as Denmark, the need for seeing deliverance and specification on the UN's Common But Differentiated Responsibilities principle seem absent from the controversies surrounding the project. In relation, the uncertain environmental impact, coupled with considerable possible financial expenses seem hard to defend morally in a climate justice context, when the Danish pledge of the yearly \$5 billion in financial climate aid from 2020 are still not being met.

Lastly, the Lynetteholm can be seen in context with other similar expansions and infrastructure-projects of its time, and thereby as a symbol of a certain political reality and vision for the future with a focus on industrial and urban development. In the vein of Lynetteholm the municipality of Hvidovre is proposing an expansion of their industrial area with a project called "Holmene" which consists of 9 independent artificial islands to be constructed outside of the city Avedøre. (Hvidovre Kommune, 2022) The project that is described as a green, innovative driver of growth that should attract international business, through its proximity to the airport, to Denmark, has gotten a word of promise from the sitting government to be assessed for a political agreement akin to Lynetteholm in 2023, and would be done in 2045. (*ibid.*) Similarly, Denmark's largest port located in Aarhus, is being prepared to expand by a million square meters to accommodate for more industrial shipping towards the year 2050. (Kristiansen, 2022) The VVM report of the project states that the construction would only emit some 170.000 tons of CO<sub>2</sub> but is being criticized for not including the emissions of thousands of additional container ships. (*ibid.*) Lynetteholm, Holmene, the expansion of the port of Aarhus, and similar projects share many similarities, but above all they share a common perception of a continuation and support of economic growth at the continued cost of CO<sub>2</sub> emissions and environmental impacts going beyond the year 2030 where Aarhus and Copenhagen aim to be carbon neutral and beyond the year 2050 where Denmark is committed to being a zero-emission society under the Paris-accord. According to Hickel et al, there is little to no empirical support of a continuation of economic growth decoupling from rising CO<sub>2</sub> emissions at the rate necessary to mitigate climate change according to the warnings of the IPCC (Hickel et al, 2020: 469), and Denmark as a green leading nation should perhaps reflect a less obvious vision

for the future that is continually based on the burning of fossil fuels and prioritization of economic growth.

As for the procedural justice of Lynetteholm in the context of global climate justice, the marginalized voices in the broad sense of future generations and the most affected groups of the Global South seem to not be properly represented in the decision-making process behind the project. If these groups were asked whether they would prioritize the possibility of a new city district of Copenhagen built on an artificial island, at the cost of insecure impacts on the environment, a wager with millions of tons of CO<sub>2</sub> emissions, and reaching the Danish climate goals and promised climate finance, they would possibly choose differently than the powers that be.

## **CONCLUSION**

*How can ethical controversies raised in light of the construction of the artificial island Lynetteholm in Copenhagen be seen considering moral perspectives on climate and distributive justice?*

The construction of the artificial island Lynetteholm in Copenhagen has raised a number of critiques among citizens, experts, and politicians in opposition to the sitting government. Among the criticism are the construction's uncertain impacts on the environment, the expected and unaccounted future CO<sub>2</sub> emissions from the building of infrastructure and loss of sequestered carbon in eelgrass and other natural habitats, uncertain plans for the financial independence of the project, as well as an undemocratic process that exclude public and professional criticism from the decision-making. Through the exploration of notions of climate justice, included through theories on the ethics of climate change, distributive justice, and the radical environmental justice framework, these, and other aspects of the Lynetteholm project was explored as ethical controversies in light of Denmark's responsibility in the geopolitical effort for global climate mitigation. Certain elements were deemed morally questionable in relation to the prioritization of resources, economy, and work force required to construct the island, at the possible cost of a timely response to reaching Denmark's stated goal of a 70% CO<sub>2</sub> reduction by 2030, as well as a problematic handling of the public and scientific critiques and controversies surrounding the project and its process. Additionally challenged, were the wager of future CO<sub>2</sub> emissions and environmental impact at the expense of future generations

and the groups, predominantly located in the Global South, with the smallest negative contributions and thereby responsibility for the climate crisis, at possible benefit for a relatively small group of people in Copenhagen.

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