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Abstract

This paper introduces a theory of a tripartite economy which consists of the State, the Markets, and the Land Collective to demonstrate a supply-side approach to sustainable development. The Land Collective is a social institution comprised of citizens who reside within a geographic location with the collective ownership of land and natural resources as its defining principle. It takes inspiration from Elinor Ostrom in her work on Common Property Regimes and common pool resource management, looking to preserve the autonomy of citizens in their natural environment. It addresses the challenges faced by Ostrom arguing that collective ownership has the ability to avoid free rider problems and offer more desirable game theoretic outcomes than the typical common ownership structure. The formation of the Land Collectives is shown to be analogous to the types of international coalitions supply-side policy advocates often argue in favor of, with the added benefit of protecting local autonomy. It argues that the formation of such an institution allows for individuals to organize a form of social power which may direct both markets and national development projects according to the will of citizens. The tripartite model is then demonstrated to deliver on these ambitions by focusing on a contemporary case in Uganda.

Kurzfassung

In diesem Aufsatz wird die Theorie einer dreigliedrigen Wirtschaft vorgestellt, die aus dem Staat, dem Markt und dem Landkollektiv besteht, um einen angebotsseitigen Ansatz für eine nachhaltige Entwicklung aufzuzeigen. Das Landkollektiv ist eine soziale Institution, die sich aus Bürger*innen zusammensetzt, die in einem bestimmten geografischen Gebiet wohnen, und deren bestimmendes Prinzip das kollektive Eigentum an Land und natürlichen Ressourcen ist. Der Aufsatz orientiert sich an den Arbeiten von Elinor Ostrom über Gemeineigentumsregelungen und die Bewirtschaftung von Gemeinschaftsressourcen und zielt darauf ab, die Autonomie der Bürger*innen in ihrer natürlichen Umgebung zu erhalten. Er geht auf die Herausforderungen ein, mit denen Ostrom konfrontiert ist, indem er argumentiert, dass kollektives Eigentum in der Lage ist, Trittbrettfahrerprobleme zu vermeiden und wünschenswertere spieltheoretische Ergebnisse zu bieten als die typische gemeinsame Eigentumsstruktur. Es wird gezeigt, dass die Bildung von Landkollektiven den Arten von internationalen Koalitionen entspricht, für die Befürworter*innen einer angebotsseitigen Politik häufig plädieren, mit dem zusätzlichen Vorteil, dass die lokale Autonomie geschützt wird. Es wird argumentiert, dass die Bildung einer solchen Institution es den Individuen ermöglicht, eine Form von sozialer Gewalt zu organisieren, die sowohl Märkte als auch nationale Entwicklungsprojekte nach dem Willen der Bürger*innen lenken kann. Anhand eines aktuellen Fallbeispiels in Uganda wird abschließend gezeigt, dass das dreigliedrige Modell diese Ziele erfüllt.

A General Theory of Sustainable Development: Supply-side Policy and Political Economy

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Introduction

How come it is easier for us to imagine the end of all life on earth – an asteroid hitting the planet – than a modest change in our economic order? This is one of the striking questions which Slavoj Žižek asks towards the end of his 2012 film *The Pervert's Guide to Ideology* and many alike have posed this question without bringing forward an answer.¹ For so long, economists have identified the objectives of development as those which enable a nation to use their resources in order to generate wealth. Nation states have strived for this sort of development and in turn have increased environmental degradation, often conceived strictly on the basis of its harm to man. While many preach the importance of sustainability, it rarely seems we achieve any sustainability targets we set forth. It would seem to me there have been two pressing matters today which encourage an inquiry into the matters of economic development: the muffled voices of citizens and the grim state of the environment. The first speaks to the under-represented voice of the citizen in the development of his nation, while the second refers to the increasingly poor environment in which the citizen exists. Both are matters tied to economic development. For so long, economists have identified the objectives of development as those which enable a nation to use their resources in order to generate wealth, improve living standards and enable flourishing. The social costs of development, however, at times seem not to be sufficiently accounted for and compensated.

Currently, the EU parliament expresses its concerns about the alleged human rights violations taking place in Uganda and Tanzania following the development of a new oil pipeline. The situation began in 2021 when a French multinational energy company, TotalEnergies, signed an agreement with Uganda and Tanzania to start building the \$3.5 billion, 1,443-kilometer pipeline. The development of the oil pipeline project to transport crude oil from the Ugandan Tiligen oilfields to the Tanzanian port of Tanga for export. The project has proven controversial on many grounds especially with regards to its effects on climate change and in the rights of the people who live in the path of its development. In 2022 the EU parliament expressed its concerns about the alleged human rights violations in the respective countries due to the construction of the pipeline. This was followed by numerous French and Ugandan filing lawsuits against TotalEnergies on the basis that they failed to adhere to a 2017 law called the Duty of Vigilance. The law defends workers from human rights violations as

¹ Slavoj Žižek and Fiennes, Sophie (dir.). (2012). *The Pervert's Guide to Ideology*. London: P Guide Productions, movie 2:04.05. Also see: Fisher, Mark. "Capitalist Realism: Is there no alternative?" Zero Books Publishing, 2009. p 2.

well as violations against their health, safety and environment. In February of 2023, the French court announced their dismissal of the cases ruling in favor of TotalEnergies on the basis of incorrect filing procedures.

The defiance of the Duty of Vigilance was recorded in the French paper *Le Monde* stating, “The suit was brought by two French and four Ugandan NGOs, which accused TotalEnergies of taking land from more than 100,000 people without adequate compensation. They also said the company drilled wells in the biodiversity-rich Murchison Falls National Park on the shores of Lake Albert.”² Thousands of people were forced out of their homes, thousands more compensated insufficiently for their properties. Protestors to the project were subjected to police brutality and unlawfully arrested. The President of Uganda has not made remarks about the treatment of its citizens but has proclaimed,

“His frustration is shared by some advocates of Africa's economic development who argue that the continent has the right to use its fossil fuel riches to develop, just like rich nations have done for hundreds of years. They point out that Africa has only emitted 3% of climate-warming gases compared to 17% from EU countries. Crucially, 92% of Uganda's energy already comes from renewable sources. In Tanzania, it is about 84%. Whereas for the EU it is 22%.”³

The concerns of activists also lie in the future of Uganda, saying they fear becoming a petrol station of China and Europe. Activists argue the benefits of these projects will only go to the elite while the common man is left in worse living conditions. This situation in Uganda perfectly captures the two matters I described. There is no solution clear in sight, however, the starting point for the changes I seek could lie at the intersection of the two matters.

The intersection of the two matters is often discussed through common ownership problems, a subject popularized by Elinor Ostrom in her Nobel prize winning work *Governing the Commons: The Evolution of Institutions for Collective Action*. Common ownership, according to Ostrom, encourages acting on a sense of responsibility for the environment among community members and increases the likelihood of social cost internalization, encouraging sustainable outcomes. Ostrom, however, fails to give a compelling solution to the collective

² “French court dismisses case against TotalEnergies East Africa oil project,” *Le Monde*, February 28, 2023, https://www.lemonde.fr/en/police-and-justice/article/2023/02/28/french-court-dismisses-case-against-totalenergies-east-africa-oil-project_6017688_105.html.

³ “Cop 27: Uganda-Tanzania oil pipeline sparks climate row,” *BBC News*, October 24, 2022, <https://www.bbc.com/news/world-africa-63212991>

action problems which arise as a result of Common Property Regimes. In this paper, I position myself with Ostrom's work to argue for a potential change in our economic order. I formulate a model to provide an answer to the collective action problems which Ostrom addresses but does not solve in order to make these changes more practical and applicable to real world scenarios. I argue that with the introduction of a new social institution, one which posits collective ownership of land and natural resources, the citizens can be heard and empowered to take control over their environment and dictate economic development according to their standards.

The paper proceeds as follows, in the first section I go deeper into the problems described, illustrating the link between environmental problems and economic development to define what sustainable development will need to look like. In the second section I show how Ostrom's work is compatible with this definition, its limitations and why collective ownership has the potential to succeed in its place. In the third section I introduce the theory of a tripartite economy, describing the functions of each institution. Once the theoretical framework is established, I show how in practice it could offer a solution to the collective action puzzles and game theoretic problems Ostrom's common ownership framework runs into. The final section discusses practical concerns, such as the size of the collectives and why the focus is on local control over global connectedness. I turn to demonstrate this model's ability to offer solutions to the aforementioned issue in Uganda to highlight why local approaches prove more effective to global ones.

I. Development and the Environment

For so long, economists have identified the objectives of development as those which enable a nation to use their resources in order to generate wealth. The results of development have been increased environmental degradation, often conceived strictly on the basis of its harm to man. While many preach the importance of sustainability, it is important to make clear what we mean when we talk about sustainable development.

Social Cost and Sustainability

The pursuit of economic development has historically been reliant on the use of fossil fuels and other unsustainable practices which have emitted greenhouse gases. Developmental pursuits have destroyed habitats and biodiversity both directly, as well as through the consequences of climate change. Though unsustainable, these practices have brought forward growth and development, creating opportunities for citizens to live better lives. Nevertheless, there is a social cost associated with the pursuit of development projects. I will use the term social cost as defined by the economist Karl W. Kapp in *The Social Cost of Business Enterprise* as “all direct and indirect losses sustained by third persons or the general public as a result of unrestrained economic activity.”⁴ Social loss may take many forms, tangible or intangible immediate or delayed, however there are two underlying qualities of all social costs. They must be possible to avoid, and they must be a product of a productive course of action.⁵

A social cost is a product of the firms’ actions which result in a negative externality, a consequence of their actions which affects other parties. The difference here is between the direct and indirect effects of the two. The externality is pollution which results directly from the actions of the firm, while the social cost is the reduced quality of life which results from living in a more polluted environment. Waste that is disposed into a water source is an externality, while the loss incurred, that is the loss of a clean body of water, is a social cost. Furthermore, externality can be social or private, and in the course of a discussion concerning social costs, the concern is with social externalities. What makes them social is their non-rivalrous and non-exclusive nature, thus being analogous to a public bad. The prior refers to the idea that there is no extra cost in its extension to an additional person while non-exclusivity to it being one which cannot be withheld from the experience of others. To illustrate, consider an accident in a construction site that destroys a neighboring house. Under Kapp’s definition

⁴ Kapp, KW. *The Social Cost of Business Enterprise*. Spokesman Publishing, 2000. 13

⁵ Ibid. 14

this would be considered a social cost, however the burden of the mishap is on a private individual and it would be more costly if the damage involved a larger set of homes, i.e., it is both rivalrous and exclusive. Climate change externalities, however, bring about social costs. Since every person is exposed to air pollution when it exists, no person can be excluded from breathing the polluted air within the locality, this non-exclusivity holds. Furthermore, the exposure of one person to pollution does not limit another's ability to be exposed to it, thus nonrivalry holds as well, thus no one is free from the reduced quality of the environment.

Externalities specifically speak to the anthropocentrism of economic development. In a 2017 article published by the IMF, Thomas Helbling makes a similar remark stating, “in the case of pollution—the traditional example of a negative externality—a polluter makes decisions based only on the direct cost of and profit opportunity from production and does not consider the indirect costs to those harmed by the pollution.”⁶ One could argue on this basis that economic development is strictly concerned with human needs and ends with a neglect for the needs of the natural environment. Environmental degradation is only regarded by its related harms brought upon man with little regard for the damages done directly to the natural environment. This is tightly related to the anthropocentric conception of sustainability allowed by economic rationality.

If our notion of development is rooted in anthropocentrism, then there will be a continued disregard for the role of nature in the system of economic calculus.⁷ The anthropocentric position which has shaped modern economic rationality is a product of the scientific revolution. As a result, nature was regarded largely in reductionist terms by classical economics with the sole purpose of serving productive uses.⁸ In this perspective then, the social cost of environmental degradation is excused in the pursuit of development and the production of greater wealth. But it would be wrong to continue on this line of reasoning and dismiss attempts at sustainable development altogether because there have indeed been efforts towards sustainability. With an anthropocentric attitude, however, comes the underlying assumption of infinite growth which still exists in the notion of sustainable development as defined by

⁶ Helbling, T. “Externalities: Prices Do Not Capture All Costs,” *Back to Basics: Finance and Development*, 2017. <https://www.imf.org/external/pubs/ft/fandd/basics/38-externalities.htm>

⁷ What I am referring to here is the fact that the economic calculus does not account for the ecological benefits of clean air or water while they are very economically beneficial resources. Furthermore, discussions around the costs of production disregard the relationship between rate of resource consumption and ability of nature to reproduce itself thus discount environmental degradation altogether. For more on this see: Kapp, KW. *The Social Cost of Business Enterprise*. 74-75. Also see: Daly, Herman E. 2001. “Policies for Sustainable Development.” In *Agrarian Studies: Synthetic Work at the Cutting Edge*, edited by James C Scott and Nina Bhatt, 264-284. New Haven and London, Yale University Press, 2001. 266-267.

⁸ Speed, C. “Anthropocentrism and sustainable development: Oxymoron or symbiosis.” *Transactions on Ecology and the Environment* 93 (2006). 324.

neoclassical economics. The failure of strict anthropocentric thinking lies in the inability to recognize the need for change in consumption habits, and rather to merely produce the current consumption bundles more efficiently and expand production with the spare resources. Anthropocentrism is an obstacle in the way of bringing forward a society which can move away from the neoclassical economists' vision. I contend, the instrumental rationality to which economics is bound is the very reason development fails at achieving sustainability targets. There must thus be a more fundamental change in the approach to economic calculus in order to achieve more sustainable ways of life, more precisely, a change in the rationality which motivates economics. Andrew Dobson explains three conceptions of nature and environmental sustainability which I argue also require different forms of rationality.

Conception A describes an approach to sustainability which is concerned with sustaining some particular features of natural capital, what Dobson refers to as 'critical natural capital.'⁹ He gives an illustration of this phenomenon by explaining, "plastic trees which can be designed to perform the same ecological function as real ones are as good as real ones, and the loss of real ones represents no decline in the overall capital base."¹⁰ Conception A is thus only concerned with sustaining what has an instrumental value, or function, that has yet to be substitutable by some human made capital. In conception B, Dobson introduces the notion of 'irreversibility' to formulate a criterion for sustainability which avoids the irreversible destruction of nature and natural capital. Similar to conception A, the concern is again the protection of functions of natural capital which contribute to human welfare.¹¹ There is, however, a recognition of something intrinsic to the natural resource beyond its function as critical capital. The intrinsic value of the tree which cannot be captured by the plastic tree is the irreversible loss. How the tree connects one to nature or how a forest submerges one into a system with a life force of its own. Something poetic is lost which cannot be found in the plastic tree that simply performs photosynthesis. Dobson describes the concern to be about the loss of a 'type' of nature, rather than a 'token' of nature. The 'type' referring to a greater category, such as a species while a 'token' being a single object of that species, a single oak tree being a 'token' while the entire species of oak trees the 'type.' Here there is recognition that no substitute of a man-made product is a perfect substitute for an entire 'type' of nature. Conception C removes all possibility for substitutability by bringing its focus entirely on the

⁹ Dobson, Andrew. *Justice and the environment: Conceptions of environmental sustainability and theories of distributive justice*. Clarendon Press, 1998. 43-44.

¹⁰ Ibid. 41.

¹¹ Ibid. 47.

intrinsic value of nature. It holds that something irreplaceable is lost in every human made capital substitution. The goal of conception C is to prevent the natural world from disappearing into the efficiency calculus which provides human made substitutions. Under this view there is a propensity to protect something familiar, “the defense of the non-human natural world requires that we are sometimes called upon to defend [it], even when human interests seem not to be served by such an action.”¹² This is because while conception B may accept renewal so long as the consumption of one does not disrupt the longevity of the whole when referring to natural capital, conception C does not. Conception C thus regards the loss of a ‘token’ as equally as important as the loss of a ‘type.’ He explains, “old-growth forest systems might in principle be renewable over long periods of time, but their ‘natural value’ will be lost as soon as they are cut down.”¹³

The three conceptions range from strict anthropocentrism to strict ecocentrism from conception A to C, respectively. Conception A treats nature as a resource and only identifies instrumental value thus sustaining only what is useful to man. Conception B on the other hand sustains what it needs from nature in order to prevent any sort of irreversible loss, even if the loss is not necessarily an instrumental loss. Finally, Conception C sustains nature because something irreplaceable is lost anytime something is consumed. Thus, what is being sustained and in turn what is the public bad is different under each conception due to the underlying form of rationality one has when they approach the topics of sustainability. Conception A deals in instrumental rationality, while conception C deals in a more substantive theory of rationality which is why they cannot agree on sustainable practices. Dealing under instrumental rationality is one reason for the limitations of the pricing mechanisms inability to measure the social cost or social benefits associated with economic activity. Karl W. Kapp has made a similar observation stating:

“This system of economic calculation registers neither the social costs of production nor does it measure the social benefits of an improvement of the environment and the quality of life. The price system tells us nothing about the relative urgency and importance for human life of clean air and water, the necessity of avoiding excessive noise, the deleterious consequences of traffic

¹² Ibid. 52.

¹³ Ibid. 53.

congestion and the value of the aesthetic quality of a landscape or the architectural design of a city.”¹⁴

Firms thereby have no incentive to change their business practices so long as they remain profitable. Though there have been numerous policy attempts at reducing the impact of businesses on the environment, they have failed at sufficiently protecting the environment. Kapp provides a perspective on the matter as to why there have been continuous policy failures explaining that a majority of these policies tend to be ‘in conformity’ with the market system.¹⁵ Policy written in this manner does not disturb the system in a manner which demands change, but merely makes it more difficult to continue on the path that it is on.

One way to understand what Kapp is pointing at is the need for a substantive theory of rationality which would ultimately allow for policy to discontinue its conformity with the market system.¹⁶ What I mean by a substantive theory is a theory of rationality which puts an emphasis on certain intrinsic values and formulate preference and thereby goals which reflect these values as opposed to the adherence to efficiency calculus and logical consistency. In the case of environmental protection, within the scope of a substantive theory of rationality which accounts for the intrinsic value of nature, the continued degradation of the environment is irrational, especially beyond the point of irreversible damage. To make this clear, consider the idea of reducing present consumption to ensure future consumption of other generations, or intergenerational consumption and utility smoothing. Under instrumental rationality, and in relation, the *homo economicus*, discounting present utility to ensure future utility is deemed rational but only within the time period of the individual's existence. A classic example of this is consumption smoothing, consumption smoothing only takes into consideration smoothing consumption, and thereby utility, within the lifetime of an individual. But there is not any regard for smoothing social utility across generations. One reason could be because the *homo economicus* cannot conceive gaining utility from the consumption of another generation. Here it is not rational per se to restrict achievable profits for the firm when there will be no consequences in the conceivable future. This is, however, not the case with a substantive theory of rationality since it accounts for the intrinsic value of nature and environmental protection is driven on the basis of this value.

¹⁴ Kapp, K. William. “The distribution and protection of the environment: Economics and Politics,” *Environmental policies and development planning in contemporary China and other essays*. Vol. 4. Walter de Gruyter GmbH & Co KG, 2020. 144.

¹⁵ Ibid.

¹⁶ Ibid. 146.

To make this point clear, consider the case of taxing carbon. The decision to tax carbon and limit these unsustainable practices comes from the judgment that it is important to protect the natural environment. Within the scope of instrumental rationality, it is difficult to justify a tax like this which hinders the efficiency and output potential of the economic mechanism. The policy is, however, put forward with a mode of thinking that aligns with the market system. Instead of limiting the number of inputs a firm may access, or natural resources they may appropriate (e.g., placing a quota on the amount of oil drilled), taxes are used to increase production costs and merely disincentivize their use. Now, one reason for this is that society today is strongly dependent on carbon-based products, and perhaps a strict quota would not be feasible. For this same reason, however, the taxes on carbon which increase the firm's cost of production are transferred onto the consumer through the pricing mechanism which in turn raises the costs of living. With these 'in conformity' policies, there is still the potential of continuing on its current path as they do not create a necessity for change, but merely disincentivize the current path. Furthermore, they limit one to thinking within the framework of the current market system and demonstrate a dependence on what currently is, making genuine changes unimaginable.

Sustainable Development

Sustainable development in contemporary discussions is concerned with finding ways to meet the needs of the current generation without sacrificing, or discounting, the needs of the future generation. It is concerned with smoothing the use and readiness of resources as much as possible across time so in every generation there is an appropriate supply available. This definition can, however, fit into the context of any conception discussed above. When we are concerned with environmental degradation the case is quite different. Under conception A and B for example, cutting down a forest to build more houses is not necessarily a problem so long as we either replace the forest with a viable alternative or so long as we do not destroy all trees in a manner which prevents us from planting more trees in the future. Only Conception C takes issue with the destruction of the forest altogether and describes the act as contrary to sustainability altogether.

What we should be concerned with when we discuss sustainability is not only meeting the material needs of individuals today and in the future, but also preserving the immaterial experience of nature. What I mean by this is the value of nature beyond its instrumental value, its intrinsic value. Instrumental rationality cannot justify a pursuit like this since it does not contribute to efficiency maximization within economic calculus. This is well depicted in

Dobson's earlier example of the plastic trees. Again, something is lost when a natural tree is replaced by an object which is capable of replicating its ecological function. If, however, the loss could harbor greater efficiency by allowing for the logging of trees for lumber and thereby increase the availability of resources, then it is of interest to situate these plastic trees in society for their ecological support. The preservation of what is lost, the intrinsic value of the natural tree, is however, too great of a loss for humanity to bear. To prevent this loss, we therefore require a substantive theory of rationality which can account for the pursuit of objectives like the preservation of nature and wildlife since it is not justifiable under instrumental rationality. A substantive theory will do so because people already hold these sorts of values and judgments about environmental protection. The researchers at the PEW Centre found in 2021 that a vast majority of people in advanced economies believe climate change to be a personal threat within their lifetime. Similarly, people are willing to change their current lifestyle and habits if it means reducing their effect on global climate change. In the same survey, individuals are confident that society is doing what is needed to deal with climate change, however, not that these actions will make a significant difference.¹⁷ These very policy failures are a product of the instrumental rationality-oriented decision making. They have allowed the unsustainable practices of business to contribute increasingly to damaging the environment in the name of development.

The abandonment of instrumentalism altogether is highly unlikely, but it is conceivable to bring forward sustainable practices under conception B which seeks a balance between anthropocentric and ecocentric values. Conception B is highly desirable since under Conception A there is no recognition for the importance or existence of intrinsic value while conception C does so with too much emphasis. Under conception C there is little to no room for economic development to provide the benefits which it does, since the appropriation of any resource is deemed an irreversible loss. Conception B restricts the use of resources which cause irreversible loss of a type of resource as opposed to a token. The reason for this may vary. The argument may be instrumental in stating the irreversible damage done by total consumption of some resource results in a permanent reduction in the future generations' access to resources. A case could also be made that the irreversible damage done by total consumption does not allow for the future generation to experience something important that lies in nature altogether.

¹⁷James Bell, Jacob Poushter, Moira Fagan. "In Response to Climate Change, Citizens in Advanced Economies Are Willing To Alter How They Live and Work," *Pew Research Center*, September 14, 2021. <https://www.pewresearch.org/global/2021/09/14/in-response-to-climate-change-citizens-in-advanced-economies-are-willing-to-alter-how-they-live-and-work/>

Furthermore, the description of irreversible loss is compatible with the definition of social cost established in the earlier section.

As I stated earlier, social costs are those indirect losses which follow productive and unrestrained economic activity and what makes these costs a social matter is exactly that they are non-rivalrous and non-exclusive. Conception A poses great challenges to this definition as is evident in the inability of the system of economic calculus to account for social costs. It is difficult to do so under conception C as well since it would be difficult to justify the appropriation of even a 'token' of nature. Conception B is concerned with the same matters as conception C with less strict regard for 'tokens' of nature, but for 'types.' It is concerned with the irreversible losses within an ecosystem but also the social implications of bearing these costs. It is clear then that if we are to reconceptualize sustainability in this manner, a systemic change is needed in order to proceed with development under this definition of sustainability. I agree with Kapp that strict economic reconceptualization will not suffice. For that reason, we will now turn to discussing alternative models to the current political economy, specifically focusing on the changes that come from collective ownership structures and Ostrom's Common Property Regimes.

II. Is there an Alternative?

In this section I turn to discuss alternative models to the contemporary political economy. The first step of this new model is to account for the preferences of agents which the traditional conception of economic rationality, or instrumental rationality, does not. By engaging with more substantive conceptions of rationality we take the first step towards redefining the means and ends of economic development. This can be done with political reforms which engage the public in development discussions to a greater degree.

Governing the Commons

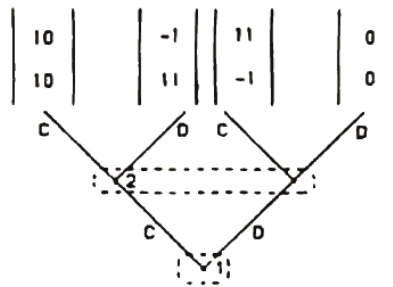
There has been a prevailing belief that common pool resources face grave management challenges and are inevitably subjected to overuse and degradation.¹⁸ Elinor Ostrom's groundbreaking work challenged these ideas by providing both theoretical basis for the success of common pool resources, as well as several analyses of diverse case studies. The ownership structure of Common Ownership Regimes (CPRs) in Ostrom's work states that within a geographic locality inhabited by a group of people, these people ought to own and manage the resources within that locality. Furthermore, the ownership structure gives every individual member of the group a right to the resources. For Ostrom, the ownership right is a cluster of rights which include the right to access, contribution, extraction, removal, management, participation, exclusion, and alienation.¹⁹ This means that any individual is able to appropriate the resource and pursue its use to their own desire should they decide to do so. This is the general idea of what common ownership entails, and evidently it clashes with the premise of the homo economicus which is an agent who is self-interested and utility maximizing.

She responds to a seminal work on this topic published by Garrett Hardin titled *The Tragedy of the Commons* where Hardin argues the tragedy of the commons is the destruction which follows from self-interested individuals with unrestricted access to such resources. Hardin believes individuals will deplete resources overtime due to their short-run interests without long-run considerations and in this way the freedom of one leads to the ruin of all individuals. This is exemplary in the game demonstrated in game 1. In the case where player 1

¹⁸ Ostrom briefly mentions several authors in this regard, see: Ostrom, Elinor. *Governing the commons: The evolution of institutions for collective action*. Cambridge university press, 1990. 12. Also see, Demsetz, Harold. "The Cost of Transacting." *The Quarterly Journal of Economics* 82, no. 1 (1968): 33–53. as well as Smith, Robert J. "Resolving the tragedy of the commons by creating private property rights in wildlife." *Cato J.* 1 (1981): 439–468.

¹⁹ Ostrom, Elinor, and Charlotte Hess. "Private and common property rights." In *Encyclopedia of law and economics*. Edward Elgar Publishing Limited, 2011. 16.

chooses to comply with the rule, player 2 can maximize their payoff by deferring from the rule, the same is true if player 1 chooses to defer. The same holds true for player 1, should player 2 choose to comply, player 1 maximizes by deferring, and the same for when player 2 chooses to defer. The pareto-optimal outcome of (10,10) which results from the strategy (comply, comply) is not achieved by being rational about the game. Rational actions thus achieve a Nash equilibrium which leaves both players worse off.



Game 1. Hardin's Tragedy as a Game

Ostrom, however, argues that the belief in this tragedy is only sustained in formal game theory due to an unnecessary association of common pool goods with the prisoner's dilemma. Ostrom explains that such an association is made to, “evoke grim images by briefly alluding to the popularized versions of the models, presuming, as self-evident, that the same processes occur in a natural setting.”²⁰ This was the case with Canadian fishers in the 1970-1980s. Romeo LeBlanc, the minister of fisheries and oceans, stated that allowing for the freedom to fish as individuals may please, only results in taking resources which belong to no one in particular and leaves both oneself and one's neighbors worse off, while many observers of the fisheries disagreed.²¹ She states that the metaphorical use of these models, like that of this Canadian minister, always results in solutions which impose an external actor, arguing the only way to successfully manage resources is through privatization, or a leviathan. The latter refers to the Hobbesian Leviathan, representing the authority of a central government which controls most of the natural resource systems. The fisheries in Canada met the same fate when the state stepped in and put forward “resulting policy recommendations having an equally grim character.”²² The arguments for privatization also stress the issue of overuse and overconsumption and believe private property rights are an effective method of avoiding these unnecessary inefficiencies. They take the view that in assigning land as private property,

²⁰ Ostrom, Elinor. *Governing the commons: The evolution of institutions for collective action*. 8.

²¹ Ibid.

²² Ibid.

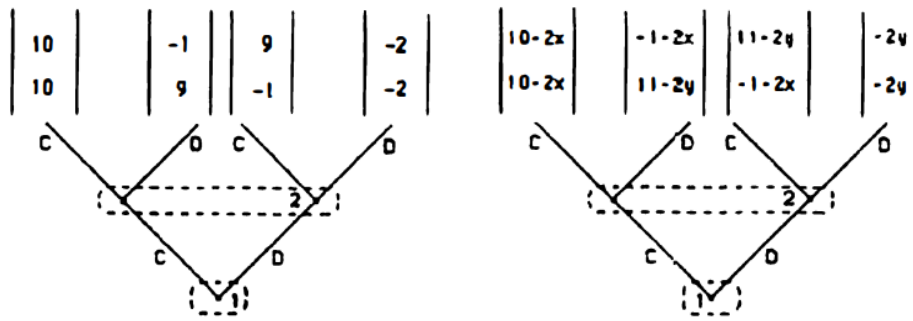
individuals begin to play a game against nature in a smaller terrain as opposed to other farmers in a larger one.²³ Though these models are not wrong, they rely heavily on extreme assumptions which are difficult to generalize into theories.

The assumptions generally bring about the perfect conditions under which the theories achieve their ends. In the case of privatization, these could be unpredictable factors which then leave all risks onto a single individual to bear, while with the leviathan approaches, the complete availability of processable information. With privatization they tend to ignore the fact that private property ties a farmer, for example, to one location which may experience favorable weather patterns while another faces poor weather, like the lack of rainfall, leaving one unprofitable. Though this may be avoidable with some sort of insurance policy, or for one farmer to sell goods to another, there is a high cost associated with the start-up of both these mechanisms. The start-up cost could be avoided if they were to share the larger plot of land and jointly take on the risk of natural causes.²⁴

In the case of Leviathan, she argues that there is a problem of incomplete information since the participants have local knowledge of their environments and resources, but also of the actions their peers take. The assumption leads one to believe the game depicted in game 2 is the situation at hand, where the dominant strategy becomes (comply, comply) leading to a pareto-optimal outcome in the Nash equilibrium when in reality, the situation is closer to game 3. In game 3 the central authority has complete information about the capacity of resources (the outcomes), but incomplete information about the actions of the individuals. In game 3 Ostrom explains that the central authority correctly punishes defections (the correct response) with the probability y and fails to do so at probability $1 - y$ (the wrong response). It also punishes compliant actions (the wrong response) with probability x and does not punish them (the correct response) with probability $1 - x$. The ideal scenario of game 3 is where $y = 1, x = 0$, as depicted by game 2. With incomplete information, however, as soon as there is any incorrect action taken by the state which results in $x > 0$, the pareto optimal outcome where both players comply offers lower payoffs than in the initial game without any central authority. This is a result of the fact that $10 > 10 - 2x$ where $x > 0$. Ultimately this means the potential outcome for mutual compliance of the rules is lower than involving a central authority than if individuals were able to achieve an agreement collectively without intervention.

²³ Ibid. 10.

²⁴ Ibid.



Game 2. Central Authority Game with Complete Information

Game 3. Central Authority Game with Incomplete Information

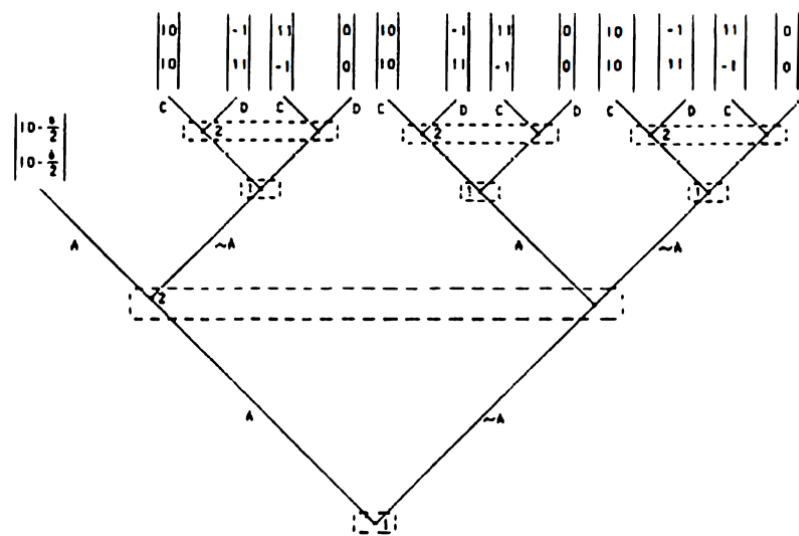
As such, the Leviathan model only achieves its most optimal end on the assumption of complete information, which it more than likely will not have. Furthermore, this solution, according to Ostrom, overlooks the possibility of participants themselves being capable of designing contracts in light of available information to manage resources, and to reject proposals on the basis of insufficient information and doubt.²⁵ Using another case study of fisheries in Alanya, Turkey Ostrom shows how valuable local knowledge is by demonstrating the success of locals in establishing rules of resource use, and its difficulty to acquire stating, “Central-government officials could not have crafted such a set of rules without assigning a full-time: staff to work (actually fish) an the area for an extended period.”²⁶ Common ownership provides the possibility to resolve these issues by both distributing local risks across a group of individuals to ease the burden they may bear as well as allow for individuals to negotiate the use of resources with local knowledge and information, similar to the fisheries in Turkey.

The common ownership structure in Ostrom’s work gives every collective member a right to a resource when the resource belongs to the collective thus individuals are able to appropriate the resource and pursue its use to their own, or the collectives, should they decide to do so. Ostrom argues that if individuals are left to negotiate contractual agreements regarding resource use, then the worst outcome they may face is the (defect, defect) outcome in game 1, but they are left with the potential to negotiate, and collaboratively reach an outcome where they are better off than if they were to defect. This line of reasoning produces the circumstances shown in game 4 below. Here, A denotes the successful agreement according to which resources will be used, while $\sim A$ denotes the failure to establish such an agreement. If the

²⁵ Ibid.17

²⁶ Ibid. 20

agreement is established, then the cost of the agreement is split between the two players thus resulting in a cost of $A/2$ on the final payoff. She explains that the individuals are no longer dependent on the information of a distant government regarding their strategies and can express unwillingness to agree in light of incomplete or biased information.²⁷ As a result, this game always guarantees the worst outcome will be the outcome from game 1, (defect, defect). She explains the benefit of this model is that “a self-financed contract-enforcement game allows the participants in the situation to exercise greater control over decisions about who will be allowed to graze and what limits will be placed.”²⁸



Game 4. Self-negotiated contract enforcement game

This allows for the autonomy which Ostrom seeks to defend. Autonomy refers to the ability for one to decide for themselves the conditions of their local environment which they deem to be tolerable. It is in this premise that the shifts in rationality become possible. If guided by instrumental rationality, it is likely that they will attempt to maximize the amount of resources which could be cultivated up to the limit before which there is irreversible damage done to the environment. This is also the mode of rationality which Hardin and others posit into individuals when they discuss the failures of common pool management. By assuming this mode of rationality, which is that of the homo economicus, individuals would not stop at the point of resource appropriation beyond which there is irreversible damage. Since these agents are self-interested, they do not have a reason to believe in another's commitment to moral

²⁷ Ibid. 16.

²⁸ Ibid. 17.

considerations like environmental protection. They know that if they do not use a resource which could further maximize their utility, then another person will, and as a result the point of irreversible damage will inevitably be surpassed. This is the basis of Hardin's argument. The shift to a more substantive rationality is made possible in their ability to negotiate an agreement which accounts for a moral consideration like environmental consideration. This moral consideration undoubtedly also has instrumental value as it could guarantee long run availability of resources, thus making them better off as Ostrom describes. The negotiation of these agreements, however, will likely shed light on the substantive difference between people which will make coming to an agreement challenging. A disagreement may arise about, for example, how many fish each person is allowed to catch in order to maintain the marine ecosystem. Vegans would prefer no fish be caught and would likely aim to minimize the number of fish appropriated annually, while the fishermen who make a living this way would argue for a large figure, and the two would aim at arriving at a contractual agreement. This will thus begin the shift in forms of rationality discussed in the earlier section.

The common ownership structure, however, results in many collective action problems to which Ostrom does not offer a definitive solution. These collective action problems bring about concerns about the practical feasibility of the model which Ostrom proposes, making it difficult and unimaginable in practice. The trouble does not only seem to be with the common ownership structure, but also the underlying assumption of homo-economicus agents who are motivated by instrumental rationality. This is why critics of this position often argue as Hardin does in favor of privatization or leviathans as the only way of avoiding the tragedy of the commons.²⁹ This is why I propose a collective ownership framework which aims to work around the problems faced by common ownership but succeed in its underlying goal of achieving more sustainable management of resources. In a later section of the paper, I will also demonstrate the ability of this framework to overcome the collective action problems and puzzles which Ostrom cannot solve, making it more potentially feasible. With this framework, I will ultimately show that Ostrom overlooks the success of achieving a higher payout through state intervention, but also that one can protect the autonomy of individuals making their decisions with an external body monitoring the rules set by the individuals.

²⁹ Ibid. 12.

Collective ownership

A new mechanism is thus needed in order to tackle existing problems from outside the scope of the existing framework. It is apparent that no single person can make a difference on their own, and even collectives of people struggle to direct society towards a green future. This exemplifies that there are substantial social connections between individuals on matters of the environment, and generated by these social connections is a recognition of the fact that there is an obligation for justice. The common ownership framework is born out of these social connections and desire for genuine change. The inability to bring forward a sense of environmental awareness which forces the reduction of the global carbon footprint seems to be a product of domination by states and firms. This is similar to Kapp's line of argumentation that actions made from within the contemporary framework are not effective because they are doomed to domination by agents with greater political, or market power. More specifically, we need a new way of internalizing externalities to achieve a more sustainable route of development.

A viable alternative is a collective ownership approach to the management of natural resources. While common ownership permits individuals' rights to land and resources, collective ownership grants rights to the collective, not the individual. Collective ownership can offer an alternative approach to handling negative externalities and its establishment recognizes the collective moral right to the environment. The moral right to the environment is grounded in the protection of a person's needs as well as their autonomy. The first because a healthy and safe environment is crucial to an individual's flourishing and the longevity of their health. The second, and related to the first, consists in allowing for the collective to decide the conditions of their environment which they judge to be just. Establishing an institution which protects and represents this moral right within a legal framework is a step towards the changes in rationality discussed in the earlier section.

The traditional legal approach to managing these sorts of problems is finding ways to restrain the firm in order to compensate citizens for the damage done by firms. Robert Coase, however, argues this approach is not the right one, and gives the following argument:

“The question is commonly thought of as one in which A inflicts harm on B and what has to be decided is: how should we restrain A? But this is wrong. We are dealing with a problem of a reciprocal nature. To avoid the harm to B

would inflict harm on A. The real question that has to be decided is: should A be allowed to harm B, or should B be allowed to harm A?”³⁰

Coase argues that at times where these sorts of externalities are inevitable, one should turn to recognize what is gained from some losses, especially when the losses are marginally small. In turn, the individuals may bargain between themselves to come to an agreement about the production of an externality from one onto the other. This, however, seems to ignore the fact that this externality in being produced by one, and negatively affecting the property of the other, defies the nature of property rights, the very axiom of Coasian Bargaining.³¹ What this question ultimately points to is the importance of property rights, something Coase highlights through the paper. More importantly, the second question leads to the follow up question, ‘is either party allowed to prevent the other party from causing them harm?’ Following this line of questioning into the discussion about property rights, one would argue, B is allowed to prevent A from causing it harm, if A is infringing on B’s right to its property. This is because if B has the right to some property, then they are in the position to manage this property and exist within it as they wish. Anyone who hinders B’s intention with their property thus breaches B’s right to property, which they should be allowed to defend. In this case, B can indeed prevent A from causing harm. The first question is therefore permitted. We are indeed dealing with a matter concerning how to restrain A and it is within B’s right to prevent the harm caused by A if B has property rights where A’s project will produce externalities.

Coase uses an example in his essay which can be used to further emphasize my point. He tells the story of a doctor who purchases property next to a confectioner, whose use of some heavy machinery makes loud noises and disturbs the doctor’s ability to work with patients on his own property. In other words, the heavy machinery used for the confectioner's business creates a negative externality which causes harm to the doctor’s business while he is within his own property. Coase explains when the doctor took the confectioner to court, “The courts had little difficulty in granting the doctor the injunction he sought. The court's decision established that the doctor had the right to prevent the confectioner from using his machinery.”³² The courts decision is analogous to my argument that when one produces an externality which violates another’s right to the use of their property to its fullest capacities, the producer of the externality must face consequences, or be prevented from continuing with such actions. This can be done through a collective ownership structure with well-defined property rights. This form of

³⁰ Coase, Ronald H. "The problem of social cost." *The journal of Law and Economics* 56, no. 4 (2013). 838.

³¹ Ibid. 851.

³² Ibid. 845.

ownership empowers individuals who inhabit a geographic location to protect themselves, and their land from the social costs and negative externalities produced by firms as the doctor did from the confectioner.

My collective approach targets the supply of resources available for appropriation, however, a demand-oriented argument is possible as well. A demand-side argument would state that individuals can take effective climate action by reducing their consumption of certain products, such as meat. The argument relies on the individual's ability to influence the market demand for a commodity and thereby influence the market in another direction. There are two things to be said about this approach. First, the impact that an individual could have at this level would be insignificant. Second, this line of reasoning does not work with commodities that are ingrained into the very fabric of society. The influence some businesses hold over the day-to-day functions of society is so great that the consumers of their product are unable to penalize the firm to keep its activities in line with the consumer interests. An example of such a circumstance is the energy market. Today electricity is a highly inelastic good and in many places in the world energy providers are local monopolies. If the local energy provider relies on fossil fuels or natural gas to generate electricity, as they do in much of the United States, and citizens hold a strong preference for transitioning towards more sustainable practices, the citizens are revoked in their ability to move the market in their desired direction.

Collective ownership structured as a social institution corrects this. It posits the right to the land and resources of the local environment where individuals reside, placing the responsibility of the health of their ecosystem within their hands. Common ownership entails equal rights of all members of a Commons Regime to access the resources within their locality. The collective ownership structure I am referring to is similar, however, it posits the right to the collective good to a group entity, but not to any individual alone. In our case then, there is a right to the decisive use of resources by the collective, however, the individual does not have the right to decide how the resources are used alone. This is the defining characteristic of collective ownership and what makes it drastically different from Ostrom's Commons. These ownership structures can also exist in both a local and global manner, both with drastically different outcomes and implications. In the following sections, I will present a theory of local collective ownership, and finally show why it offers a superior approach to resource management than a global collective approach.

III. The Theory of a Tripartite Economy

The aim is to bring forward the opportunity for the citizen to become engaged within the decisions being made in his community and practice active citizenship. To achieve this one must think differently about the political economy. The proposal is a shift in the ownership of land and natural resources, from the state to common ownership and management. By doing so, the individual becomes actively involved in development projects as the owner of the natural capital necessary for production. To achieve this sort of structure, it is necessary to establish a new social institution with reconstructed property rights - the Land Collective Institution (LCI).

The Land Collective Institution

The purpose of introducing the idea of a Land Collective Institution is twofold. The first is placing the responsibility of the local environment equally into the hands of individuals who reside within the locality. The second, and related to the first, is to constrain both the markets,' and states' access to natural resources to a limit determined by the people who live on the land which holds those resources.

Mechanics of the Institution

The Land Collective is a collective body of citizens within a specific locality with collective ownership rights over the entirety of the land and natural resources, or natural capital, where they live. The institution is one which holds all regulatory power over the natural capital within the locality of its governance and negotiates matters concerning the appropriation of resources with both the firms and the state. Once it is established that the citizens have the sole right to the land via their membership of the collective. Firms who wish to cultivate resources must first be permitted to do so by the LCI thus the citizens are placed in the position to decide how to restrain firms from using their resources and causing potential harm to their environment.

What this structure does is prioritize the interest of the group over the interest of the individual by considering the interest of others in each and every other individual holding the same right. No one can thus act on this right and thereby limit another from acting on it. This description is parallel to Joseph Raz' discussion of collective rights. In *The morality of freedom*, Raz presents three conditions of a collective right stating,

“First, it exists because an aspect of the interest of human beings justifies holding some person(s) to be subject to a duty. Second, the interests in question are the interests of individuals as members of a group in a public good and the right is a right to that public good because it serves their interest as members of the group. Thirdly, the interest of no single member of that group in that public good is sufficient by itself to justify holding another person to be subject to a duty.”³³

By coupling this notion of collective ownership and the right to natural resources with interest theory as Raz does with his first condition, there is an assumption that it is within the management of their environment that is within their interest. This is evident in many cases where individuals have taken the initiative to become involved in the protection of their local ecosystems by protesting for better climate policy. It also speaks to the second condition, that the interests in question are individual interests as members of a group in a public good. Environmental degradation and climate change catastrophes are not private, but social and affect communities of people and their local environment, a public good. Thus, a right to their management, and the management of the public good serves the interest of the individual as a member of the community. Finally, because the good at hand is the local environment, which is of interest to all local citizens, the interest of the individual cannot itself justify holding others subject to a duty which they deem exists. The matter of managing the local environment must be decided collectively among all members.

In this sense, the rights of the LCI are a single collective right to the natural resources which it owns, as opposed to a collection of individual rights as they are in the case of common ownership. For Ostrom, the ownership right is a cluster of rights which include the right to access, contribution, extraction, removal, management, participation, exclusion, and alienation.³⁴ As a result, issues arise when two individuals who have an equal right to extraction, for example, however, they seek different and conflicting ends. The collective ownership framework, in contrast, grants these rights to the collective, not individuals, thus avoiding conflicts where one individual act's earlier than another in order to achieve their end. Instead, they must reach an agreement in order to act on the right collectively.

When the LCI makes a transaction with another body thus transferring the ownership of some land and resources to a private or state entity, they act on their right to exclusion, “The

³³ Raz, Joseph. *The morality of freedom*. Clarendon Press, 1986. 208.

³⁴ Ostrom, Elinor, and Charlotte Hess. "Private and common property rights." In *Encyclopedia of law and economics*. Edward Elgar Publishing Limited, 2011. 16.

right to determine who will have access, contribution, extraction, and removal rights and how those rights may be transferred.”³⁵ This means they grant the third party with access, contribution, extraction, and removal rights to the resources which they well them. Furthermore, they may also act on the right to alienation which Ostrom describes as selling or leasing the third party with management and exclusion rights, however, the LCI must not transfer exclusion rights to the firm in order to maintain its authority in the future sale of the land and resources. If the LCI transfers this right to the private firm, then then the firm is able to sell the land and resources and transfer rights to access, contribution, extraction, and removal without the LCI’s approval. Thus, in the collective ownership framework, the right to exclusion is the only right which the LCI always holds exclusively.

The individuals’ memberships also ought not to be transferable from one to another in order to prevent one from gaining more influence than others in the decision-making process. Establishing collective ownership in this manner brings all members of the collective to the bargaining table around development projects and ensures equal opportunities to communicate preferences into the discussion. By uniting a collective, the ability to exercise social power as a means to effectively guide economic activity becomes possible. The term ‘social power’ here is referred to as a form of deontic power. Deontic powers are legitimate forms of social power derived from normative rules, such as the authority associated with the titles of a police officer, a president or manager. This social power attributed to the LCI is drawn as a form of institutional power by means of their ownership of natural resources, i.e., their authority within the political and economic system as members of the LCI. The social power is posited into the LCI through its formation as a social institution and its collective recognition of the LCI as an institutional fact, hence it being a deontic power by nature.

The idea is thus to create a community out of the collection of individuals when the LCI is made legitimate around a common cause, the protection of the local environment. With the right and ownership of the resources which lie in their locality comes the responsibility of their governance and protection. The collective ownership of the resources means the collective body decides the terms of use of the land, even when they transact with a private firm and transfer ownership rights to the private entity. The institution is a democratic body of locals, who hold equal voting rights, and the only body capable of approving the use of said resources by firms or the State. By placing the responsibility of the local environment into the hands of the locals and giving them decisive authority through this right, local citizens gain the ability

³⁵ Ibid.

to negotiate and even reject the methods of land use and thus the ability to influence the direction of economic development as it occurs. It does so through the unity of the people into a community, thereby the aggregation of the members' preferences, and establishment of environmental regulations and resource management strategies. These strategies encompass the terms of use under which resources are sold to private firms, thus guiding the ecological footprint of markets on the basis of the collectives' sustainability criteria. The institution thus regulates the natural capital as a monopoly in the sense that only they decide how much of this capital may be consumed and the terms of the consumption.

Industrial society, however, has created massive cities with little nature remaining within them. New York City, for example, is not very well known for its mountains and beautiful forests. In other words, the land has been developed into buildings, or properties, and many of these are already privately held. It would seem as though the LCI would be limited here in its ability to manage resources as more urban environments lack natural resources which the LCI would govern, but this is not true. One of the many functions of the LCI is the determination of terms of use of resources within their locality as well as the ability to intervene in market transitions involving the sale and transfer of property ownership. The collective is therefore involved in the facilitation of these transactions by becoming the medium, or bridge, through which the deals flow. The transfer of established private property would go from the owner to the LCI, and then to the buyer. This allows the LCI to negotiate the new terms of use, should it be necessary, before transferring ownership of the property to the buyer. Modifications to existing infrastructure are thus also within the scope of the LCI. In this way, the use of land and resources remains in the control of the LCI, in the hands of the people.

Let's consider the demolition of an apartment block with the intention of developing newer buildings. In the event that these apartments are currently privately held, by inhabitants or by a real estate group, then developers would need to pay out the owner of the privately held apartments, but before doing so, they would need to receive permission from the LCI in order to proceed with their project. The concerns of the LCI about the social costs and changes to their environment would be communicated into the market mechanism thus establishing a price at which they are internalized and accounted for. Similarly for an abandoned apartment block which is not privately held or managed by the state. In this case the proceeds of the sale would be dispersed among members of the LCI as opposed to the inhabitants of the apartments. This sort of mechanism would unanimously apply to any sort of structure, should it be a park or a parking lot, allowing for individuals to be actively involved in the development of their communities.

The LCI thus functions similar to a direct democracy. While some may oppose this aspect on the grounds that common people may not be capable of making informed or efficient decisions about such matters, there are two considerations to keep in mind. The first is the impact of local knowledge on policy decisions, something which Ostrom stressed as well.³⁶ Local knowledge of the ecosystem, its resources and environmental challenges play a critical role in how averse to environmental degradation the policies may be. The citizens of a locality are the only people who directly experience the consequences of a deteriorating ecosystem in their everyday lives. Considering there is regard for pollution as a public bad, it should be up to those who will endure this public bad to decide how much they are willing to and at what cost. Referring back to the argument put forward by Coase, the polluter is the initiator of the public bad. In this case, before one considers whether the people have a right to ‘harm’ the polluter, they must consider if the polluter has the right to harm the public. The only people who are in the position to make this judgment are the ones who will endure the harm, the citizens of the locality.

The second consideration is about how this sort of local knowledge can translate to effective long-term planning not only due to knowledge of the ecosystem but of a general awareness and connection with the land and people. By achieving a greater level of engagement with citizens, especially those who will bear the future burdens of today's environmental consequences can advocate for decisions in favor of environmental sustainability and protection. These voices may counteract the short-term rationale of traditional economic and political processes which often discount future utility. They ultimately work to ensure environmental policies are guided by the collective interests of society. In addition, by achieving a greater level of engagement, revealed preference about environmental awareness will surface allowing for us to distinguish between them from stated preferences. While survey's show people are aware of climate catastrophes and there are some indicators about people's willingness to make changes to their lifestyle for the sake of the environment, these stated preferences cannot necessarily be taken as equivalent to revealed preferences. Preferences will become revealed once individuals are put in a situation where they must act on them, thus encouraging this sort of engagement with environmental policies can also reveal preferences about environmental considerations.

By providing collective ownership of land and resources the LCI ultimately brings the citizens to the bargaining table to give them a say in the activities of the state and firms,

³⁶ Ostrom, Elinor. *Governing the commons: The evolution of institutions for collective action*. 47.

especially when there are social costs tied to their projects. This is made possible by the LCI having the maintaining the right to exclusion. Doing so allows for the effective empowerment and unity of people in a manner through which they can actively intervene in methods of production; everyone can become involved in what it takes to make a difference.

Social Power in Action

The goal of the LCI exercising its social power is thus not to limit the developmental projects, or innovations, but to guide them in a manner which does not infringe on their ability to live within a healthy ecosystem. Pollution and environmental degradation are indeed public bads so there must be a tradeoff between them and the benefits of development which the locals are willing to accept. To illustrate how, consider the following example.

A municipality has signed an agreement with an energy company to allow them to extract coal and facilitate a power plant using the available resources. The project is economically advantageous but will result in increased emissions in the area as well as the destruction of local nature to build the power plant. If we consider this circumstance without land collectives then once the State, who is the owner of the land and resources, has signed over the ownership of the land to the energy company the construction project can begin. Although there is a chance for locals to protest the project because they do not wish for their local environment to be polluted, the outcome of the protest and their protective efforts are extremely uncertain.

This was the case in Queensland, Australia where in 2019 the Australian government signed a deal with Adani Group to proceed with a large-scale mining project in the Carmichael Mines which would extract over 10 million tons of thermal coal per annum. The project, though largely protested on the basis that, “if Carmichael goes ahead, it will destroy the ancestral lands, waters and cultures of Indigenous people without their consent, increase shipping traffic through the Great Barrier Reef heritage area and add around 4.7bn tons of carbon pollution to the atmosphere over its 60-year lifespan.”³⁷ Thousands gathered in protest of the construction of these mines in 2018 through 2019, however the project was carried out regardless June of 2019. Among the majority of protestors were asking for a green alternative, the construction of renewable energy facilities in the place of coal mines³⁸. After years of pressure to proceed

³⁷ Hall, M. “Adani’s Carmichael coal mine controversy explained,” *Mining Technology*. July 20, 2020. <https://www.mining-technology.com/features/adani-carmichael-controversy-explained>.

³⁸ “Adani: thousands protest across Australia against Carmichael mine,” *Guardian*. December 8, 2018. <https://www.theguardian.com/business/2018/dec/08/adani-thousands-protest-across-australia-against-carmichael-mine>.

with greater care for the great barrier reefs and local environment from citizens, as well now from multinational organizations like UNESCO, new projects are being halted and rejected by the government to prevent irreversible damage. The controversial Carmichael mines, one of the largest coal mines in the world, is still fully operational despite ongoing protests.

With the establishment of land collectives, the outcome is vastly different. The State would not have the capability to sell the land and allow investment from the energy company on its own accord. Rather, the land collective would conduct, or mediate the sale due to the right to exclusion being strictly that of the LCI. Through their membership of the land collective, the locals are thus brought directly into the matter thus they are enabled to communicate their preferences into the decision-making process while negotiations take place as opposed to after the fact through protest. By doing so, the development procedure becomes more representative of the local communities' revealed preferences. In the case of the Carmichael mines, if the community disapproves of the methods of the energy company and therefore do not accept the tradeoff between the public bad and benefits of the development project then they directly communicate this into the market mechanism. Revealing this information allows for better decisions to be made and ultimately translates to a more encompassing mechanism.

There are two possible outcomes which would follow from the establishment of LCIs. The LCI could either deny the project altogether or set a price for resources which they deem fair compensation for the incurred social costs. If the collective rejects the project, the energy company could offer to pay more than they initially intended in order to achieve an acceptable trade off. The LCI thus empowers the locals by giving them the ability to raise the price of their fossil fuels and natural resources in an effort to reduce emissions and protect their environment. There would be some price level at which the firm can no longer be profitable and would not pursue the project, thereby the market is limited through the pricing mechanism. Alternatively, the plant may be desirable, though the locality is firm on not accepting the pollution within their local environment. In this case, the firm may try to pursue the project within another locality, however they face the odds of rejection there as well. The implementation of such land collectives could therefore result in any array of NIMBY problems which could be read as signals of undesirable development practices. By becoming price setters of natural resources, the LCIs serve as potential to attract sustainable facilities and promote eco-friendly practices.

The LCI thus plays multiple roles but ultimately it limits the size and scale of the economy to what individuals decide is necessary as opposed to the maximum growth potential of the firm. Furthermore, it acts as a mechanism to push towards more sustainable practices

and promotes environmental awareness limited to that of the people who inhabit the land. It encourages active citizenship and posits the responsibility of ecological preservation into the hands of the collective. This is exactly what the aforementioned conception B view of sustainability, which is concerned with the irreversible losses of the environment, would look like in practice. While today individual action may be meaningless in its contribution to global climate action, by empowering and uniting people in a manner through which they can actively intervene in methods of production, everyone can become involved in what it takes to have influence. The LCI, through revealing the preferences of its members, guides profit seeking firms like numerous invisible hands at once to represent consumer demand. It does so with support from the state, the next institution within the scope of our discussion.

The State

Establishment of the Institution

Transferring ownership of land and resources from the State to the LCI requires establishing the borders of the LCI in a manner which results in a just initial distribution of resources. This just distribution can be understood in many ways, but its primary function is to ensure no single LCI has the ability to hoard resources or to direct markets favorable to itself. If it were that some LCI holds a majority of the forestry while the LCI beside them holds substantially few resources, this would result in an unjust distribution of natural capital. Attempts at a just distribution thus entail minimizing the gap in raw natural resources between neighboring LCIs. Since the LCI are being established from non-existence, it is possible here to start from a position in which the distribution of natural resources among the LCIs would thus follow the distribution of natural resources geographically. If one region is resource rich while another is not, there is little that can be done if they are not located close to one another. On the other hand, two LCI which share a border have a better chance at achieving an equal initial distribution of resources given their border can be drawn as such. The distribution of resources must be contained in clearly defined boundaries to reflect clearly defined property rights.

Determination of the size and boundaries of the LCI is subject to the distinctive characteristics of the local environment. It is also not necessary that the boundaries of the LCI be limited to the boundaries of a nation's provinces, though they ought to remain within the nation itself. A parallel to this is the boundaries of the United States Federal Reserves, though they exist of greater geographic masses than the LC. The Federal Reserve Bank of Chicago for

example takes on the top half of Illinois and Indiana while the bottom halves of the States fall under the management of the Federal Reserve Bank of St. Louis. The establishment of borders between Land Collectives means there are clearly defined property rights, a fundamental condition to ensure the collectives are clearly defined to avoid overlapping and conflicting communities. Ronald Oakerson discusses the importance of establishing borders between commons by pointing at two characteristics of commons, exclusivity, and indivisibility. The principle of exclusion in economics typically refers to the ability of a seller to limit some potential customer from accessing a good or service unless they pay a certain price. In the context of public goods, it refers to the difficulty of limiting access to a good, that there is a high cost of limiting access to the good. With the LCI's ownership structure, exclusivity would refer to excluding nonmembers from partaking in the decisions made by the LCI. The state is the enforcer of these boundaries as well as the rules which come with them. It is typical of commons to have access-control problems as it becomes difficult to prevent overconsumption or free riding when there is open access to goods, but it is different in the case of the LCI. Due to the design of the ownership structure, individuals have ownership of goods but do not have open access to them since all goods are collectively owned and there is a collective right to the goods but no individual rights to their use.

There is thus a shift in attitude towards certain public goods. One would not say for example that a local forest is 'our' forest because they do not have ownership over the forest or its resources, the state does. Within an LCI, however, the forest does become 'our' forest. Even if 'we' do not maintain the forest and establish an agreement with the state or a private firm to do so, it is still 'our' forest. Similarly, a forest in another LCI would become 'their' forest. The establishment of borders allows for exclusivity in a manner which gives a clearly defined meaning to the collective pronoun that it refers to the members of the LCI in which the forest exists.

The establishment of boundaries is also crucial in addressing the principle of indivisibility. If land is divisible such that the LCIs can be formed, then a matter of sketching borders is not only a matter of legal boundaries but physical boundaries. A physical boundary refers to the division based on a natural attribute such as changing the quality of soil or species of trees. The boundaries of the LCI will undoubtedly be legal boundaries upheld by the state, however, it is important these physical boundaries be accounted for. Doing so is necessary in establishing the legal boundaries such that the initial endowment of resources is appropriately proportional to the population of the locality. It would be wrong to assume the distribution can be done in a manner which is perfectly equal, however, measures can be taken in order to

minimize the inequality of the initial endowment which comes from instating the land collective institutions. The reason for ensuring the initial endowment is as close to equal as possible is to make sure there is not an LCI which is capable of monopolizing, or gaining tremendous market power, over the resource which they hold in abundance. It is not because the individuals within a locality would be limited to the resources within the LCI they command, but that one LCI may be positioned better than another to capitalize on its resources due to abundance. If physical borders are not accounted for and one LCI has all the fertile soil, then the state runs the risk of this one group exploiting their control over agriculture. This is, of course, a concern which is addressed by ensuring the distribution is equitable so no LCI will gain market power over some resource and gouge prices. Conversely, if there is a more equal distribution of the resources, then the firm looking to gain access to resources like farmland may be denied access by one, or another may demand a high price, but they will have numerous fountains of opportunity, likely with different attitudes and preferences. Natural resources are similar enough to bring about perfect-competition-like circumstances of bidding by firms to LCI in order to use the resources to produce goods.

The role of the state in distributing the land and in upholding borders is crucial to the establishment of long-lasting collectives. Though I have discussed some conditions for drawing the boundaries, they only scratch the surface. Boundary conditions are highly circumstantial and, in some cases, quite complex as Oakerson explains,

“The commons must posit some set of boundary conditions, even if the physical boundaries are somewhat ambiguous. If the boundaries chosen for the purposes of analysis are too small, then relevant aspects of the problem will be left outside; if the boundaries are too large, then multiple problems may be confounded. Although the precise boundary may be somewhat arbitrary, the relevant question is whether it lies within an acceptable range for the purpose of analysis.”³⁹

Only when these boundaries are set can the ownership of the land be transferred to the LCI. The state’s function is not so different in this model as it presumes its role as justice.

The State as Justice

Once the ownership of land and resources is transferred from the State to the LC, the State assumes its role as justice. The State possesses the legitimate use of violence and uses its

³⁹ Oakerson, Ronald J. "Analyzing the commons: A framework." *Making the commons work: Theory, practice and policy* (1992). 49-50.

power to enforce the regulatory use of land and resources determined by the LC. Here is where the proposed Land Collective is distinct from the Common Property Regime proposed by Ostrom. While Ostrom believes, and demonstrates with numerous cases, that a Common Property Regime can successfully manage common pool resources without the need for private property or government intervention, an approach through the suggested Land Collective dismisses the need for this altogether. While it is common today for the municipal and/or provincial governments to regulate resources, when the Land Collective is established, it will assume only this role. The State is thus left to use its authority to enforce the regulations determined by the collectives. There are three levels of rules to consider which Ostrom explains affect the actions and outcomes of the collective.⁴⁰

Operational rules concern the use and withdrawal of resources by the collective, who monitor the actions of individuals and the process of sanctioning rule breakers. These are rules established by the collective and enforced by the state. Collective choice rules are those about the management of the collective in terms of its policy-making actions. They reflect both how operational rules are created and what they will be. These are internal to the collective and its management structure. The collective is given autonomy in this regard to regulate itself and represent the preferences of its members through the operational rules which reflect the use of resources. The final set of rules are constitutional-choice rules which determine the rules by which collective-choice rules are established and those in turn determine operational rules. They serve to aid in the governance of the collective as well as provide adjudication of discussions and dilemmas. The role of the state with regards to these rules is in monitoring and enforcing operational rules. For example, if the collective has permitted a factory to operate within their domain on the agreed upon basis that the company cannot exceed some level of annual emissions, the agreement is established by the collective and its enforcement is the responsibility of the state. Consider another case, the collective has established a jury duty-like system of voting on development projects so if an individual is called upon to vote, they must do so. The enforcement of these rules is also left in the hands of the state. The collective is thus not given the authority to sanction its own members in order to ensure the legitimate use of violence remains only as a right of the state.

This is done for two reasons. The first relates to the idea that punishment is costly to the punisher. What I mean here, is that by maintaining the state as the only body able to punish citizens for breaking rules related to resource management, we avoid infighting between

⁴⁰ Ostrom, Elinor. *Governing the commons: The evolution of institutions for collective action*. 52-53.

citizens. Wrongful sanctions may be placed for a number of reasons including misunderstandings, misinterpretation of rules and simply conflict between citizens. Furthermore, punishment can be costly to the punisher's reputation as well. If one citizen is to break some rule and several are there to witness the occurrence whereas only one of the several citizens decides to sanction the individual, they risk gaining a certain reputation associated with their actions. This could be a negative reputation related to their voluntary acts of paternalism over others, after all others did not feel they were in the place to sanction the disobedient citizen while the one felt capable. It could, however, be a positive reputation where the individual is regarded as the brave and caring citizen who takes a stand for their community, after all others did not feel the need to sanction the disobedient citizen while the one acted for justice. Regardless of how it could be perceived, the state is instrumentalized to avoid these interactions between citizens as much as possible. This is because in a community where all are equals, if given the opportunity to gain more influence the rational being would do so. The effort is at both removing the potential cost of punishment from the citizens but also at maintaining an equal distribution of social power or influence among citizens.

Second it is to give the state motivation to ensure they sufficiently enforce the law and ensure compliance with operational rules related to resource use and management. Being an elected body in charge of monitoring and enforcing the rules of the collective, their success in doing so would be a determining factor of their re-election. The state is thus the external body with coercive authority to ensure compliance and their motivation to commit to their role as a monitoring body. The state's capacity to monitor and ensure compliance is a determining factor in the longevity of their governance. The state does not, however, only monitor the members of the LCI to ensure lawful citizenship but also firms which engage with the LCI's through market transactions. To discuss these transactions, I will now turn to the market and demonstrate what changes this model brings about in the market mechanism.

The Market

Markets are the most efficient way of coordinating economic activity and allocating resources. Although the reliability of the information within the market may be drawn into question at times, there has not been any alternative system better designed to draw people together and create the opportunity for them to cooperatively meet their needs. This model of political order thus does not suggest that individuals will need to find ways to survive using the resources controlled by their collective, nor suggest any shift towards an agrarian lifestyle. The primary reason for this is due to the extent to which the lives of many have become comforted

by the advancements offered by the market system; it is highly unlikely shifts towards agrarianism would be desirable, let alone feasible. Nevertheless, markets have historically played a significant role in the overconsumption of natural resources. The pursuit of profit and economic growth has incentivized firms to exploit resources with little consideration for sustainability in the long run. Classic examples include the exploitation of the Canadian Atlantic northwest cod fishery and the exploitation of hardwood forests like the Amazon. These overconsumption problems are directly reflected in what is expressed in the problem of supply which refers to the management of resources in an adequate sustainable manner in order to ensure access to said resources in future periods. The question which I turn to answer is then: how should we understand the problem of supply to develop an approach within this framework of sustainable development?

Revisioning the Supply Side

The approach I will take to answering this question is through the lens of the ecological economist and through a model of the economy presented by Herman Daly. In his model Daly presents the relationship between the economy and the environment in which the global economy is understood as a subsystem of the global ecosystem. Being a subsystem, the economy is also dependent on the ecosystem, meaning the size and state of the economy is related to the size and state of the ecosystem. The size of the ecosystem and economy refer to the total number of resources available and those consumed, where the ecosystem is the provider of the resource and economy consumer. Being a subset, the economy cannot consume more than the ecosystem provides and therefore the economy cannot be larger than the ecosystem in which it exists.⁴¹ Furthermore, Daly points out that the rate of consumption ought not exceed the rate of environmental reproduction otherwise the available resources within the ecosystem will decrease over time and so will the size of the economy.⁴² If there is overconsumption in one period, then there will be fewer resources to consume in the future periods. There must thus be a point at which the economy and ecosystem achieve a balance where the rate of consumption and rate of reproduction are such that a steady state equilibrium is achieved. Here is where the solution to the problem of supply lies. The solution to the problem of supply is at that point where the economy consumes resources without degrading

⁴¹ Daly, Herman E. 2001. "Policies for Sustainable Development." In *Agrarian Studies: Synthetic Work at the Cutting Edge*, edited by James C Scott and Nina Bhatt, 264-284. New Haven and London, Yale University Press, 2001. 266.

⁴² *Ibid.* 267.

the environment such that it has the capacity to reproduce resources in the future without periods of shrinkage which would result in scarcity of resources.

This concept already exists in economic literature, it is referred to as natural scarcity, however the concept seems to be overlooked within the traditional framework.⁴³ The alternative view to Daly's which I referred to as the traditional framework does not regard the economy within the bounds of the environment but the environment as a subsystem which supports the economy. This view depicts the economy as a system within an infinitely empty space where it can grow and the environment as a system within the economy. It communicates the understanding that human beings have completely dominated nature, perhaps even surpassed it altogether, in which case the preservation of nature could only be instrumental. Purposeful preservation is categorized as the aforementioned Conception A of sustainability because if nature did not have a purpose, or instrumental value, it would likely not be preserved. Forests, for example, would only be sustained if there is a use for trees which the artificial tree cannot serve, such as farming timber. The economy can thus grow infinitely, but as the economy grows larger it requires more resources to maintain its size and rate of growth, thus the assumption is that the environment can continue to grow with the economy in the long run to supply what is needed. This growth is feasible only to a certain limit since the earth is a finite environment which can only support ecological growth to a certain level. Natural scarcity is thus only considered a problem in the short to medium run but really, it is a problem regardless of the developmental timeline. The supply side must be revised with an understanding of natural scarcity to remove the myth of both infinite supply and infinite growth.

With the tendency of the firms to exploit resources in the pursuit of growth and profits, it would seem the solution to the problem of supply requires for the market to be constrained in a manner in which consumption of resources by firms beyond some amount is not possible. While today the constraints are typically placed by the state, these constraints have proven ineffective repeatedly. This is the shortfall which the LCI is expected to address and by doing so brings the solution to the problem of supply closer. The LCI ultimately empowers citizens and gives them a voice in the activities of firms, especially when there are social costs tied to their projects. The traditional approach to dealing with social costs is to internalize the externalities, to make firms pay for their damages to others. Some common methods of this are carbon taxes which attempt to stop them before they happen, or more directly holding firms la.

⁴³ Daly, Herman E. *Beyond growth: the economics of sustainable development*. (Beacon Press, 2014), 60.

There are many accounts for how social costs should be considered but they all agree on one basic principle, which I have touched on earlier, and it is that there must be clearly defined property rights of all the parties involved. Property rights, specifically the aforementioned right to exclusion, ultimately allow for discussion around the idea of who may use some plot of land, as well as how they may use it. This is the purpose of the LCI, to limit the ways in which land may be used by firms and internalize social costs according to the judgments of those involved.

Supply-Side Policy

Similar supply-side constraining approaches have been put forward by economists in the past. Bard Harstad advocates for a similar approach to supply-side constraints by nation states as opposed to constraints by collective citizens as would be the case with the LCI. Harstad argues that if the coalitions can purchase and control a large enough portion of the global supply of fossil fuels then they could control and restrain their use; this approach is not only limited to fossil fuels but any natural resource. They do so through the collective ownership of the global supply of a resource. He explains,

“...the transaction makes the foreign supply less elastic and it becomes optimal for the coalition to shift to supply-side policies rather than demand-side policies. Once the deposit market clears, the coalition implements its ideal policy simply by reducing its own extraction, without the need to also regulate consumption or trade.”⁴⁴

Once the coalition owns the resource, the reduction of their own use of the resource directly results in a depletion of the available global supply, thus increasing the price by constraining the market. The coalition targets resources based on the social costs imposed by their appropriation and by becoming the owner of the resource, leads change through the management of the supply. This approach also does not allow for free riding. Typically, with emissions agreements, it is in the interest of every nation to advocate for reduced collective emissions while aiming to maximize their own emissions. This is because though emissions do impose social costs, they are also associated with activities which encourage economic growth.

William Nordhaus shares a similar idea in his 2019 paper titled *Climate Change: The Ultimate Challenge for Economics* where he advocates for ‘climate clubs’ which moderate the price of carbon-based resources. He explains, “estimates of the SCC (Social Cost of Carbon) are a critical ingredient in climate-change policy. They provide policymakers with a target to

⁴⁴ Harstad, Bård. "Buy coal! A case for supply-side environmental policy." *Journal of Political Economy* 120, no. 1 (2012). 107.

aim for if they are seeking an economically efficient policy for carbon pricing. They would be an anchor for internationally harmonized carbon prices such as those in the climate club.”⁴⁵ Nordhaus explains that nations could come together in an effort to form collectives which own a vast supply of natural resources and thereby gouge the prices of the resources which they deem ought not be appropriated. Nordhaus explains that the club may set a target ‘international target carbon price’ where they each put forward certain policies which achieve a target domestic carbon price in turn raising the international price.⁴⁶ By forming the climate club and holding a large enough supply of resources, they can exercise their power over markets as a price setter and guide society away from its fossil fuel dependency. He explains, “the notion is that nations can overcome the syndrome of free riding in international climate agreements if they adopt the club model rather than voluntary arrangements.”⁴⁷ Where he also explains that club nations can economically penalize, or sanction, other nations from deferring from the clubs agreement and trying to free ride on the clubs initiative by placing tariffs on their exports.

Both authors seem to believe that a supply-side approach is the best viable solution to environmental policy.⁴⁸ This is because those who hold property rights to natural resources will dictate their use and all following regulatory principles. The fundamental differences between the approach discussed under the LCI and both coalition approaches rest in who decides how these resources will be used. A collection of nation states in Nordhaus’ and Harstad’s coalition, and local citizens under the LCI. The key between the two of these groups lies in the earlier anthropocentric-ecocentric approaches to sustainability. By localizing, as opposed to globalizing, the matter of sustainability to the municipal level we ultimately aim to create collectives of individuals whose losses from environmental degradation are greater. The people of Queensland, Australia experience much greater losses from the construction of the Carmichael mines than the state would experience had the project been rejected from the beginning. On the one hand there are irreversible damages done to coral reefs and marine life, on the other they would give up a project which increases national exports. The significant difference here is the irreversible nature of one to the other, as well as the ability of citizens to recognize these damages and demand not compensation, but for an end to the firm's actions. Once again, the standard of sustainability is made dependent on the members of the LCI who in turn create a market that is representative of the social standard of environmental awareness.

⁴⁵ Nordhaus, William. "Climate change: The ultimate challenge for economics." *American Economic Review* 109, no. 6 (2019). 2004.

⁴⁶ Ibid. 2011.

⁴⁷ Ibid. 2010.

⁴⁸ Ibid. Also see: Harstad, Bård. "Buy coal! A case for supply-side environmental policy." 106.

Social and Transaction Costs

Within a democratic society bringing together firms and citizens when determining the magnitude of a development project also aids in the minimization of transaction costs. As explained earlier, the LCI limits economic activities by approaching the supply-side to the level that is tolerated by the citizens at the time of the project's development. This means there will be a clearly defined guiding principle as to what the project may and may not encompass, with respect to the associated externalities, from the start. All the necessary components of the market transaction take place, however citizens guide them. Coase explains these components,

“In order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on.”⁴⁹

By bringing the public to the bargaining table, the LCI can reduce transaction costs by providing the necessary information which shapes the terms of the deal. This is aligned with Coasian Bargaining which challenges the traditional view that externalities can only be addressed through government intervention and suggests that under certain conditions, private individuals can negotiate and arrive at mutually beneficial outcomes. The key element of Coasian bargaining, as stated in earlier sections of this paper, is well-defined property rights. In addition to property rights, if transaction costs are low and parties can freely negotiate, then they can resolve problems related to social costs and externalities through voluntary exchange.

The reduction of transaction costs could follow through the establishment of the LCI by bringing forward a society organized by citizens' revealed preferences. It is important to note that what is expected is an increase in the costs of goods which are separate from transaction costs themselves. Transaction costs only refer to the costs involved in the process of buying and selling goods, but do not include the actual cost or price of the goods themselves. I assume that the costs for environmentally damaging activities would likely increase if the citizens were risk averse as these individuals would favor sustainable practices. This is, however, true only if the present economic activity is a poor representation of citizens' preferences for sustainable practices; that firms represent a lower strata of ecological risk averseness than people would tolerate. It is also not necessarily guaranteed that anything will change in terms of sustainability. It could very well turn out that citizens are not any more risk

⁴⁹ Coase, Ronald H. "The problem of social cost." 851.

averse, let alone a lot less averse, in which case reducing transaction costs could increase emissions altogether. This approach simply shows that the LCI provides information for the market to function efficiently and reduces transaction costs.

In the aforementioned case of the Carmichael Mines, the Adani Group had initially intended to construct a mine capable of excavating 60 million tons of thermal coal per annum. The firm was forced to reduce the size of the project to 10 million tons due to public outcry which resulted in the loss of funding from several investors. Here, the firm incurred additional transaction costs and in turn had to reduce the size of their project thus diminishing their expected returns. Had there been a representative body like the LCI present, the Adani Group would have achieved a better understanding of what magnitude their project may take on. It could have prevented the revisions which prolonged the project, like redesigning and reconfiguring logistics, which translated to increased transaction costs. This added cost is not necessarily a monetary cost, but it costs the business time; time they could have spent more productively by working on the project if they had reached an agreement sooner.

The LCI ultimately provides the market with more of what the market needs to work efficiently from the very beginning- information. This information comes in the form of a revealed collective preference through the LCIs' exercising social power. Markets thus become more representative of their consumer preferences. Furthermore, the formation of the community through the LCI allows for social power to combat the market power of firms. Even the likes of a monopoly, or local monopolies like most energy providers, must negotiate and bargain with the citizens of a locality in order to pursue their ends. Once again, the sustainability threshold becomes dependent on the members of each LCI making the market representative of the environmental awareness of the citizens.

IV. Tripartite Puzzles

The guiding principle of the design of the Land Collective Institution is motivated by and in agreement with Ostrom's design principles for a successful Common Property Regime. As mentioned earlier, Ostrom runs into several collective action problems which she does not effectively address. These problems must be overcome in the establishment of common pool resources to provide a convincing and practical structure of resource management and social organization. Three important challenges which she identifies are the puzzles attributed to the problem of supply, problem of credible commitment and the problem of monitoring. The design of the tripartite model uses each of the three bodies and assigns them responsibilities which explain the system's ability to overcome collective action problems, bring forward economic prosperity, and promote sustainable development. Addressing these three puzzles will be a step forward in the establishment of an adequate system for collective ownership.

The Three Puzzles

The Problem of Supply

The problem of supply refers to the management of resources in an adequate sustainable manner in order to ensure access to said resources in future periods. Ostrom emphasizes the importance of establishing some protocol or set of principles which address problems of overexploitation and degradation. Ostrom refers to Robert Bates who discusses the problem of supply and identifies a meta-problem, that is, the proposed solution to coordination itself which brings forward assurance of fair use itself constitutes a collective dilemma.⁵⁰ In other words, the solution to the problem of supply is an agreement of the rules of fair use which everyone will abide by. The meta-problem is in the nature of the solution itself because the solution brings forward a collective good. The problem thus suggests that preferences must first be aggregated in order to determine a guiding set of principles. In light of a collective good, the rational individual would be tempted to free ride and secure the good at no cost to themselves, but at the cost of others. Bates argues that the incentive to free ride ultimately undermines the incentive to organize a solution since it is subject to the exact incentive problem which it seeks to resolve. This is troubling because these problems are often resolved within a field setting, therefore a solution to the problems must absolutely exist but in order to do so there must be a degree of commitment to the cause which overrides the desire to free ride.

⁵⁰ Ibid.

The Problem of Credible Commitment

The problem of credible commitment refers to the challenge of having individuals commit to the agreed upon rules. It is thus related to the aforementioned meta-problem identified by Bates which Ostrom addresses. While the meta-problem identified within the problem of supply refers to the collective dilemma which occurs during the determination of rules, the problem of credible commitment refers to the period after, during which the rules have been established. The problem arises because individuals have short run incentives to free ride and deviate from their commitments. This is true for many, if not all, members of a Common Property Regime, in which case Ostrom raises the following question: “But when the temptation arises, how do past commitments bind the appropriator to future sacrifices? And given that it may be possible to steal water without being observed, how do the other appropriators know that commitments are actually being kept?”⁵¹ Since no one wants to be taken advantage of, individuals need reassurance that others will maintain their past commitments in changing circumstances. Many theorists suggest a necessary form of coercion, through the threats of punishment, from an external body may be a viable method of monitoring to assure regulatory compliance. In cases like this, the benefit derived from breaking the rules is smaller than the punishment. This means that if the benefit B is greater than C which is the benefit of acting with the collective, but breaking the rules in the pursuit of B results in some punishment P which is greater than B , then $C > B - P$.⁵² It follows then that individuals are actually best off if they just remained loyal to the collective. Another concern, however, surfaces as a result of this approach which must be dealt with. It is the matter regarding the motivations of the coercive body which monitors and enforces the rules. Ostrom argues that this conversation could be avoided if we consider mutual monitoring an option, in which case we are left with a problem concerning the self-organized groups that must monitor themselves.

The Problem of Mutual Monitoring

The problem of mutual monitoring lies central to both problems already discussed. As explained by Ostrom, “the effort at supply would be pointless unless the appropriators could commit themselves to follow the rules. Unless the monitoring problem can be solved, credible commitments cannot be made.”⁵³ Within the scope of action theory, it is generally assumed that individuals will not be able to ensure regulatory compliance through mutual monitoring.

⁵¹ Ibid. 44

⁵² Ibid.

⁵³ Ibid. 45

Ostrom explains that this was also argued by Jon Elster who touched on mutual monitoring within labor unions, “Why, for instance, should a rational, selfish worker ostracize or otherwise punish those who don't join the union? What's in it for him? ... Punishment almost invariably is costly to the punisher, while the benefits from punishment are diffusely distributed over the members.”⁵⁴ While Ostrom believes the solution to mutual monitoring lies in an understanding of the strategies engaged in the field setting, I will not argue in favor of mutual monitoring. Monitoring is, however, integral to solving the problem of supply since, “without monitoring, there can be no credible commitment; without credible commitment, there is no reason to propose new rules.”⁵⁵ I will therefore instead show how the tripartite approach mitigates the need for mutual monitoring, and establishes grounds for credible commitment by laying the responsibility of environmental protection directly in the hands of citizens.

The Tripartite Solution

To understand how a solution to these problems may be approached one must first see more clearly how these problems are connected. One way to see this is with a bottom down approach which begins with the problem of mutual monitoring. This means solving this puzzle requires figuring out how the problem of mutual monitoring can be resolved in order to establish credibility to the commitment of the individuals to the rules which they have decided upon.

Mutual Monitoring

As discussed earlier, within the tripartite model the border state, on a national or state level, is established as a justice who enforces the rules of the LCI. This allows for the dismissal of mutual monitoring among citizens and to posit the responsibility of monitoring onto a third party. As discussed earlier, the state exists as the sole external body with coercive authority to ensure legal compliance. Their motivation to commit to their role as a monitoring body is the approval of the people's judgment of their ability to ensure sufficient compliance with the LCI's rules. The state's capacity to monitor and ensure a high degree of compliance is thus a determining factor in the longevity of their governance. Simply put, for the party to remain employed by the people, they need to do their job well. This development is not necessarily contrary to Ostrom's work as she opposes the regulation of natural resources by the state as the only way. What she seems to ignore is that even with contractual agreements, the payoff which

⁵⁴ Ibid.

⁵⁵ Ostrom, Elinor. *Governing the commons: The evolution of institutions for collective action*. 45

follows is still lower than in the original game of common pool goods with no contracts, and no state intervention. Only with the intervention of a central authority, the state, the achieved pareto-optimal outcome is of a seemingly higher likelihood. Referring back to game 3, the enforcement of the state will bring forward a pareto-optimal Nash equilibrium with a higher pay off than the inferior Nash equilibrium in game 1, which is ultimately a more desirable solution. Furthermore, as mentioned earlier on, Ostrom does not account for one to defer from the agreement after it is made. Since it is still a possibility for one to break the agreement, a central authority who imposes the agreement would only further nudge the players to commit to their agreement should they be incentivized to defer. Ultimately, with this approach the regulation of resources stays within the control of the collective who holds local knowledge of the existing ecosystem, but the enforcement rules established by the collective is the role of the state bringing forward better potential outcomes for all those involved.

Credible Commitment

Without there being an initial commitment, there is nothing to monitor nor anything to enforce. But even with an initial commitment, and monitoring, how can there be assurance that individuals will have long term commitments to the rules they set forward and things won't always become a matter of enforcement as Hardin and others predict? As explained in an earlier section, there are spectral conceptions of environmental sustainability ranging from anthropocentrism to ecocentrism where more ecocentric attitude tend to protect their environment for some intrinsic value rather than the potential future use value of the resources. By placing the responsibility of the local environment in the hands of its citizens, people with connections to the land itself are empowered to command its use and appropriation. These are people who have a greater sense of connection to the land itself and therefore an understanding of the intrinsic value of the land and what lies there. This is true of many Native American groups across North America whose philosophies and cultures are deeply engaged with the very land of the original settlement. George Grant, a Canadian historian, and philosopher, illustrates this argument when discussing the arrival of Europeans in North America:

“That conquering relation to place has left its marks within us. When we go into the Rockies, we may have the sense that gods are there. But if so, they cannot manifest themselves to us as ours. They are the gods of another race, and we cannot know them because of what we are, and what we did. There can

be nothing immemorial for us except the environment as object. Even our cities have been encampments on the road to economic mastery.”⁵⁶

The idea communicated by Grant is similar to what is put forward by Dobson’s ecocentric conception of sustainability, that something familiar draws one to protection. To make this point especially clear, think of the case of Adani’s Carmichael mines in Australia whose existence directly damages coral reefs and local beaches. The people fighting against the continuation of mining and pollution do not do so because the beaches attract tourists or the resources being damaged are an economic loss to the nation. Rather, it is in an effort to defend their homes and what lies there. The attitude of the protestors is more ecocentric than anthropocentric as a result of their ability to identify some intrinsic value of the environment and fight for it on this basis. By localizing environmental responsibility in this manner, the rules put forward will reflect the environmental awareness of the locality. Individuals’ commitment to following the rules of the collective will be equally as strong as that of their commitment to protecting the land from irreversible damage. While this will likely vary on an individual basis, one would expect greater commitment from the locals than from a foreigner who does not share an understanding of the land’s value. On this basis it is likely their commitment to the rules of the collective will be credible in the short run and promising in the long run with the described system of monitoring.

Supply

The final puzzle rises from the meta-problem within the problem of supply which is concerned with the establishment of the rules of use. The rules of use in turn determine the limit to which the LCI itself will appropriate resources which will determine the magnitude consumed by the market. A corollary to this is the direction of development which the LCI will constrain the market in taking. The meta-problem is therefore concerned with collective agreement on the degree of environmental awareness.

The degree of environmental awareness leads to the determination of the rules which reflect the sale of resources to private firms as well as the terms of use connected to the transaction. An important distinction between the LCI and Ostrom’s Common Property Regime is the design of the ownership structure. It is because the LCI does not grant every member of the collective complete shared ownership of all land and resources, as Common

⁵⁶ Grant, George. "In Defense of North America." *Technology and Empire* (1969). Pg 345.

Property Regimes do, that there is no concern over individuals' direct use of resources. In this way, one could compare the use of public resources under an LCI to one under the contemporary system. Today if I decide to cut down a tree at a local park, the state will fine me for my actions. Under the LCI, if I decide to cut down a tree in a local park, the state will pursue me for my actions since I do not have an individual right to that tree. If a firm wishes to cut down the tree, it must receive permission from the LCI and must proceed in conformity with the LCIs operational rules. For these operational rules to be set, however, preferences must first be aggregated in order to determine a guiding set of principles. To be more precise, the concern here is with the second-level rules of rules, namely collective choice rules, which in turn decide operational rules, the basis of the decisions about the use of natural capital.⁵⁷ Collective choice rules are about how the collective will function and be managed, these in some sense reflect the character of the collective and in turn determine the rules which will guide its actions. Collective choice rules will therefore reflect the aforementioned environmental awareness of the collective and spill into the operations of the LCI.

The second-level of rules reflect a set of beliefs and values upon which operational rules are made. An individual cannot simply change their beliefs at will, nor can they willingly choose to betray their beliefs to free ride. The meta-problem must then be a problem concerning an appropriate system of preference aggregation which sets the foundation for first-level operational rules. The collective choice rules are thus a product of some preference aggregation mechanism upon which operational rules are made. It's important to note here that the types of rules differ greatly between the common and collective ownership structure as well. In commons, the rules are about the use of resources by individuals and challenges arise in assuring people will abide by the rules and not act on their right to the resources which limit others from them. The rules are thus made in light of a right which could be potentially damaging. In collectives, no such a right exists, there is only a collective right to the resources. Rules are instead about the use of resources by those who privately acquire them in order to minimize their production of externalities in an effort to reduce social costs. The rules are thus reliant on the collective recognition of a negative externality being undesirable, and thus translating this judgment into the price system through the rules they establish. The challenge remains the determination of what is a tolerable amount of negative externalities in order to establish rules accordingly.

⁵⁷ Ostrom, Elinor. *Governing the commons: The evolution of institutions for collective action*. 52

If the collective is clearly defined and a community is formed within a locality, the determination of collective choice rules is a matter of communication and collective bargaining. By forming the LCI as numerous smaller cohorts within a nation, perhaps even within regions or cities, the number of individuals within each collective is representative of a percentage of a national population. Within a smaller collective one can expect the aggregation of preferences to be a simpler process and therefore decision making to be easier than in larger groups. Furthermore, engaging with local populations allows for the engagement of local knowledge and the direct and continual engagement with younger citizens. These are the people who will bear the future burdens of today's environmental consequences, and this could in turn translate to effective long-term planning not only due to knowledge of the ecosystem but of a general awareness and connection with the land and people. This is the basis needed for credible commitment which will allow for continuous reason for establishing new rules. Though this aggregation could be done in a number of ways, in the end it always determines the options for first-level rules to be voted on. Once these options are made clear, one way to determine the first-level rules is on a majority rule basis, after which it is the responsibility of the state to monitor and ensure the rules of the LCI are followed.

While a definitive solution to the meta-problem cannot be achieved with this model, it is capable of approaching the more general problem of supply in bringing forward the younger generation in the rulemaking process. Furthermore, solving the meta-problem by encouraging negotiations among smaller collectives is not so unrealistic, as Ostrom shows throughout the paper, it is a phenomenon which occurs in the field setting. By doing so, in the tripartite model, the market is then constrained by the rules established by the LCI, which are enforced by the state in an effort to limit the growth of the economy to some appropriate proportion to the environment determined by citizens. The state not only monitors firms and ensures their obedience of the LCIs rules, but also the members of the LCI itself. If, for example, a member of the LCI started a forest fire in order to reduce the supply of lumber and increase market prices, an act which the LCI deems unjust, then the state would pursue this individual for disobedience. Similarly, if a firm who has purchased land from the LCI is found emitting a greater capacity of CO₂ than permitted on the basis of their right to use upon acquisition, then the state will pursue the firm for breaking the terms of their agreement with the LCI. The commitment of the individuals to both collective choice rules and operational rules is found in their desire to protect their homes, ensure a healthy environment for themselves and for their future selves. This is all, however, only possible when the responsibility of the land is posited into the hands of the people by means of collective ownership. When everyone has a say in the

management of their environment, and their say has the ability to motivate change, they become directly responsible for the future that is to come.

V. Theory in Practice

Local vs Global Approaches

The focus of my discussion has been on establishing collective ownership on a small scale and local level as opposed to opening these matters up to a global platform. This may seem, however, in the eyes of many, to be contrary to the direction of political progress over the past several decades. The global community has not been as interconnected as it is today as a result of the globalization movement whose proponents believe even the management of resources could be done on a global level as opposed to local. A global establishment, however, brings forward consequences which the pursuit of a local establishment aims to dismiss. A similar argument was made by Maria Mies and Veronika Bennholdt-Thomson who connect the globalization movement in the global north to the destruction of commons in the global south through land mobilization programs led by organizations such as the World Bank, IMF, GATT, etc.⁵⁸ Land mobilization programs refer to the initiatives by global organizations to put underutilized land and resources to productive use. These programs typically involve large organizations buying land from smaller poorer countries with rich resources and optimize land use and contribute to economic development.

Mies and Thomson specifically discuss the case of Papua New Guinea where commons have thrived for generations. In fact, 97% of land is held in traditional commons where 4 million people who speak 869 distinct languages are all culturally tied to the land peacefully residing among each other and calling it home.⁵⁹ In the early to mid-90's, the World Bank and other transnational corporations wanted to gain access to the land in further attempts at helping integrate the people into the global economy, however, the citizens of Papua new Guinea refused further intervention. Mies explains, "resistance to 'land reform' at the dictate of the World Bank is therefore a struggle not only for control over communal land but also for preservation of languages, cultures and livelihoods."⁶⁰ The prime minister at the time struggled between the promises of the World Bank and IMF for infrastructural adjustments and new credits of foreign investment and the cries of the people who refused the mobilization of their land which would be stripped of its rich resources. The diverging interests of the state and the people was made explicitly clear as the prime minister urged compliance from the people of

⁵⁸ Bennholdt-Thomson, Veronika, and Maria Mies. *Subsistence perspective*. 144.

⁵⁹ Ibid. 145

⁶⁰ Ibid. 145-146

Papua New Guinea making the statement ‘beggars can’t be choosers.’ This in turn erupted public uproar, protests, and public statements in newspaper articles which read:

“We don’t want to be beggars in rich countries.... The Prime Minister has reduced us to nothing when we know we are blessed abundantly with resources. We are a rich people with what we have.... People who know their true connection to land will understand this.”⁶¹

After months of activism, the people of Papua New Guinea defended their communal land rights. They showed the strength of their beliefs in a different notion of development and resisted modernization which would reduce them to beggars in their own home.

The primary issue with a global approach is that it opens up land use and ownership to the highest bidder, which oftentimes may not be the people who reside where land is being purchased. As a result, those people must bear the social costs which arise from the action of a foreign investor. This is exactly what I have shown is happening at the moment in Uganda. Realizing what the social costs of a project are also limited when the person who leads a development project does not have familiarity with the land or its people. The lack of local knowledge plays a crucial role in the insufficiency of compensation provided to people whose homes are appropriated. As seen with the people of Papua New Guinea, there is something which cannot be replaced or compensated for in the loss of their land, similar to the cases of native groups across North America. Diverging differences in interest and priorities among nations and people bring forward similarly diverging conceptions of development. To insist on one notion over another as being desirable is entirely circumstantial, however, the global approach requires a universal understanding of development which relies on growth and global trade. It would therefore require one to impose this agenda onto the other in order to achieve its desired ends while sanctioning those who do not comply with the universal good. This is one reason for which the divide between the state and the citizen could come to be. While the state is concerned with the state of the nation on a global platform, the citizen is concerned with themselves within their local environment. Leaving the state as the representative on a global level disempowers the individual to actively participate in the development of their local economy, thus the use of their local environment.

Local establishments, however, allow for the autonomy of people to decide on their own how their resources may be used, how they ought to be compensated for their sale, and allows for the holistic qualities of the land to be communicated into the pricing mechanism.

⁶¹ Ibid. 147

The global establishment does not empower the citizens and give them a voice in matters which directly impact their everyday life, the local establishment does. Only by bringing individuals directly into the decision-making process can the citizens of the nation be empowered to direct economic development according to a fair use of resources and acceptable level of emissions. As for the question of how local the collective is to be, in other words the size of the collective, this would depend on the actual geography of the land itself and people's settlement patterns. These discussions typically address collectives in a village context, however, industrial society has more consistent patterns of settlement with larger populations clustered together in cities and towns. These would be acceptable sizes of local collectives so long as geographic characteristics are respected.

The Case of Uganda

With the groundwork of the model established, it is necessary to depict the capabilities of what this system can accomplish with an example of exactly where innocent people fall victim to hegemony. In what follows, I will show how this model opens doors to different potential outcomes in a contemporary situation where there is a conflict between the state, the private enterprise TotalEnergies, and the citizens of Uganda. The map below illustrates the aforementioned pipeline project where the red line indicates the path of the pipeline which stretches from the oilfields in Uganda to the Tanzanian Port. Much of the land in this path is privately owned by individuals who have been pressured out of their homes in order for the construction to continue. The case would be quite different if social organization was to follow the outlined Tripartite Model.

To begin, individuals would not be in the position to simply sell their dwelling to TotalEnergies, nor the Ugandan State so easily. The state would also not be able to simply approach citizens on an individual basis but must approach the LCI as a whole. Additionally, it is unlikely the entirety of the path, even just through Uganda, would be managed by a single LCI in which case the State would have to settle the transactions with numerous LCIs. Addressing these individuals on a one-on-one basis is vastly different from approaching collectives and communities as a whole. The main difference is that the interests of collectives are pitted against each other as opposed to the interests of a collective and an individual. In other words, political power is pitted against social power as opposed to the will of the individual. When put under pressure by the state, the individual may succumb to the coercive will attempting to exploit them, as is taking place in Uganda. There are two ways in which the LCI could prevent this from happening.

First, the individual cannot sell their property to the oil company without the LCI's approval of the oil company's purpose for using the land. If the LCI rejects the project, then the individual's land is protected by LCI and its legal authority since the company cannot pursue the land for that intended purpose. If individuals are willing to sell their property, then the LCI would have to collectively decide on how to proceed. In this case, they would have to engage in a vote to see if there is collective agreement on the sale of land, or if the majority contends the dismissal of the project altogether. The

company cannot therefore purchase land little by little by approaching citizens on an individual basis but must negotiate with a united people. Divide-and-conquer tactics are therefore ruled out, and when left to deal with the united people, the firm or state is pitted against the collective who has greater power in numbers than they do when divided. Ultimately it means two teams with different interests are left to negotiate and find common ground as opposed to a single team pressing an individual to get what they want.

Second, LCI grants citizens the ability to present a structured agreement with TotalEnergies to provide monetary benefits for the people of the land in their agreement to allow the project to occur. It would be wrong to assume the people of Uganda simply do not wish for the project to take place altogether, after all there are absolute benefits which follow development projects. There are many factors at the moment which influence their negative attitude towards the project, such as the fact that many are being cheated out of their land. The LCI, in being a legal entity, presents the members with the ability to defend themselves from exploitation and ensure the distribution of benefits from the project are not limited to the wealthy but are equally distributed among all.

LCI implementation thus offers an alternative outcome which would be highly unlikely otherwise. Firstly, it would be difficult for enough individuals to form a collective body which opposes the state and TotalEnergies for many reasons, one of them being time. For the collective to gather enough people along the path of the pipeline and establish an agreed upon method of managing the coercion from the state and TotalEnergies would take ample time which they do not necessarily have. Within that period of forming the collective, the two bodies

Uganda-Tanzania oil pipeline route



conversely have time to approach people individually as they have now and prevent the collective from reaching an agreement. Secondly, the state would not be allowed to simply approve the project and allow TotalEnergies to begin buying people's land. This is also the difference between the case of TotalEnergies in Uganda and the land mobilization programs in Papua New Guinea. The government in Papua New Guinea was not able to authorize the World Bank's project because the land and resources were not the states to give away. Though it made attempts at encouraging people to comply it is because the collectives existed, and they had a legitimate hold over their land that the people of Papua New Guinea were able to contest the World Bank and the state quickly and effectively. Similarly in Queensland Australia, the time it took for citizens to organize and demonstrate their dissatisfaction with the actions of the state and the Adani Group could have been reduced with the establishment of the LCI.

What the situation in Uganda shows is that there is a general consensus among the citizens about how their land is to be used, creating a basis for the establishment of the rules of use which are required for the LCIs functions. Their persistent resistance to the TotalEnergies pipeline project, and concern for both their ecological and social environment demonstrates their commitment to the cause which in turn has the potential to commit them to their rules. Establishing the state's role as the keeper of these rules and balancing the social and political powers could thus bring forward a more optimal outcome which is not conceivable in the present circumstances. What these cases show is that the LCI offers an alternative path to the situations which arise from conflicting perspectives on economic development and sustainability between citizens, states, and firms. They also have the ability to protect people from strong-arming and exploitation by connecting them with their peers, allowing for the formation of a community. These cases show that a united community of citizens have a better chance at standing for themselves, but they need a legal basis for their actions which begin with well-defined property rights to their land and resources. By redefining the role of the state and positing the ownership of land and resources to the LCI, this model brings the citizen to the bargaining table to give them the opportunity to shape their community as they see fit. The collective ownership framework I have described is, however, subject to the same criticisms as common ownership frameworks. These include matters related to the management of resources, commitment to the rules and monitoring the actions of collective members to ensure fair play. I will turn in the next section to discuss these matters in depth to show the collective ownership framework is designed to work around problems of this nature.

Conclusion

This text has established an argument for an institution, the Land Collective Institution, with collective ownership of land and natural resources as its defining principle. The establishment of such an institution and organization of this form of social power is in an effort to point society towards a new form of social order, the tripartite political economy. The aim of this institution is to empower the everyday person such that they may organize with their compatriots, establish a social power, and guide the development of their society in the direction which they deem just. I have shown this tripartite theory as having the potential to overcome the problems Common Property Regimes often face, but also that it is compatible with industrial society and does not require any shifts towards an agrarian system that most Common Property regimes focus on. This form of institution is similar to many supply side policy papers, similar to those by Harstad and Nordhaus, written about coalitions between nations which seek the control of carbon-based resources, however, it focuses on localizing global problems. It rests on the belief that by addressing the climate problems on a smaller scale, progress can be made in the grand scheme of the global climate crisis. Its ability to do this lies in the capacities of social power to limit both market power and political power from being undeniable in their pursuits. This was made exemplary in both the case of the World Bank's activities in Papua New Guinea as well as TotalEnergies in Uganda.

There are a vast number of areas which I could address within the tripartite economy, including but not limited to taxation, trade, and commerce. But an all-encompassing doctrine of the principles of design would require extensive work beyond the capacities of this project. Future works on such a matter should focus on the design principle of a tax code which provides the LCI with the funding required to preserve the natural resources which it has decided, as well as the principles of trade between LCI and the role of the LCI in international trade. This work has aimed at establishing the groundwork for discussions of other integral matters of the political economy to be possible. Above all things, it ultimately points to an alternative path of progress which Zizek and others have claimed to be unimaginable.

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