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Political Processes of Displacement in Infrastructure Development: the Case of Aldeia da Luz and the Alqueva Dam

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SIT Portugal Fall 2021

Abstract

In 2002, the residents of Aldeia da Luz left their village for the final time, displaced to make room for the Alqueva Dam, a massive regional hydropower and irrigation project almost half a century in the making. The Alqueva Multipurpose Project was marketed by the Portuguese government as a way to develop the impoverished region of the Alentejo and bring innovation to the agricultural sector. The village of Luz was the only physical obstacle to this goal and, therefore, its residents were dispossessed, sacrificed for the development of the greater Alentejo region. However, unlike many other large-scale infrastructure projects that displace populations, the developers of the dam attempted to compensate the residents by reconstructing the village elsewhere. Through analysis of the diverging discourses on the dam and the displacement of Luz this paper compares and examines the perspectives of the residents of Luz, government officials, and residents of the greater Alentejo region on the Alqueva Dam and the displacement of Luz. Using archival news recordings, video testimony, transcribed interviews, and documentary footage, this paper analyzes the displacement of Luz through a lens of critical environmental justice and the Marxist concept of accumulation by dispossession. The application of critical environmental justice and the concept of accumulation by dispossession show that existing distributive and procedural justice mechanisms failed to adequately protect the residents of Luz or prevent developers from benefiting from their dispossession. As Portugal, and the world at large, transitions to renewable energy, these lessons from the displacement of Aldeia da Luz are critical to learn from in order to prevent the further reproduction of unequal power dynamics in future renewable infrastructure projects.

Keywords:

Environmental justice, accumulation by dispossession, displacement, green infrastructure

Acknowledgments

I am indebted to so many people who have so generously given their time, experience, and knowledge to help me in this research. First, I would like to thank Dr. Susana Batel of ISCTE-Instituto Universitário de Lisboa for her wisdom and guidance as my research advisor. Additionally, I wish to thank Frederico Gaspar, as well as all of the staff of Museu da Luz, for welcoming me to Aldeia da Luz and sharing the vast resources of the museum with me. This work would not have been possible without the abundant support and advice of Cátia Magro, the academic director of the SIT Portugal program, and Joana Dionísio, the program assistant. Thank you for showing us the beautiful country of Portugal and helping me shape this research project. I would also like to acknowledge the staff at the School for International Training for their organization of this program and their assistance throughout the program's duration. Lastly, I wish to thank my parents for their love, support, and encouragement throughout my academic career.

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Introduction

Along the banks of the Guadiana River, approximately ten kilometers from Portugal's border with Spain, lies Aldeia da Luz, literally translated as "the village of Light". On its surface, nothing appears to stray from the typical image of a rural Alentejo village: bright white stucco houses with terracotta roofs line cobblestone streets and small family farms where people graze their livestock dot the landscape. But the ordinary appearance of the village obscures a recent history of upheaval and sacrifice. After decades of negotiating and political debates, the residents of Luz became Portugal's sacrifice in the name of development and economic prosperity, displaced in 2002 to make room for the Alqueva Dam, a massive 520 MW hydropower and irrigation project almost half a century in the making. The village was directly in the way of the future reservoir of the Alqueva Multipurpose Project, which local and national politicians proclaimed would bring prosperity to the economically struggling region of Alentejo. Faced with the undesirable "choice" to find new homes or receive a newly built town at another location, residents eventually accepted the displacement. On its facade, the new village has everything a struggling population of residents could want, including newly constructed buildings with modern amenities, a new school building, a cemetery and church reconstructed from the old village, and a museum to commemorate the history and sacrifice of the residents of Aldeia da Luz. The residents of Luz received most of what they asked for in the decision-making and construction process of the Alqueva Dam. In a world where displaced persons are often given nothing, this may appear to be the ideal.

But even a fleeting observation of Luz illustrates that the town has suffered greatly from the residents' dispossession and displacement. The population of Luz has decreased by a fifth. Entire blocks in the newly built village stand empty as their previous owners have either died or moved away. The village remains isolated, underserved, and neglected, its people physically and socially cut off from each other and the surrounding area by the waters of the Alqueva reservoir. Where once the streets of Luz were lively, social meeting places for neighbors, the streets now stand empty and quiet. The tight-knit village has been irreparably altered by its geographical move. Thus, the promise of the Alqueva Multipurpose Project as a sign of hope and prosperity for the region rings hollow for some residents of Luz.

The history of the construction of the Alqueva Dam and the displacement of the village of Luz is complex and politically nuanced. The discourse surrounding this process is analogously complex as residents of Luz, employees of the multipurpose project, and residents of the entire area impacted by the Alqueva Multipurpose Project have varying experiences and perceptions of the successes and failures of the project. In order to begin to understand these discourses and perceptions, this research project will attempt to answer the following questions: 1) How have the residents of Aldeia da Luz been affected by the displacement and rebuilding of their town due to the Alqueva Dam? and 2) What can the architects of future development projects learn from the successes and failures of the displacement of Aldeia da Luz? Through these questions, this research paper will attempt to qualify and evaluate the Alqueva Dam Project through a critical environmental justice lens with a focus on how the dispossession of the Luz

residents directly benefited other people and institutions while also identifying how implications of this case study could inform other development projects. This paper will use the example of the Alqueva Dam and Aldeia da Luz to critically analyze accumulation through dispossession and this process's relation to large-scale infrastructure projects.

I hypothesize that while there were surface-level attempts to ensure procedural justice and distributive justice for the displaced people of Aldeia da Luz, a lack of a critical understanding of regional power dynamics and the relationship between large scale energy infrastructure projects and the dispossession of local peoples contributed to the people of Aldeia da Luz being treated inequitably during this process. As a result, the residents were both materially and culturally dispossessed in order for the government and wealthy landowners to centralize power and accumulate lands. While the Alqueva Dam was supposed to bring prosperity, economic opportunity, and regional development to the people of Alentejo, instead the people of Luz were dispossessed, begging the eternal question: development for who? As many countries in the world look to transition their energy economies to renewable energy, more governments and companies will embark on large-scale renewable infrastructure projects like the Alqueva Multipurpose Project. It is inevitable that at least some of these projects will involve the displacement of populations or the transformation of land ownership and access systems. What remains to be seen is whether these projects can avoid replicating and reproducing the regional and class-based power inequalities that dispossess and displace local people in favor of enriching and empowering corporations, governments, and wealthy landowners through accumulation. By understanding what succeeded and what failed in the case of Aldeia da Luz, future developers and project architects can further tailor development infrastructure projects to respect the rights and needs of local communities.

Literature Review

Accumulation by dispossession

The relationship between infrastructure and displacement can be understood through the Marxist concept of accumulation by dispossession as articulated by David Harvey. Accumulation by dispossession is related to the theory of primitive accumulation which Marx defined as a “historical process of divorcing the producer from the means of production” in which the enclosure and privatization of the commons and the expropriation of land from the peasantry was used to accumulate land in the hands of wealthy landowners and to create a surplus of cheap labor (Marx, 1867). David Harvey expands on the theory of primitive accumulation to explain how these accumulation processes have been adapted for the modern capitalist age.

Accumulation by dispossession is the theory that wealth and power is centralized into the hands of a few by dispossessing the many of their ownership and access to land (Harvey 2003; 2010). Harvey defines four key strategies of accumulation by dispossession in the modern day: privatization and commodification, financialization, the management of crises in the interests of the private sector, and the state acting as the agent of redistribution and regulation (Harvey 2003; 2010). In the case of infrastructure projects, more generally, and the displacement of Aldeia da

Luz, more specifically, the most relevant strategies are privatization, commodification, and the state acting as the agent of redistribution and regulation, though the management of crises in the interests of the private sector is also applicable. Accumulation through dispossession is an inherently spatial process in which peoples' relationship to land and resources, in concurrence with their level of power, is transformed through the transfer of ownership, often as facilitated by the state. Accumulation by dispossession is often embodied or becomes "literally fixed in some physical form for a relatively long period of time" (Harvey, 2003). Physical infrastructures such as dams or other renewable energy infrastructures are an example of how accumulation by dispossession becomes physically fixed. This process is globally connected to the unequal spatial power dynamics of colonization (Harvey, 2003) and is connected within nations to regional power inequalities.

Accumulation by dispossession, especially in the Global North context (in which few true commons exist today), differs from primitive accumulation in that dispossession is decoupled from the creation of surplus labor. Instead, it is the value of "the land and natural resources that contribute to capital accumulation by more powerful actors" (Benjaminsen & Bryceson, 2012). The value of the accumulated property is what said property can do to enrich and empower its owners, whether the owners are private landowners or public institutions. In context, the value of a forest is the trees that can be cut for lumber, the value of a piece of land is the oil that sits under it, and the value of a river is the power it can produce. Under accumulation by dispossession, the dispossessed people are irrelevant in comparison to the value of land and resources, and their labor does not necessarily even hold attractive economic value to those doing the accumulating (Li, 2010). This contributes to "the ever-deepening, dehumanizing chasm that divides those who can act with impunity and those who have no choice but to inhabit intimately, over the long term the physical and environmental fallout of actions undertaken by distant, shadowy economic overlords" (Nixon, 2009). The accumulators act with impunity, while those dispossessed must deal with the loss of their land, livelihoods, and community. Though land and resources hold high value in this process of accumulation by dispossession, this is a simplified and shallow form of value. Capitalism treats nature "as a mere material condition of capital accumulation" (Apostolopoulou and Cortes-Vazquez, 2018), rather than something with complex cultural, communal, societal, and environmental value.

Within the Marxist frame of accumulation by dispossession, the process in which governments, NGOs, or private companies accumulate land in the name of environmentalism—either in the form of land and resource conservation or infrastructure development—is known as green grabbing. This capital-accumulation strategy can be termed *accumulation by decarbonization* (Bumpus and Liverman, 2008). Bumpus and Liverman use this term exclusively in relation to the international carbon offset regime, which covertly privatizes vast amounts of land and commodifies the right to pollute, but I propose that the same logics of accumulation by decarbonization can be applied to other forms of decarbonization, namely large scale renewable energy infrastructure projects, even if said infrastructures are not part of a carbon offset regime. Through these decarbonization infrastructures, massive amounts of land that was previously

communally owned or owned through informal land rights systems are privatized or absorbed into government ownership, public-private ownership, or private ownership for the aim of constructing infrastructure and creating profits. The environmental “good” of decarbonization justifies the formal or informal dispossession of whoever previously owned, utilized, or accessed the land. Large-scale renewable infrastructure projects are particularly attractive for these logics of accumulation by decarbonization because they combine the moral narratives of environmentalism, national energy security, job creation, and economic development into a worthy narrative opponent to the plights of dispossessed residents. These decarbonization processes “result in dispossession of land and resources from local users, as well as capital accumulation by more powerful actors,” and even when local land users do not lose access to the land or are otherwise compensated “it is rather the benefits from the land and natural resources that are privatized” (Benjaminsen & Bryceson, 2012). Accumulation by dispossession in an environmental context can, therefore, become an environmental justice issue.

Critical Environmental Justice

Mainstream environmental justice has long been concerned with the ethical ramifications of infrastructure projects, both renewable and non-renewable. The three main tenets that undergird this understanding of environmental justice are procedural justice, distributive justice, and recognition. Procedural justice is when all stakeholders, and most importantly the ones with the least power, have the right and ability to participate in the decision-making processes for decisions that affect them (Agyeman, Bullard, & Evans, 2003). Distributive justice in the case of an infrastructure project is the equitable distribution of the environmental, social, economic, and political burdens and benefits of the given infrastructure (Walker, 2009). Although the two are not inextricably linked, distributive injustice is sometimes the result of a lack of procedural justice in the planning and decision-making processes of an infrastructure project. The last component of mainstream environmental justice principles is recognition. Recognition is when individual and community identities, cultures, traditions, etc. are recognized, respected, and valued. A lack of recognition appears as “the processes of disrespect, insult, and degradation that devalue some people and some place identities in comparison to others” (Walker, 2009). This paper will examine the displacement of the residents of Luz through these principles to determine whether these principles were upheld in this case and, furthermore, whether these principles alone are true measures of justice.

As procedural justice, distributive justice, and recognition have been adopted by the mainstream, these principles have become co-opted and warped to suit the needs of those already in power rather than those who are most affected by environmental injustice. When procedural justice is uncritically adopted by a corporation or government, it can be co-opted to superficially legitimize decision-making processes and used as a shield to deflect future criticism. Governments or corporations may tout that they value public engagement and public participation in decision-making processes but these do not specify how this engagement and participation was solicited and utilized. Public engagement in decision-making can take three

main forms: communication, consultation, and participation (Knudsen, Wold, Aas, Haug, Batel, Devine -Wright, & Jacobsen, 2015). Weak procedural justice may only involve communication — the one-way dissemination of information from the infrastructure developer to the affected populations—or consultation—the one-way dissemination of information from affected populations to the developer (Knudsen et. al, 2015). Even when affected populations are allowed into fully-fledged dialogues with developers about their needs and thoughts on the project, this form of engagement can lead to injustice if the voices of the affected populations do not carry weight or affect actual decision-making. To ensure true procedural justice, affected populations must have a decisive role in good faith negotiation in which they are able and have the support to participate in dialogue with concrete outcomes. It is also vital to recognize the unique experiences, values, and cultures of affected populations and respect how these unique aspects affect their articulated needs. Likewise, it is vital to the integrity of decision-making processes that the complex perspectives of affected populations are included and given due weight throughout the entirety of the process. Under an instrumental or substantive rationale, stakeholders' perspectives, especially those stakeholders with little economic or political power, are only included when necessary to smoothly implement a project or when said perspectives are helpful to the process, respectively (Wesselink et. al, 2011). The complex needs of affected residents are thus deemed an impediment to development and waved away under the guise that technocrats and businesses are more educated on the needs of the population. Institutionalized participation without recognition of, and active push back against, existing power dynamics undermines procedural justice. Though institutionalized engagement is commonly viewed as an uncomplicated, undemanding form of democratic decision-making, these processes are easily manipulated by actors to become symbolic processes that legitimize unjust decisions rather than serve as ongoing negotiations to secure justice.

Governments and companies have readily co-opted distributive justice to justify and legitimize accumulation by dispossession through infrastructure projects. By compensating dispossessed people with a one-time reparation of money or land, institutions can write off long-term sharing of benefits to affected populations. In the case of hydropower, compensation schemes have failed to be satisfactory to recipients elsewhere globally. For example, the Three Gorges Dam project, which was constructed around the same time as Alqueva, attempted to compensate some displaced populations with land parcels, but as all of the desirable land in the area was already owned, the few people who were compensated with land found themselves unsatisfied with the trade of their old land for new, less fertile land that they had no experience farming. As very few people were even compensated with land at all, most people ended up displaced both from their land and their livelihood as farmers (Wilmsen et al, 2011). Although compensation for land and belongings lost due to displacement seems straightforward, the very idea of value is subjective, difficult to calculate, and involves the quantification of intangible things. Almost inherently, compensation is imperfect and destined to victimize those vulnerable populations that are already marginalized, isolated, and dispossessed. Supposed distributive justice can become unjust when it legitimizes the unequal distribution of burdens and benefits

through financial reimbursement, which cannot serve as complete compensation for the complexity of what is lost through dispossession.

A more expansive, critical environmental justice lens is necessary to understand this case and determine whether due justice was given. Critical environmental justice understands, acknowledges, and reproaches the regional and class-based power structures and inequalities that are perpetuated through top-down infrastructure and development projects. Critical environmental justice also illuminates and criticizes energy colonialism, which is the reproduction of “colonial exploitative and racialized economies...by exporting the socio-environmental risks and harms of renewable energy generation and associated mega infrastructures and extractive activities to the Global South but also to vulnerable and marginalized places” in the Global North (Batel, 2021). Under capitalism, renewable energy infrastructure projects reproduce the exploitative economic and material conditions of fossil fuel infrastructures by centralizing power and capital in the dominant class (Batel, 2021). Without an explicit critique of multiscalar capitalist and colonialist power dynamics, the paradigm of environmental justice is incomplete. In the case of infrastructure development, critical environmental justice is vital to understanding how capitalist hegemony, class structures, and regional inequalities are reproduced through accumulation by dispossession.

Infrastructure and displacement

Globally and historically, large-scale infrastructure projects, specifically hydropower dams, have been lightning rods for controversy, specifically because of the displacement and environmental impacts of said projects. As a result “anti-dam sentiment is widespread and often vehement” (Wateau, 2014). One example of the long-lasting and compounding consequences of hydropower displacement is Tignes Dam in France. The dam was supposed to modernize and develop the war-torn post-World War II countryside but the construction of the dam instead displaced an entire community (Wateau, 2014). Though decades have passed since the construction of the dam, the wound is still fresh as “hope and sorrow are still handed down through the generations, and with indignation” (Wateau, 2014). Though the displacement of a community may seem like a small consequence in the long term of regional development, the former community of Tignes’s ritual of returning to the location of their submerged town to memorialize their loss shows that the destruction of a community creates deeply and intimately felt consequences for a long time. Recent examples of controversial hydropower projects include the Three Gorges Dam in China, Narmada in India, and Belo Monte in Brazil, in which large amounts of already structurally disadvantaged and vulnerable populations were displaced from their land in favor of the hydropower projects (Fujikura, Nakayama, & Takesada, 2009). The most infamous example of these is the Three Gorges Dam in the Hubei province of China, a 22,500 MW hydropower dam that displaced an estimated 1.2 million people (Brooke, Webber., & Yuefang, 2011). The Three Gorges Dam began and ended construction within a year of the Alqueva Dam but attracted far more criticism and controversy globally because of its massive scale. In comparison to the Three Gorges Dam, Alqueva Dam is only 520 MW and displaced 373

people, but the ethical implications and respective successes and failures of both projects are invaluable to understanding the relationship between renewable energy infrastructure, development, and displacement.

Portugal has a history of controversial energy infrastructure projects. The beginning of the modern environmental movement in Portugal was sparked by protests against a proposed nuclear power plant in Ferrel in 1976, the same year that the first phase of construction began on the Alqueva Dam (EJAtlas, 2020). Portugal alone has over one hundred hydropower plants, which comprise 28% of the electricity produced in Portugal as of 2020, and several future hydropower projects in the works (EJAtlas, 2020). Despite this large number of dams, hydropower has historically been and is presently very controversial in Portugal. In 1972, just four years before the start of the initial construction stage of Alqueva Dam, the Estado Novo regime forced the residents of Vilarinho das Furnas from their town by intentionally submerging it during the filling of the Vilarinho das Furnas Dam (Wateau, 2014). Following the legacy of the Estado Novo dictatorship, the Portuguese government's usual practice for planning hydropower projects is allowing some public input on the location of proposed dams but not on whether the dams should be built at all. Other recent dam projects such as the Sela Dam and the potential damming of the Côa River faced so much opposition, from both archeologists advocating against the submersion of cave paintings and from impacted residents, that the Portuguese government shelved both projects within the past two decades (Wateau, 2014). Today, the public controversy over hydropower in Portugal has shifted to widespread international criticism of and national protest (through the Terra de Miranda movement) against the Portuguese government's allowance of the sale of several large dams in the north to foreign companies (EJ Atlas, 2020). The Alqueva Multipurpose Project is just another event in a pattern of controversial at best and unjust at worst hydropower projects in Portugal. But because hydropower is economically attractive as a vehicle of development and environmentally attractive as a renewable energy, private companies and governments will continue to construct hydropower projects in Portugal and elsewhere.

Proponents of infrastructure projects promise that these infrastructures will benefit local populations by improving quality of life, increasing employment, and developing the area. These promises are predicated on the idea that rural communities are in need of development and assistance from outsiders (Rudolph & Kirkegaard, 2019). Developers use rhetoric to argue that rural communities are impoverished and therefore should be grateful when presented with infrastructure development, which precludes and eclipses rural communities' qualms about whether they will actually benefit before these qualms are even raised. Often, infrastructure projects are divorced from their material and social surroundings. But these physical sites, like "a mine, a dam, or a road in the forest are not isolated objects but connected sites where value flows, where accumulation occurs, and injustices expand" (Temper et al 2015). As sites of capital accumulation, infrastructure projects can sometimes become sites of inequality, where value is distributed unequally.

There is a significant amount of literature on the long-term effects of infrastructure displacement and specifically displacement due to hydropower. Research on communities that were displaced by dams in Japan found that even when displaced populations initially held overwhelmingly negative perceptions of a hydropower project, over time, resettlers' perceptions improved (Takesada, 2009). Still, the resettled communities tended to face population issues such as an aging population and depopulation (Takesada, 2009) along with having continued resentment towards the development company and the government because they felt victimized by national policies and resented that outside investors supplanted resettlers in their new communities (Fujikara et. al., 2009). Displacement and relocation have long-term effects on individuals' mental health and place identity as well as affecting community resilience and community satisfaction (Luis, Neves, & Palma-Oliveira, 2015). In order to mitigate these negative effects, developers should keep in mind that "geographical settings, values, societal preferences, and other factors are so diverse that a new project cannot simply imitate previous 'success stories,' so resettlement programs must commit long-term, both before and after displacement and resettlement, to continuously negotiate and consult with resettled communities" (Fujikara et. al., 2009). Globally, there are many plans for new dams, and the number and intensity of these conflicts are only increasing. It is therefore critical to understand how hydropower infrastructures cause displacement and how the negative consequences of this can be minimized.

Alqueva Dam

The Alqueva Dam was originally conceived under Portugal's Estado Novo dictatorship. The goal of the Alqueva Dam and the Alqueva Multipurpose Project was to develop Alentejo, one of the poorest and driest regions of Western Europe, into a center of agriculture and tourism through a regional irrigation system, strategic water reserves, and energy regeneration. Alentejo has a Mediterranean climate and is, therefore, a drought-prone region. Several multi-year droughts in Portugal (most notably in 1994 to 1995) motivated the Portuguese government to improve water security in the region. The Portuguese government created Empresa de Desenvolvimento e Infraestruturas do Alqueva (EDIA), a public limited company in the state corporate sector that is supervised by the Ministry of Agriculture, Forests and Rural Development, to develop and oversee the Alqueva Multipurpose Project (EDIA, 2021). EDIA is partially funded by the Portuguese government and the European Union. After several years of negotiation with the European Union, the Portuguese government received confirmation in 1997 that the EU would pay for up to two-thirds of the final cost of the project (Wateau, 2014; Jaquerod & Pereira, 2003). Without this financial contribution from the EU, the Alqueva Multipurpose Project, which cost an estimated €4 billion or more, would not have been possible for the Portuguese government to fund alone.

The Portuguese government desired to build the Alqueva Dam for several reasons, chief amongst these was to create a strategic water reserve in the event of a future drought. As a strategic water reserve, the Alqueva Reservoir stores enough water for the region for three years

of drought, according to an EDIA employee who was interviewed. Alqueva Dam was also a geostrategic infrastructure for Portugal as it would be a counterweight to the multiple dams Spain had already built on the Guadiana River basin and would improve Portugal's energy security by decreasing the country's reliance on imported fossil fuels. In the realm of national politics, the Alqueva Dam had become a beacon of hope and a fabled symbol of future prosperity for the struggling, underdeveloped, historically neglected region of Alentejo. The Alentejo region had suffered decades of depopulation and economic decline due to a combination of interconnecting problems: a drought-prone climate, the decline in economic importance of agriculture, underdeveloped regional infrastructure, and long-term mass unemployment. The area studied in the project's Environmental Impact Assessment had an unemployment rate of more than two times the national unemployment rate (AGROGES & AgriCiência Consultores, 2004). With little else to have faith in, the promised Alqueva Dam became a vessel for a regions' hopes for a better future and, therefore, "the dam became a political necessity, irrespective of economic or environmental consequences" (Joanaz de Melo & Janeiro, 2005). Despite significant doubts about the efficacy, feasibility, and profitability of the Alqueva Multipurpose Project, the project was implemented.

The negative consequences of the construction of the Alqueva Dam are threefold: environmental, archeological, and place-based. Before the dam was filled, vital habitats and ecosystems were destroyed to clear land for the dam and reservoir. This proved to be the biggest motivation for direct opposition to the dam, as several environmental groups, led by Quercus, protested for the dam to only be filled to 139 meters, rather than 152 meters, to save an area of cork trees and several habitats that are important to endangered species like bats and the Iberian Lynx (BBC, 2002). In addition, hundreds of Stone Age cave drawings and other archeological sites were submerged. But the largest consequence is that the entire village of Luz was razed and displaced. This meant that approximately 373 people were moved from the old Aldeia Luz to the new one.

Figure 1: Timeline of the Alqueva Multipurpose Project and the Displacement of Aldeia da Luz

Year	Event
1957	Salazar orders his regime to analyze the feasibility of an irrigation and hydropower project in Alentejo. The Alentejo Irrigation Plan is drafted.
1968	The Portuguese-Spanish Agreement of the 29th of May 1968 is signed, which gives Portugal the right to the hydraulic use of the Guadiana River.
1974	Carnation Revolution and the end of the Estado Novo regime
1974-1976	Multi-year drought in Portugal
1976	Adoption of the Portuguese Constitution and the beginning of the Third Portuguese Republic. Preliminary construction of the Alqueva Dam begins under

	the Socialist Party government of PM Mário Alberto Nobre Lopes Soares
1978	Construction of the Alqueva Dam stops after a new government comes to power and raises questions about the financial viability of the project.
1990-1992	Multi-year drought in Portugal
1993	Under PM Aníbal António Cavaco Silva of the Social Democratic party, the National Council of Ministers decides to resume construction of the dam and creates Empresa de Desenvolvimento e Infraestruturas do Alqueva (EDIA) to oversee the Alqueva Multipurpose Project.
1994-1995	Portugal experiences an extreme drought nationwide. The drought is especially bad in Alentejo where local governments had to ration water and municipalities experienced water supply interruptions. The integrated environmental impact assessment of the planned construction of the Alqueva Dam is conducted.
1995	Construction of the Alqueva Dam restarts under PM António Manuel de Oliveira Guterres of the Socialist party.
1997	The European Union confirms funding for the Alqueva Multipurpose Project in its 1994-1999 Community Support Framework.
1998	Construction of the new Aldeia da Luz begins.
2002	The residents of Aldeia da Luz are displaced and move into their new village. Alqueva Dam is inaugurated by PM José Manuel Silva of the Social Democratic party and the reservoir is filled.

Source: EDIA (2021), Universidade de Lisboa (2012), BBC (2002).

Methods

Throughout this research, I employed mostly qualitative methods of data collection and analysis to examine the political processes of the displacement of the village of Luz and the effect of this displacement on the populace. This research primarily relies on secondary sources in the form of archival news recordings, video testimony, transcribed interviews, and documentary footage of residents, politicians, and representatives of Empresa de Desenvolvimento e Infraestruturas do Alqueva (EDIA). While some of these sources had already been translated (Museu da Luz, 2006; Jaquerod & Pereira, 2003), several sources (AGROGES & AgriCiência Consultores, 2004; Dias, 2012; INE Censos, 2011; INE Censos, 2021; Rádio e Televisão de Portugal 1978; 1980; 1993; 1995; 2001) had to be translated from Portuguese to English using my introductory knowledge of Portuguese, Portuguese dictionaries, and an online language translation software. Much of the available research and media about the Alqueva Dam is written in Portuguese, so there is a dearth of media in other languages on this topic. Additionally, most analyses of the Alqueva Dam have only focused on short-term

impacts, so there is a research gap in analyzing the effects of the Alqueva Dam after several decades of its existence.

My primary frame of analysis is a theme and discourse analysis comparison of opposing perspectives of the Alqueva Dam and the displacement through a Marxist lens of accumulation by dispossession as articulated by Harvey. I used videos and text transcripts of residents of Luz, EDIA employees, local and national government officials, and residents of the Alentejo area to analyze how their separate but interrelated discourses about the Alqueva Dam and the displacement of Aldeia da Luz changed over time from before the displacement to after the displacement. This analysis is supported by ethnographic observations of the village of Luz, an examination of related texts and media released by EDIA and the Portuguese government, an analysis of secondary media sources (both text and video), and the translation and analysis of archival video testimonies of Luz residents and documentation of the displacement process. I also spent three days in the village of Luz conducting ethnographic observations and viewing the Museu da Luz's video archives.

Much of the existing public data of Aldeia da Luz, both qualitative and quantitative, comes from EDIA, the very company which displaced the population of Luz. The Museu da Luz itself, and its collection of archival footage (Museu da Luz, 2006), is financed by EDIA. EDIA's role as financier calls into question the legitimacy of the documentaries and makes the editing of the testimonies suspect. As a viewer, this financial relationship complicates one's ability to separate good faith atonement for past injustices from the company's attempt to obscure the realities of the displacement and shield itself from criticism. Media directly from EDIA praises the dam and rarely, if ever, mentions the displacement of Luz (AGROGES & AgriCiência Consultores, 2004; EDIA, SA, 2015; Empresa de Desenvolvimento e Infraestruturas do Alqueva, 2021). However, the Museu da Luz's media and archival videos are very critical of EDIA, the Alqueva Multipurpose Project, and the entire decision-making process for this project. What is left to determine is whether the critical nature of these media pieces is only surface-level accountability. Therefore, I relied on other sources of archival testimony (Dias, 2012; Tedim, Sullivan, & Estrela, 2009; Jaquerod, M., & Pereira, 2003; RTP, 1980; 1993; 1995; 2001) to corroborate the videos that were in part financed by EDIA.

Ethics

I relied on existing video testimony from before, during, and after the construction of Alqueva Dam and the new village of Luz. It was necessary to rely primarily on this archival footage because the planning and construction phases of the Alqueva Dam, as well as the public discourse over the displacement of the village of Luz, began in the mid-20th century and construction of the dam ended in 2002. Therefore, many of the residents who experienced this long process of displacement have passed away. Additionally, the village has also experienced decades of population loss due to an increasingly aging population, a lack of migration into Luz, and a flow of younger residents leaving Luz for more centralized, urban centers, so many previous residents no longer live in the parish. It has been two decades since the initial move to

the new Aldeia da Luz, so memories of this displacement may have faded over time. One limitation in my methodology is that my ability to speak Portuguese is still quite rudimentary, making it quite difficult to conduct interviews with residents about their current perspectives on the displacement of Luz at the level and emotional depth this topic deserves. For the above reasons, I relied on archival footage and testimony as the most robust sources of residents' perspectives at the time of displacement, rather than current-day interviews about past events.

Any quotations of residents are taken from archival news media (Rádio e Televisão de Portugal 1978; 1980; 1993; 1995; 2001; BBC, 2002; Dias, 2012), documentary footage (Museu da Luz, 2006; Jaquerod & Pereira, 2003), or previous academic studies (Tedim, Sullivan, & Estrela, 2009; Wateau, 2014). These quotations are not from interviews that I conducted and, therefore, do not need specific informed consent forms for each interviewee. Although some of these documents and transcripts do include the names of residents and EDIA employees with their permission, I have anonymized the transcripts and the quotations used in this paper as a precautionary measure of privacy. Any names or identifying information of residents and private citizens have not been included in this paper. I have only included names with quotations if the speaker is a public figure, such as a national or local government employee (i.e., a prime minister or mayor of a parish). All statements from these figures were published in news media in either video or print form and are, thus, public knowledge.

Results and Discussion

“I was ten when it all happened...people move houses, new churches are built...but what happened here was altogether different. Everything changed all at once, so it would seem as if nothing changed at all. This is Aldeia da Luz, the village where I was born. Now my village doesn't live here anymore.” (Museu da Luz, 2006)

In 2002, as the floodgates of Alqueva Dam closed, just under four hundred residents of Aldeia da Luz were relocated from their old village into their new houses in Nova Luz. Since this time, the village has experienced a marked decline in population and community identity as the population ages, elderly people move to more accessible municipalities or pass away, and young people leave to find work elsewhere. Even before displacement, Luz was relatively geographically isolated, as a rural village in the underserved region of Alentejo, but it is even more isolated

Figure 2: Map of the old and new villages of Luz



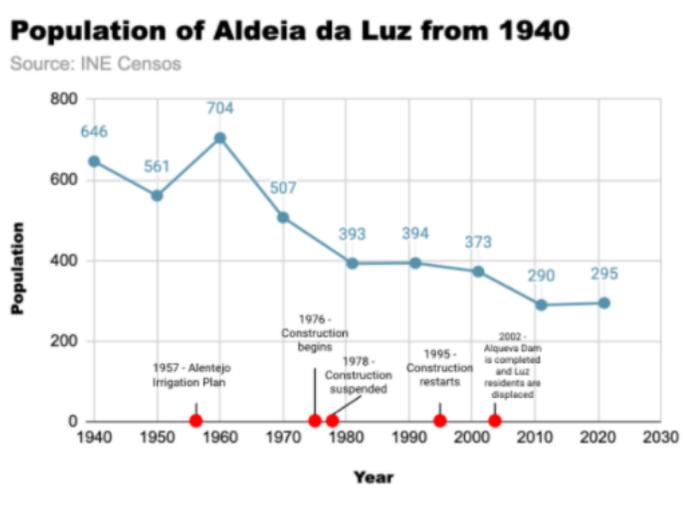
Data source: EDIA, 2015

now due to being surrounded by the dammed water on north, west, and south. Before the dam, Luz was connected to surrounding villages through a system of formal and informal trails, roads, and bridges over the Guadiana River, but with the construction of the dam and the submersion of the area, these important economic, social, and cultural arteries disappeared (Radke, Pinto, Lachhwani, & Kondolf, 2015). Today, Luz is accessible by one major road, M517, and is difficult to access by public transportation. The municipality of Mourão runs an infrequent bus service that stops once in Luz during its rounds and a private bus service runs three to four times per day on weekdays during the school year. Otherwise, a person looking to travel into or out of Luz would need a car or would need to walk an hour and a half to Mourão. Not only is Luz now geographically and socially isolated from the outside world, but it is also socially fragmented within the community as a result of rapid population loss. Since a high point of 704 in the 1960 census, Luz's population has declined rapidly. Only in the most recent census did the population of Luz increase—albeit only by five—for the first time since 1960 (INE Censos, 2021). The last census count before construction began was in 1970 when Luz had a population of 507 residents (INE Censos).

Between the first phase of construction of the dam and the 2021 census, Luz's population shrunk by almost 42%, mostly due to people moving out of the village, a lack of migration into the village, and a rapidly aging population. Many Luz residents had agreed to not oppose their displacement because they believed their children would benefit from the newly reconstructed town. The villagers had negotiated for years for a modern primary school to be included in the building plans for the new town. In its opening year, there were 28 children from Luz in the primary school, but by 2012, there were only 8. The village had to bring in kids from Mourão to attend the school. By 2015, there was only one pupil from Luz in the primary school and the parish council had to continuously negotiate with the regional education department to keep the school open. Many young families moved out of Luz to seek economic opportunities elsewhere and escape the isolation of Luz.

There are some early signs of population recovery in Luz. According to preliminary census findings, there are approximately 295 residents today (INE Censos, 2021). Residents have expressed optimism with this number as it has increased by five since the most recent census (2011), an increase of 1.7%, which represents the first time since the 1961 census that the

Figure 3: Population of Aldeia a Luz from 1940 to 2021



Source: INE Censos

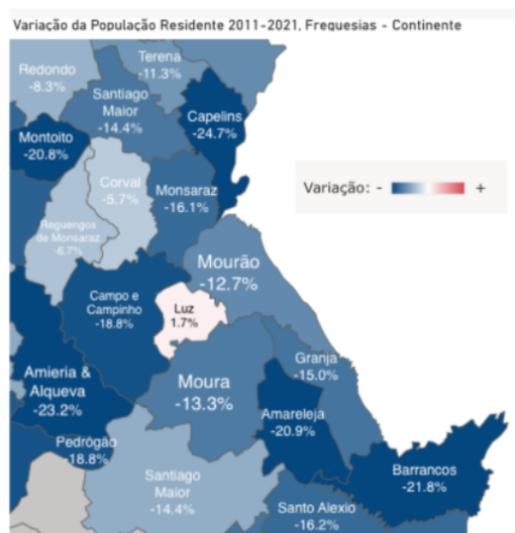
population of the village increased. The population still skews older but the village has been able to attract some younger people because of the available newly-built housing stock. In comparison with nearby municipalities, Luz is one of the few in the area that actually increased in population between 2011 and 2021 (see Figure 4.) Many other surrounding municipalities experienced decreases of 10% to more than 20% between the 2011 and 2021 censuses. But it is far too premature to assert that this slight increase in the population represents any sort of change in the fortunes of Luz.

Where once it was commonplace for residents of all ages to socialize on the street, now the streets lay quiet and empty, the only sound being the wind and the howls of stray dogs. One resident expressed dismay at the change in the social fabric, stating that “during the day we see one or two people and during the night no one is seen” (Dias, 2012). Though outwardly and aesthetically, the new village of Luz looks much the same as the old one it replaced, the submersion and displacement of Luz have irreversibly altered the identity of this once tight-knit community. The village of Luz has experienced a decades-long drowning in the rising waters of the Guadiana River, sacrificed so that other municipalities of the Alentejo could receive irrigation.

Theme Analysis

In order to understand the differing perspectives of the residents of Luz, the EDIA employees and pro-dam government officials, and the residents of Alentejo who would be the beneficiaries of the Alqueve Multipurpose Project, I analyzed newscasts, archival video footage, and quotes in the media to find common rhetorical themes (see Figure 4). I split the rhetorical themes by time and perspective so as to understand how narratives changed over time and how people were affected by changes in the process of the project. Across time, Luz residents expressed mostly negative sentiments towards the dam. The residents also frequently alluded to religion and tragedy as a means for understanding the trauma of their displacement. Throughout the long process of displacement, residents of Luz used rhetoric that represented the slow death of village identity and community, starting with fatalism and resignation, moving into rhetoric concerned with sacrifice and suffering, and ending in the post-displacement period with allusions to ghosts, haunting, and the past.

Figure 4: Change in Parish Population Between the 2011 and 2021 Censuses



Source: INE Censos, 2021.

As the groups doing the marketing of the Alqueva Multipurpose Project, EDIA employees and government officials relied primarily on development narratives and the romanticization of both sacrifice and progress. Temporally, this perspective shifted from marketing how the project would be a positive opportunity for developing the area to a perspective on the successes and achievements of the project. The residents of Alentejo, as the population to which the project was marketed, closely aligned with the perspective of EDIA and the government, until the post-displacement, post-construction period. The general themes of their perspective are religious rhetoric related to salvation and hope for regional development.

Figure 5: General themes of perspectives on displacement

	Residents of Luz	EDIA employees and the government	Alentejo residents and local government
Pre-displacement	Fatalism, uncertainty, resignation, apprehension	Opportunity, development	Hope, miracles, future-oriented, development
During displacement	Sacrifice, suffering, loss, biblical tragedy, sorrow, death of the village	Sacrifice for the sake of development, future, rebirth	Progress, regional economic improvement
Post-displacement	Distrust, callbacks to the past, ghost town	Success, economic benefits, strategy	Neutrality or disappointment

The general themes of the perspectives of the residents of Luz versus the EDIA employees and the Portuguese government are split by temporality. Luz residents were and are very concerned with the past, whether that be in relation to ancestors, heritage, or memory. EDIA officials, the Portuguese government, and the residents of Alentejo generally use more positive, future-oriented rhetoric concerning development, innovation, progress, and hope. When Luz residents spoke about the future, they tended to speak of the future with apprehension, uncertainty, and a sense of inevitable defeat. After interviewing residents about the potential restart of construction on the dam, one newscaster remarked that “it is, however, curious to note the fatalism with which the inhabitants of Luz accept their fate” (RTP, 1980). These diverging perspectives were molded precisely because of how long it took for the dam project to be completed. While Luz residents spent decades waiting in apprehension of the day their village would be submerged and their livelihoods dispossessed, residents of Alentejo experienced decades of the Portuguese government marketing the Alqueva Multipurpose Project to them. Many residents in the Alentejo region, and specifically residents in the areas with planned irrigation infrastructure, began to view the Alqueva Dam as the region’s chance for economic salvation. In interviews for Rádio e Televisão de Portugal (RTP) in the years before construction

of the dam finished, residents of the region used religious rhetoric to express their hope and faith in the promise of the Alqueva Multipurpose Project. Residents referred to the project as the “miracle of Alqueva” which would finally “end the nightmare of the drought” that had haunted the dry and sometimes less-than-hospitable region of Alentejo (RTP, 1993). When advertising and promoting the Alqueva Multipurpose Project, the government framed the new Alentejo “as the second paradise of Portugal” (Wateau, 2014). Residents of Luz similarly used religious rhetoric before and during displacement to describe the Alqueva Multipurpose Project, but in contrast, they used rhetoric that is more reminiscent of biblical or mythical tragedy rather than salvation and miracles. For example, residents compared Luz to an “underwater...rural Atlantis” (RTP, 1980). This air of tragedy created a general mood in Luz where the community constantly had “the shadow of Alqueva hanging over it” (RTP, 1980). Both residents of Luz and residents of the surrounding area viewed the Alqueva Multipurpose project through a lens of mythical grandeur, though the groups differed over their assessment of this project as positive or negative.

Discourse Analysis

Luz residents

The discourse of the residents of Luz about the construction of the dam and the displacement of the village is primarily composed of rhetoric concerned with uncertainty, suffering, religion, death, and the past. This trajectory of the rhetoric used by residents closely corresponds to the resident’s perception that the village experienced a slow death. Before displacement, residents used fatalistic rhetoric. During displacement, residents relied upon religious rhetoric and allusions to sacrifice and suffering. Post-displacement, the residents use rhetoric related to the past and ghosts. Throughout the entire trajectory of displacement, Luz residents tended to use overwhelmingly negative rhetoric about the Alqueva Multipurpose Project. In comparison with other municipalities in the region, residents of Luz “tended to maintain the least positive opinions about the Alqueva Dam Project’s ability to improve their daily lives” (Radke et. al, 2015).

Much of Luz’s rhetoric is related to Catholicism, which plays an important part in the residents’ lives and in the villages’ culture. The village itself is named after its patron saint, Nossa Senhora da Luz (Our Lady of Light). Catholicism, and its emphasis on suffering and sacrifice, acted as a force for residents to rationalize and justify their own suffering while also being a source of strength and comfort during the trauma of displacement. As the town journeyed to bring the exhumed remains from the cemetery and the procession effigies of Our Lady of Light to the new town, a priest proclaimed on a loudspeaker: “just as Christ...accepted His suffering, so must ...our suffering be borne for the sake of our fellow Portuguese, so that the sacrifice we make for this Alqueva Dam, might bring them greater happiness” (Museu da Luz, 2006). This reflects the general attitude of many residents in town that the village was tragically martyred and sacrificed for the good of Portugal. When a group of German activists came to the village with the aim of helping the residents resist their displacement, the mayor declined their

offer as he stated that the villagers “are the sacrificed people of Alentejo, not opportunists” despite his acknowledgment that “everyone in the village was against the dam” (Wateau, 2014). The martyr narrative was romantic and seductive enough to contribute to the villagers' acquiescence to the project. Many residents felt simultaneously angered but also resigned by the inevitability of their own displacement, stating that “we just have to get on with it... but I'm still sorry about all this” (Museu da Luz, 2006) and “it's a necessary thing, it must be done” (RTP, 1980). When speaking to EDIA employees about the transfer of the cemetery, one woman revealed that she thought “we are going to suffer anyway” (Jaquerod & Pereira, 2003). But while this Catholic belief in suffering facilitated the village's acceptance of their suffering, it did not pacify them or quiet their expressions of pain. During the trauma of the displacement, residents frequently called upon Our Lady of Light, their patron saint. As one woman left her house for the last time, she cried out “What a mess this is, what a mess....god give me strength, Our Lady of Luz, come with us!” (Museu da Luz, 2006). Another resident spoke of how though she “can't even think of leaving my house. I often cry in my house.... thinking of the moment I leave and never come back,” she still looked to religion and “asked Our Lord to give me any life he wants, provided that He lets me christen my house” (Jaquerod & Pereira, 2003). Looking at their displacement through a lens of biblical tragedy made the trauma of losing their homes and village easier to comprehend. Viewing the town's submersion as reminiscent of the great flood of Genesis brought comfort to the villagers and made the inconceivable digestible.

One of the most important and traumatic aspects of the village's displacement was the transfer of the cemetery and the church. When the village was displaced, the church was torn down, with no villagers present, to preserve the water quality of the reservoir. Several important pieces from the church, including effigies, altars, stones, tiles, icons, frescoes were removed, preserved, and transferred to the newly constructed church (Jaquerod & Pereira, 2003; Museu da Luz, 2006). Before the village was displaced, the residents sang a short hymn in church:

“Oh dear Aldeia da Luz, ...we have to leave you with sorrow for we cannot take you. All are sure to shed a tear. Even all those who are no longer here. When the dead are disinterred and their final rest disturbed.” (Museu da Luz, 2006).

This song depicts the pain the villagers felt, not only because they had to leave their homes, but also because they had to exhume the cemetery, a traumatic and grief-filled process. Of the three requests the villagers made to EDIA, two were that the cemetery would be transferred and that the church would be reconstructed. Many residents had generations of family members who were buried in the cemetery and the church was culturally and historically valuable to the community as it was built in the 14th century in the honor of the town's patron saint. The villagers were able to secure these two requests, along with the reconstruction of the village at a different location, but still were harmed by the process.

Many residents spoke about how the community withered because of the displacement. The new village was purposefully and mindfully constructed to preserve the “main characteristics of the old village” including “the locations of the houses... allowing for some continuity of neighbor relationships” and because of this “the rupture in neighborhood networks

was minimized” (Luis et. al, 2015). But even with this careful construction, community identity and community networks were negatively impacted. One resident reminisced about the close, mutually helpful relationships in the old village and stated “but that was prior to the displacement...my friends now say ‘Take care of yourselves’” (Tedim et al, 2009). Due to the close quarters of the old village, residents used to congregate in the streets to socialize and complete daily chores. But today, the streets remain empty. One resident described the village as a “ghost town” in which all community life had disappeared “and therefore we live sorrowfully (Dias, 2012). Another resident used similar rhetoric, declaring that “the village is dead, with no life at all. We go down the street and do not see people” (Dias, 2012). But not every resident views the new village through a lens of death and decay. One man declared that while “there have been some problems,” and he specifically notes problems with pipes and the sewer system, he still doesn’t “feel disadvantaged” because he “has more or less everything I had” (Dias, 2012). Although the residents of Luz were almost entirely unanimous in their disappointment with and resentment towards the Alqueva Multipurpose Project, as a nuanced population, the general rhetoric used here to represent their views is not, and could never be, representative of each individual resident. Still, throughout several decades, the residents of Luz maintained a coherent narrative of how the Alqueva Dam’s displacement of their village caused their suffering and the decline of the village.

EDIA and the Portuguese Government

EDIA and the Portuguese government employed and continue to employ a development narrative to legitimize and justify the Alqueva Multipurpose Project. This development narrative began with the Salazar dictatorship’s 1957 Alentejo Irrigation Plan which outlined a hydropower project that would irrigate the Alentejo region in order to transform the region into a center of agriculture and secure food production for the nation. When the Alqueva Multipurpose Project finally came to fruition after the fall of the dictatorship, the new government continued to employ this development narrative. In the first phase of construction in 1976, while touring the proposed site for the dam, the Minister of Public Works declared that the Alqueva Dam “will have a decisive influence on the development of this area of the country” (RTP, 1976). The Alqueva Multipurpose Project was initially supported by the Socialist party and opposed by the Social Democratic party before being adopted by the Social Democrats. Though the project initially commenced under the Socialist party government of Prime Minister Mário Alberto Nobre Lopes Soare, subsequent Social Democratic governments (i.e., Prime Minister Aníbal António Cavaco Silva, Prime Minister José Manuel Silva, and Prime Minister José Manuel Barroso) built upon the development narrative used to justify the project. The project’s environmental impact assessment also enforces this development narrative by commending the project’s “long term vision” and “forward-thinking attitude” that create “windows of opportunity for the agricultural development of the region” (AGROGES & AgriCiência Consultores, 2004). A vital aspect of this narrative is legitimizing the planned development through a lens of supposed objectivity and rationality. The environmental impact report does just that by declaring

that the project uses a “coherence and rationality of the logic of thought, reflection and strategic foresight” (AGROGES & AgriCiência Consultores, 2004). Technocratic rhetoric of objectivity and rationality legitimizes a narrative by branding all counter-narratives as subjective and irrational by virtue of contradicting the legitimate narrative.

After the initial stages of construction of the dam were stopped in 1978, members of the Socialist Party criticized the Social Democratic government for “fearing that Alqueva will give an abundance of water and light to lands inhabited by people who did not vote for [the administration] and, for that reason... punish[ing] them relentlessly” and “condemning a whole region to desertification” (Wateau, 2014). Already, proponents of the dam began to frame it as the key, the only hope, for the development and future prosperity of Alentejo. Eventually, the Social Democratic Party would adopt this rhetoric, too. But the issue of the submersion and displacement of Luz still remained. To address this, the Portuguese national government modified their development narrative to cast the residents of Luz as regional and national heroes who were making a sacrifice for the greater good and framed the Alqueva Dam as a necessity for the rebirth of the region and of Luz. When visiting the newly constructed village in 2002, Prime Minister José Manuel Barroso told the media that he felt “moved...to see how the people are facing the future and the chance that this new beautiful village presents” (Museu da Luz, 2006). Although politicians acknowledged Luz’s sacrifice, they described this sacrifice as a noble necessity, in contrast to how villagers in Luz viewed their sacrifice as a somewhat senseless tragedy. Unlike Luz, which frames the displacement as a death, EDIA and the Portuguese government framed it as a rebirth. EDIA posted signs around the old village of Luz with slogans including “New Luz (Light), new hope for everyone” and “New Luz (Light), new hope to create roots” using a play on words (Luz, the name of the village, means light) to allude to the displacement as a vehicle for the village’s bright future (Museu da Luz, 2006). A vital aspect of this narrative was rhetoric concerning the future generations of Luz. EDIA employees tied the success of residents’ children and grandchildren to the Alqueva Multipurpose Project. When one resident expressed to an EDIA official that she frequently cried at the thought of leaving her home forever, the official replied that “you have to think about the children's future. They can have better things that were missing there... a new school with many classrooms, a large health center, a large day center” (Jaquerod & Pereira, 2003). This rhetorical strategy was very successful in persuading the villagers of Luz to accept their displacement because the community was already struggling economically and many young people and families were already leaving the village for opportunities elsewhere, so the community was desperate for anything that could secure the future of the village.

After construction finished and the village was displaced, EDIA produced many pieces of literature to promote the success of the dam in the region. The company continues to play into the development and salvation narrative that the Portuguese government crafted during the early stages of the dam’s construction. To illustrate this, the EDIA website declares that it is “making Alentejo’s greatest dream come true and making one of Europe’s most disadvantaged regions economically and socially viable” (EDIA, 2020). EDIA has acknowledged that Luz has

experienced economic decline and a decline in population, but the company's public line about this issue is that Luz's experience with an aging population, depopulation, geographic and social isolation, and loss of community are problems many rural communities in Alentejo share, so these problems are not caused by the relocation of the community but just the general conditions of the region (Dias, 2012). Much of the literature that EDIA has released does not mention, or barely mentions, Luz. On EDIA's official website, mentions of Luz are almost entirely relegated to the section of the website about Museu da Luz. In the company's timeline of the Alqueva Multipurpose Project, Luz is only mentioned once: "1999 - construction contract for the new Aldeia da Luz is awarded" (EDIA, 2020). The timeline does not explicitly address the displacement of Luz, the negotiations with residents, or the aftermath of the displacement. Of the forty-two maps in EDIA's Alqueva Story Map section, there is not a single one dedicated to Luz. Instead, the company's website and materials primarily repeatedly mention "profitability," "economic and social development," and "regional development". This neglect of the topic of Luz's displacement is a common practice of EDIA. When visiting the EDIA offices in Beja to learn about the Alqueva Dam, I had to specifically inquire about whether any villages were submerged by the dam and repeatedly push for basic information about Luz; without this question, the displacement of Luz would not have been addressed on this tour.

Often, developers will create or utilize narratives that those who will be dispossessed are uneducated and in need of outside help to justify the dispossession of the community. Facilitating a narrative in which the local community is not utilizing the land and resources efficiently necessitates the imposition of outside experts who, once given control, can more efficiently use the land, for the supposed benefit of the people. EDIA and the national government utilized and promoted this narrative of the uneducated, inefficient rural community in need of help from educated outsiders. This narrative has an inherently spatial component that reinforces power inequalities between urban centers, which are seen as paragons of education and progress, and rural areas which are seen as backward and in need of development. EDIA employees surveying the town of Luz before the villagers were displaced remarked that Luz has "such a decapitalized class" which could benefit from the "many adaptation possibilities" of irrigation from the Alqueva Multipurpose Project (Jaquerod & Pereira, 2003). Ironically, Luz was never part of EDIA's plans to irrigate the region. Proponents of the dam mythologized the dam as "both a civilizing force and the means by which everyone can reap the benefits of an irrigated plot of land" (Wateau, 2014). The EDIA employees continued by remarking that the economic problems in Luz stem from "farmers demonstrating to defend their grandparents' principles" of "getting allotments only to keep their land" which the EDIA employees not only do not consider profitable but consider to be the cause of "Europe's ruin" (Jaquerod & Pereira, 2003). This represents a fundamental difference in the perspectives of many farmers in Luz and the development narrative crafted by EDIA. The farmers in Luz were largely content with their local land rights system of allotments in which people receive small plots of land with enough space to support their family with food and produce some surplus to sell. One resident expressed that "Everybody's made a life for themselves...I've got an allotment" and "I grow enough for me,

the neighbors, and the kids” (Museu da Luz, 2006). But EDIA developers see this as inefficient because the farmers could purchase larger plots of land and create industrial farms. Although the people of Luz have lived, mostly contentedly, with this land allotment system for generations, the developers catastrophize this system as bringing about the ruin of the region, and through this catastrophization, necessitate the dispossession of the local residents for the accumulation of outside developers.

The image of the people of Luz, and other rural communities in Alentejo, as uneducated people who cling to the past and reject development against their better judgment, is a classist perspective that props up regional power imbalances between rural and urban areas. The residents of Luz are aware of how people view them and how this affects how the community was treated during the construction of the Alqueva Dam. One resident expressed how people view Luz as expendable because “it's been said that we don't have any culture or anything...we aren't very literate...so they say, move them too” (RTP, 1980). By casting the residents as uncultured, uneducated, and unwilling to change with the times, this narrative legitimizes the displacement of Luz in the name of development. Even people sympathetic to the plight of Luz reinforce this narrative. When filmmakers visited the village to document the culture of the old village before the displacement, they told the local residents to “try not to make your accent too pronounced” (Museu da Luz, 2006). This narrative casts the residents of Luz as a blank slate where outsiders, sympathetic and not, can view the residents either as nameless victims in need of saving or as uneducated, inefficient rural communities in need of development.

Regional residents and local government

Regional residents and local governments generally accepted the government's narrative that the Alqueva Multipurpose Project would bring progress, innovation, and development to the region. Representatives of local municipal governments tended to echo the rhetoric of EDIA and the national government about how the Alqueva Multipurpose Project would develop the region. For example, Jose Carreira Marcos, the mayor of Beja, declared that “The species that is disappearing from the Alentejo is man” but since “we have the sun, we have the land, and now we have the water”, Alentejo could begin to prosper. The mayor of Serpa similarly declared that the dam would bring “enormous possibilities for improvement in agricultural conditions...and industrialization in the region” and asserted that due to the dam, “unemployment will perhaps be practically eliminated”, a bold claim that has not come to fruition (RTP, 1993). The project became a vessel for the regions' dreams of development. Many regional municipalities were experiencing parallel economic and population declines to Luz. In the municipality of Alqueva, where the dam would be built, residents expressed frustration that “there are no prospects, there is no work...this is just hunger and nothing else.” and, therefore, many people were forced to leave the community to find work elsewhere (RTP, 1993). After experiencing decades of decline and impoverishment, the Alqueva Multipurpose Project became “a living hope for the people of Alqueva” because there were no other forms of assistance coming (RTP, 1993). Many residents of Alqueva and other struggling municipalities put all of their hope for the future into the

Alqueva Dam. The narrative the government had peddled about Alqueva bringing hope, progress, and development to the region had largely been adopted by the residents themselves. One farmer describes how while farmers of his generation “didn’t have great hope in the irrigation of Alentejo, I think that my children and grandchildren may have a different perspective” (RTP, 1993). The improvement of the lives of their children was critical to residents of Alentejo adopting the cause of the dam. In comparison, residents of Luz viewed the dam as dispossessing not only themselves but their children as well. In the same newscast that the resident for Alqueva expressed hope for the future generations of the region, a resident of Luz despaired “Oh my daughter, no houses will be here, everything will be underwater!” (RTP, 1993). The difference in perspective between the residents of Luz and the residents of greater Alentejo is perhaps most starkly articulated through graffiti. Outside the construction zone of the Alqueva Dam, a nearby resident spray-painted a short message: “build it, damn it” while in the center of the old village of Luz, someone had scrawled “It’s not good enough. We won’t budge!” (Museu da Luz, 2006). Though the residents of Luz and the residents of greater Alentejo experienced many of the same economic conditions and struggles, the two populations expressed contrasting perspectives on the Alqueva Dam because the burdens and benefits of the project were so unequally spread. While many municipalities in Alentejo would benefit from irrigation and drinking water infrastructure, only Luz would have to be displaced for this to happen.

Procedural Justice

When planning and construction of the dam resumed in the 1990s, EDIA and the Portuguese government gave the residents of Luz options: move to a neighboring town or have EDIA reconstruct the village on safer ground (EDIA employee, 2021). But these options are not true options at all as they constrain free choice and create a boundary on ideas. With a superficial lens of procedural justice, this practice of providing options for affected populations appears to be a success but actually illustrates how the language and concepts of procedural justice can be co-opted to legitimize the process.

Although construction of the dam began post-dictatorship, the project was conceived during the dictatorship and therefore many of the basic traits of the Alqueva Multipurpose Project, including the approximate location of the dam and which towns would be affected, were decided pre-democracy. Construction of the dam didn’t begin until 1976, two years after the Carnation Revolution and the year Portugal adopted its Constitution, so practices and institutions of democratic engagement in the country were new and untested. The legacy of infrastructure projects in Portugal was one of top-down approaches initiated from outside the community. Following the legacy of the Estado Novo dictatorship, the Portuguese government’s usual practice for planning hydropower projects is to allow some public input on the location of proposed dams, not the question of the construction of hydropower dams at all. The historical context of the Alqueva Dam as a plan passed from dictatorship regime to new, infant democracy directly contributed to the lack of procedural justice in the initial phases of construction of the dam and the failures of attempted procedural justice strategies employed during the later stages

of construction in the 1990s-early 2002. At the beginning of construction, Portugal did not have well-established democratic processes or public engagement mechanisms and was still in the direct shadow of the undemocratic tradition of the dictatorship, so the project was initially entirely imposed from the top down with little public resource for criticism and complaints. Eventually, during the second phase of construction in the 1990s, EDIA and the Portuguese government established more official channels of public participation. Portugal's entry into the European Community, now known as the European Union, in 1986 subjected the country to more rigorous standards for democratic engagement in public works projects, resulting in the Portuguese government and EDIA promoting "the choice of the identical rebuilding of the village" while "respecting the social morphology of the old village" (Wateau, 2014). Additionally, Portugal was a party to the UN's 1992 Rio Forum, which set new international guidelines for development projects and public participation meant to increase community engagement in decision-making procedures (Wateau, 2014). In order to follow these newly established frameworks, EDIA adopted more public engagement mechanisms in the planning and early stages of the construction of the dam.

EDIA engaged in a long process between company representatives and residents to negotiate the construction of individual houses. This included EDIA setting up a team composed of four experts—a sociologist, agricultural engineer, historian, and a project architect—who would regularly stay in the old village throughout the construction of the dam and the new village to field questions and complaints, along with negotiating the intricacies of the company's agreements with various residents (Wateau, 2014). While in operation, this team was a partial success in the frame of procedural justice as residents were able to give their input to the people in charge of reconstruction and have their questions answered. With an open line of communication between the residents and EDIA, residents were able to express their complaints, suggest changes to their houses and to the plans for the new village, and negotiate for their needs. This team remained in contact with the residents of Luz for five years after the dam was completed, which is outside the standard practice for infrastructure projects. To address the psychological distress of the destruction of their old village and displacement, EDIA also hired a team of psychologists for the residents of Luz, but this team of psychologists was only in contact with residents in the short-term (Tedim et. al., 2009). Through this new strategy of creating point-of-contact teams to help Luz adapt to displacement is a significant improvement in comparison to other contemporary large-scale infrastructure projects, this strategy did not ensure procedural justice.

Even with this established group of negotiators and representatives, the articulated needs and wants of the residents of Luz were often ignored. For example, though residents were initially told they could choose several elements of the house including window placement, tiling, paint, built-in-furniture dimensions, etc. many residents felt that the team of negotiators did not always follow through with these explicitly made choices. When speaking to residents in Luz, an EDIA representative claimed that they had "ordered samples of materials of equal quality...so that you can choose what you prefer in the similar standard" (Jaquerod & Pereira,

2003). But when one resident toured their newly constructed house, they pointed out to the EDIA representative that several aspects that they had requested were not included in the finished house. When the resident expressed discontent because they had been told that their choices in tilework would be respected in the construction of the house, the representative merely replied that “the architect did not agree with the tiles” (Jaquerod & Pereira, 2003). This exemplifies how many of the developers’ attempts to respect residents’ decisions, even in minute matters, were only superficial.

An important aspect of procedural justice is informed consent. EDIA developers spent years negotiating with residents over the exact specifications of their houses, which is a laudable and rare effort in infrastructure development, one that should be replicated in other cases. But these negotiations were flawed because the conditions necessary for informed consent were not always guaranteed. In several cases, residents complained that though they had eventually agreed to plans for their new houses, the plans were not adhered to and changes were made without notifying them. Other residents felt pressured to sign their plans and ended up disappointed with their new homes. In a conversation with an EDIA employee, one resident complained that her “plan was not properly done” and that she was “not satisfied because I signed this crap here”, referring to the new building plan she had signed (Jaquerod & Pereira, 2003). The resident expressed that even as she was signing the document, she regretted it, remarking “why did I sign whereas I didn’t want that?” (Jaquerod & Pereira, 2003). After decades of living in apprehension of the dam displacing his village and years of negotiations with EDIA over the specificities of the house, the resident felt pressure to be done with the process.

Luz has an increasingly aging population and many of the residents have a relatively low level of formal education, making them vulnerable in situations where they must negotiate and debate with outside developers. The most recent complete census available is the 2011 census (the 2021 results are only preliminary population estimates), which counted 290 residents in the Luz parish. Of these residents, 72 had no formal education and 163 had below a secondary education, meaning that 81% of the population of the town had less than nine years of formal schooling (INE Censos, 2011). Residents expressed frustration at feeling unprepared and at a disadvantage in negotiating the plans for their new houses with EDIA. One woman lamented that the house she was given by EDIA was different from the one she had agreed to in the plans she signed. She “gave permission to build exactly the same house” as before and “from the plan you couldn’t tell it was going to be like this”, but she felt neglected and disadvantaged throughout the negotiation process because she “can’t read. I have no one to talk to. My children don’t care, I’m on my own” (Jaquerod & Pereira, 2003). A vital part of informed consent is ensuring that all parties understand the nuances of what they are agreeing to and that this agreement is followed completely. Neither of these aspects of informed consent was ensured for the residents of Aldeia da Luz.

Residents have also complained that the decision-making and negotiation process of the displacement of Luz was not transparent and that EDIA was inconsistent in communicating

important information to the residents in an accessible way. One resident expressed dismay that the community was largely kept in the dark of all of the decisions made behind closed doors at negotiations: “And where are we going? Do we know? No. Nobody tells us anything. All they do is the construction and that's it” (RTP, 1993). EDIA’s inconsistent public engagement only heightened residents’ feelings of apprehension and distrust throughout the process. When utilized correctly and consistently, long-term meaningful public engagement actually helps communities cope with traumatic situations like displacement and increases displaced individuals’ eventual satisfaction with the project (Luis et. al., 2015). However, many residents came to distrust EDIA and resent the Alqueva Multipurpose Project because of the company’s “failure to accomplish some of the established commitments, tardiness in resolving certain problems, and lack of dialogue” (Tedim et. al., 2009). Though EDIA and the Portuguese government had created the structures and mechanisms for long-term public engagement (i.e., teams of psychologists and negotiators who would stay in the village in the years leading up to displacement), these mechanisms were deployed inconsistently, leading to residents feeling uncertain and apprehensive about the process.

The residents of Luz attempted to advocate for their needs within the procedures EDIA had set for years. After feeling ignored and neglected in many decisions, the residents drafted a petition in 2000 to denounce the commitments EDIA had broken, bad faith negotiations, and the lack of transparency in the process (Wateau, 2014). Of the few demands the town had (i.e., the new houses should be similar to the old ones in terms of style and layout, the old town would be reconstructed to preserve neighborhoods, the cemetery and church would be transferred to the new town), only some of the demands were followed. The residents’ fears that their needs for their new houses would not be respected and that the displacement of the village would hurt its social fabric were founded. In the petition, the residents protest that “the new houses...hardly resembled the originals, and the layout of the village as a whole, much more extensive and open than the old one, altered its social character” (Wateau, 2014). Residents wanted to preserve the neighborhood social connections of the old village and were unhappy to find that even when the general layout of the old village was followed, the more modern construction of the new village disrupted these carefully built networks. After visiting the new village, one resident exclaimed that “they're building a suburb instead of a village” (Jaquerod & Pereira, 2003). EDIA expected that villagers would desire larger, more spread out houses in the modern suburban-style but did not take the time to understand the needs and cultural values of the villagers who valued neighborhood sociability over modernity. This petition calls into question the efficacy and ethics of the public engagement process. The villagers’ complaints show that even with years-long public engagement and negotiation mechanisms, EDIA officials’ did not always respect the articulated needs and desires of the village residents. Despite EDIA making attempts to ensure procedural justice, the company did not follow through on the minute details of this: informed consent, respect for local values, keeping to the conditions of agreements, and giving residents actual influence over decisions.

Distributive Justice

While the benefits of Alqueva are spread regionally and nationally, the consequences are felt acutely on a local level. The scale of burdens and benefits is wide and unequal. At a local level, only the residents of Luz experience the consequences of displacement, while the benefits of irrigation and improved drinking water infrastructure is experienced by much of the region of Alentejo. The benefits of the Alqueva Multipurpose Project also play out on a national and international scale because nationally, Portugal benefits from an increase in renewable energy in the nation's energy portfolio, and internationally, the world benefits from a decrease in carbon emissions. The Alqueva Multipurpose Project was created to benefit the entirety of the struggling region of Alentejo by securing local drinking water and expanding irrigation capabilities to improve agriculture. But Luz, the village in the region that sacrificed the most for the project, did not receive these benefits. Although all buildings in Luz are equipped with running water, many residents still must rely on water that is pumped from the well in town and delivered to their doors. A visitor walking the streets would find large cartons of water by the doorways of houses. Residents stock multi-liter containers of water on their porches. The water in the Alqueva Reservoir is not necessarily even secured for the residents of the region outside of Luz, as much of the water "is reserved for luxury tourism, with five-star hotels and golf courses sprouting up around the dam" (Wateau, 2014). Furthermore, Luz is located outside of the area that is irrigated by the Alqueva Multipurpose Project (AGROGES & AgriCiência, 2004). Many residents of Luz are dependent on agriculture, mostly livestock and some small croplands, but in their displacement, they were dispossessed of the land they and their families had maintained, farmed, and nurtured for generations in exchange for new, unfamiliar land. Farmers in Luz were already at a disadvantage as a result of this, which is only compounded by the village not receiving the benefits of irrigation from the Project, as many other municipalities in the area did. Luz residents felt frustrated to be shouldering the largest consequences of the Alqueva Multipurpose Project without receiving the main benefits, as illustrated by this exchange between two residents:

Resident A: "They say there will be no irrigation here. Only in the Beja area."

Resident B: "What about the people here? Don't they need to eat too?"

Resident A: "The people here can starve" (Jaquerod & Pereira, 2003).

This exchange shows that residents felt betrayed by the results of the project, especially because they had been led to believe that they, too, would receive the regional benefits. While other areas in Alentejo received benefits from the sacrifice of Luz, the people of Luz felt neglected and cast aside by EDIA and the national government. The refrain "What about the people here?" became a common sentiment in Luz during the village's displacement; it shows that residents felt that their dispossession had made them irrelevant to those with political and economic power. Once the residents had been divorced from the land that more powerful actors wished to accumulate in order to build the dam, the people themselves had entirely lost their value. This illustrates how the spatial process of accumulation by dispossession devalues people in pursuit of the accumulation of land and power (Li, 2010; Benjaminsen & Bryceson, 2012). Through the

accumulation by dispossession strategies of privatization and the state acting as the agent of redistribution and regulation (Harvey, 2003), local people are divorced from resources they previously owned, accessed, or otherwise benefited from. One resident describes how even though he now has land near the Alqueva Reservoir due to the redistribution of land, he will not be able to use it for his livestock. The resident describes how "even with water so close my pigs won't be able to drink" because he "might go to jail if I take some water" (Jaquerod & Pereira, 2003). Accumulation by dispossession privatizes the benefits of land and resources that had previously benefited all by using the power of the state to enforce ownership and restrict access.

When the residents of Luz agreed to not oppose their displacement, they set three main conditions that must be met: 1) the company must pay for and build a new village with buildings and streets that replicate the old village, 2) the cemetery must be exhumed and transferred, and 3) the Church of Nossa Senhora da Luz must be dismantled and reconstructed (RTP, 1995). That the village made these demands and that these demands were agreed to by EDIA and the Portuguese government is rare in the history of infrastructure project-related displacement. This represents a small success for the village and a practice that should be replicated in future projects. Through years of negotiations, the village obtained "everything they asked for and then some, in the form of a cable network, a museum, a huge bull ring, and a gymnasium" (Wateau, 2014). But these successes seem somewhat superficial in light of the more intangible, priceless things the villagers lost: homes that had been in the family for generations, objects and buildings with historical and sentimental value, place identity, and strong community bonds that did not make the transition over to the new town. The physical things the village did gain were not enough to prevent the social and economic decline of the village due to displacement and dispossession. By 2008, only six years after the relocation of the town "more than 40 people (10.5 % of the population) had left the village because of lack of employment," the newly built modern school almost closed, dozens of houses and entire street blocks lay empty, and the new buildings continue to have problems with sewage and piping (Wateau, 2014). Displacement had disintegrated the close social ties and the social community culture that had made the village desirable to inhabit in the first place.

Still, the parish council president, Francisco Oliveira, insisted that the village "was better than we would have been if we had accepted the first project" because "we made some compromises and in other things our will has heard" (Tedim et. al., 2009). Residents did receive newer houses equipped with modern amenities and services like running water and a sewer system, services that many of the houses in the old village did not have (RTP, 1980). For many residents, this represented a trade up from their old home. One older female resident professed: "I'm satisfied with my little house... I'm going to have a new house with windows, with a bathroom, which I didn't have in the other house. I'm going to be alright!" (Jaquerod & Pereira, 2003). EDIA also promised to construct the houses with building materials of higher quality than those that had been used in the old village so that the houses would last longer without needing repairs (Joanaz de Melo & Janeiro, 2005). The transition to the new village was most traumatic for the older generation but for many children, the new village represented an

opportunity and an improvement on their old circumstances. One teacher in Luz expressed that the children were excited about the move because “all they know is that they’re going to have a new house, they’re going to have a new bedroom, which some of them didn’t have before” (Museu da Luz, 2006).

Compensation for dispossession is always difficult and the case of Aldeia da Luz is no exception. Luz residents were dispossessed of their land and houses in the old village but were compensated with new houses and some land in the new village. On the surface, this seems to be a fair trade but in practice, this compensation proved far more complicated. The new wastewater and drinking water systems that represented a trade up for many of the villagers proved to be faulty and prone to leakage. The new houses which were formulaically made using modern processes and building materials lacked the unique functionality of residents’ older homes, homes that had been modified and adapted over generations to suit each families’ needs. One resident was upset to find that in their new house, the builders “made this kitchen with no fireplace, no sink, not even a drain. It’s got electricity and that’s it” to which an EDIA employee replied that the company would “pay indemnity for the rest of the stuff” (Museu da Luz, 2006). But this still puts the burden on the residents, who have already been burdened with the destruction of their old homes and displacement to a new village, to repair and construct what is needed for the house. At this point in the construction and displacement process, with the submersion of the town quickly approaching, residents are almost entirely at the mercy of EDIA. Even if mistakes and repairs are compensated, it is the residents who will be forced to live in the unfamiliar houses for weeks or months, without proper kitchen equipment as it is being installed.

EDIA’s perspective on compensation differs from the residents’. When residents expressed dissatisfaction with their new homes, EDIA employees repeatedly responded that they were not supposed to give the villagers exact replicas of their old houses but instead that they would “compensate in-kind” for what was lost (Museu da Luz, 2006). To justify this tweak in the language of what residents were promised, EDIA employees declared that if the company had to exactly replicate the older houses, the company would have to take away any modern improvements that the villages were getting, including electricity and wastewater systems, to make this trade fair. The company acknowledged but wrote off residents’ concerns that the houses were less practical than their old houses by reasoning that “you’re going to have to adapt and make changes” (Museu da Luz, 2006) and that “these projects are so complex that they can’t be perfect” just as “God didn’t make a perfect world...nevermind a cement village!” (Jaquerod & Pereira, 2003). While it is unrealistic and unfair to expect EDIA to perfectly reconstruct the old village with no mistakes, the company did initially promise to replicate the old houses and neighborhoods in order to get the villagers to agree to displacement. As EDIA is the company accumulating the land and benefitting from the hydropower generation of the Alqueva Multipurpose Project, it is EDIA’s responsibility to mitigate the consequences for those whose sacrifice the company is benefiting off of.

The inherent pitfalls of compensation for loss is that value is subjective. How can these priceless, intangible things be compensated for, especially when value is subjective? When

discussing their new home, one resident admitted that while objectively, “modern will always be better” he was satisfied with his old house with its simple “conveniences, running water and a bathroom” because “this house has been mine for 25 years, and before it was my in-laws” (Jaquerod & Pereira, 2003). Another resident expressed a similar sentiment: “When will we feel any attachment to this?... I’m attached to my house, to the place I was born in and lived in all my life...I’m not saying this house is rubbish, or I’ll be badly off here, but I’m sorry to leave everything behind” (Museu da Luz, 2006). EDIA officials and many of the residents of Luz held two different value systems and therefore were unable to agree on just compensation. Sentimental, historical, and cultural values cannot be easily quantified, and thus, when trying to compensate for the loss of these, someone will always leave the deal disappointed.

Accumulation by dispossession

Besides issues with compensating for lost homes and constructing new ones, the issue of just compensation for land became a large issue for the residents. In the following exchange, two residents discussed whether they would be compensated fairly for the land they were being dispossessed of:

Resident A: “But they must give us land!”

Resident B: “They were supposed to give us land, but we don't fight for it. That's the problem!”

Resident A: “Are they compensating for your fields with land or with money?”

Resident B: “They say they'll give money, but they only pay for those fields that are flooded.” (Jaquerod & Pereira, 2003)

Not everyone was compensated equally for the land they lost ownership of or access to during the displacement. Many residents, such as Resident B, found that they would only be compensated with money for some of their lost land. EDIA broke other promises related to compensation for land. A decade after the village was displaced, the parish council president, Francisco Oliveira, testified that the land parceling process was still not complete. EDIA had promised to finance the construction of vineyards, olive tree plantations, and a winemaking facility in the town to increase the productive capacity of the town and compensate people who had lost the land they had farmed on previously. But the winemaking facility was never constructed. Oliveira stated that EDIA had initially said the villagers “would receive something for the start of the plantations and for the loss of production” but the villagers later found out “that this was not so and nothing has been done yet” (Tedim et. al., 2009). Luz did not receive their promised compensation, even though what was initially promised was lacking, for the sacrifice of their homes, their community, and their livelihoods.

As the majority of residents rely on the land in one form or another for their livelihood (herding, livestock, agriculture, etc.), financial compensation is not an adequate replacement for the material resources that economically support them. One resident lamented losing the land he supported himself and his neighbors on, saying that right now “I’ve got an allotment. When I leave, where will I grow my vegetables? I’ll have to buy them at the market, and how much will that cost?” (Museu da Luz, 2006). Another resident similarly remarked that the construction of

the dam and the submersion of the town resulted in him losing access to the common space where he herded his animals. To preserve water quality, EDIA cut down the trees and plants in the area that would be submerged. This resident described how “they started here... where the cows are grazing and ruined the animals’ pasture, now they’ve started on the scrubland...they cut the trees down and sell them” (Museu da Luz, 2006). This second example is a clear example of both primary accumulation and accumulation by dispossession. The common herding lands that the villagers used were accumulated by EDIA, preventing the villagers from accessing and benefiting off of the commons. Additionally, while ridding the land of the material things that the community depended on, and thereby dispossessing them of their livelihood, EDIA accumulated capital by selling the lumber and cork from the trees they had cut in the commons. The displacement and reconstruction of Luz by EDIA and the Portuguese government transformed Luz’s land system of allotments and commons. Residents were deprived of their ownership or access to the means of production and sustenance through EDIA accumulating land to submerge for their dam, a prime example of accumulation by dispossession.

For accumulation by dispossession to be successful, it is not enough for a population to be dispossessed. Land and capital must be accumulated by a small group of more powerful people. In the case of the Alqueva Dam, it is glaring who most acutely felt the consequences, the people of Luz, but it is less obvious who benefitted. Though the Alqueva Dam was marketed as a strategy to develop the entire Alentejo and benefit the struggling farmers of the region, the project primarily benefited outside investors and developers. The irrigation program in the Alqueva Multipurpose Project transformed the Alentejo region, which was previously perceived to be an impoverished, unproductive dry grassland only suited for growing cereals, into a desirable place for industrial agriculture. The land was made valuable and marketable through the sacrifice of Luz. Foreign corporations and wealthy investors used this opportunity to accumulate wealth and land. Luz residents and EDIA employees, alike, noted that the Alqueva Multipurpose Project attracted investors and developers to the irrigated areas to the south of Aldeia da Luz. One resident remarked that while he originally thought the Portuguese government and Portuguese businesses would “come and build factories here now, to give folks work, create jobs...it’s foreigners, the Spanish, who’ll make something out of it...” (Museu da Luz, 2006). Critics of the Alqueva Multipurpose Project have long warned that the project would dispossess people of their land at the benefit of foreign industrial agriculture companies. A strange but founded critique of the dam comes from the Monarchist People’s Party’s Black Book of Alqueva which brought together specialists from many disciplines to denounce the project in the early 1980s. The authors proclaim that it is “an invitation to centralism, concentrationism, monoculture, industrial irrigation” (Wateau, 2014). These fears were entirely founded. After the expansion of irrigation into the Ferreira do Alentejo region “there is a trend towards intensive monoculture in the olive plantations” as “land ownership is becoming more concentrated, often passing into the hands of the Spanish” (Wateau, 2014). Although irrigation infrastructure was expanded for much of the region and is now physically accessible for many small farmers, it is not financially accessible. Therefore, those primarily able to benefit from

expanded irrigation are “the richest landowners [who] have been able to make the investments needed” and “Spanish entrepreneurs who are buying up and modernizing” large estates of land (Wateau, 2014). But this is seen as a success by EDIA and the Portuguese government who wanted to attract outside investment to the region. When speaking about development and investment opportunities in Alqueva, one EDIA employee expressed that “there are already many...Germans and Dutch because...they already have technology and markets but they just need the land, which they can find here” (Jaquerod & Pereira, 2003). By supplying water and other incentives, EDIA achieved its goal of attracting wealthy foreign investors to make Alentejo a center of international industrial agriculture. Luz was the sacrifice zone necessary for this accumulation.

Conclusion

“Look, over there we saw a stork on tiptoes and the water was rising and it kept rising until she had to leave her nest. It’s terribly upsetting to see an animal forced to abandon its home. And the bird hung on by her talons until she had to leave or drown and the nest was covered over by water. All this ended. Now there is only water.” - Resident of Aldeia da Luz (Jaquerod & Pereira, 2003)

Much can be learned from the successes and failures of the displacement of Luz. As more large-scale renewable infrastructures including hydropower, wind power, and solar power plants are constructed and the world transitions to renewable energy, the displacement of communities for these infrastructures may be inevitable in some cases. Still, much can be improved in these cases to minimize the trauma of displacement, improve community satisfaction, and combat the trends of accumulation by dispossession. For example, keeping promises to impacted populations is an essential aspect of promoting community satisfaction. If anything ties together the multitude of cases of infrastructure-caused displacement, it is that developers and governments almost always break their promises to the impacted population. The Alqueva Multipurpose Project is not an exception to this. Residents of Luz believed they would benefit from the projects’ vast irrigation system but instead were not given access. Residents were told they could specify the building materials, dimensions, and layout of their houses but were instead overridden by EDIA architects without consultation. These broken promises foment distrust towards developers and the government in addition to creating permanent bitterness towards the project. Though it is not always possible due to the sheer complexity of large-scale infrastructure projects, companies should prioritize keeping commitments and promises to the displaced communities.

Research on infrastructure-related displacement shows that the satisfaction of displaced communities can be improved if their children benefit from the displacement, either through access to better educational opportunities or a general improvement in quality of life (Takesada, 2009; Fujikara et. al., 2009). This is supported by the case of Aldeia da Luz. Over time, resettlers’ perceptions towards infrastructure projects tend to improve in the case of hydropower-related forced relocations (Takesada, 2009). But ten years after the village was

displaced, Oliveira, the president of the parish council, expressed that in the view of the villagers, “the balance is negative” (Dias, 2012). Multiple studies on and interviews with the residents of Luz show that residents still hold overwhelmingly negative perceptions of the project (Dias, 2012; Luis et. al, 2015). This is partially due to the perceived lack of benefits for residents' children that otherwise could have improved perceptions over time. Older residents of Luz expressed that one reason they agreed to the displacement was the belief that future generations in the village would benefit. One older resident expressed how “when I move to the new village, and plant new trees, I’ll never get to taste the fruit” but the neighborhood children he had spent much of his time feeding eventually would (Museu da Luz, 2006). Although the older residents of Luz believed themselves to be “too old to start all over again” they had hope because “young people can” (Jaquerod & Pereira, 2003). But in the end, the new village of Luz had very few opportunities for young people and the village’s already aging population lost more young people who migrated to nearby cities in search of work and economic opportunities. Without a tangible benefit for the younger generation, many residents of Luz felt that their sacrifice was not worth the immense trauma of the village’s displacement.

More than a decade after Luz was displaced, the residents continue to experience negative psychosocial consequences. Unlike studies of other populations that were displaced by hydropower projects, “time did not lead to a decrease in anxiety or to an increase in residential satisfaction” in Luz and the population continued to show “higher anxiety, lower residential satisfaction towards village and house, and lower place identity” (Luís et. al., 2015). These negative psychosocial consequences persisted despite conscious efforts by EDIA to minimize the trauma of moving the cemetery, employ a team of psychologists to assist the population of Luz during the transition, and preserve neighborhood social bonds by keeping neighbors the same in the new village. These measures likely lessened the severity of the psychosocial consequences, and therefore, could still be used in other displacement cases, but were not effective enough to prevent neighborhood social erosion or long-term negative effects on community mental health. This suggests that the proper mitigation measures must go beyond this and, furthermore, calls into question the possibility that displacement can be achieved without significant long-term effects on the displaced population. The strategies EDIA and the Portuguese government utilized here to try to achieve procedural justice (i.e., employing teams of psychologists and representatives, long-term negotiations with villagers, individual consent for housing plans, etc.) and distributive justice (i.e., reconstructing the village with improved utilities) failed to actually protect the people of Aldeia da Luz, who were already marginalized due to their location in an impoverished, neglected region of Portugal.

No one strategy, or even a combination of strategies, will fit each case of displacement. In all future green infrastructure projects, community-specific values, geographical setting, local culture, and local societal structures must be understood, recognized, respected, and taken into account. This involves long-term, in-depth discussion with the affected communities long before the project is planned or implemented. These discussions and negotiations must then be continued throughout the duration of construction and into the foreseeable future after

displacement so that the community can articulate their needs and these needs can be met as they emerge. Overall, a renewable infrastructure project can partially mitigate the negative consequences that affect displaced communities using flexibility, sustained communication and open dialogue, giving communities actual decision-making power, and respect for local traditions and needs.

As Portugal continues to transition to renewable energy, utilizing these strategies becomes more critical. In 2007, the Portuguese government created the Programa Nacional de Barragens de Elevado Potencial Hidroelétrico, the National Program for Dams with High Hydroelectric Power, to develop hydropower projects nationwide (EJ Atlas, 2020). The Portuguese government continues to justify this program because the construction of hydropower is supposedly in the public's interest, both in terms of energy security and in Portugal's continued effort to decarbonize its electricity sector. The government eventually approved plans for seven dams despite heavy opposition from environmental organizations, local residents, civil groups, and academics who all criticized the lack of public participation in the National Program. After nearly a decade of sustained opposition at a local and national level, the government revised the program in 2016 and decided that only four dams (the Foz-Tua Dam, the Alto Tâmega Dam, the Daivões Dam on the Tagus River, and the Gouvães Dam on the Mondego River) will be sufficient (EJ Atlas, 2020). In this revision, the government also set a deadline of 2023 for the construction of the dams. Though hydropower is a far less politically salient renewable energy infrastructure in Portugal than it used to be, the lessons of Alqueva Dam and the displacement of Aldeia da Luz are still relevant for the few continuing hydropower projects. Hydropower and other renewable energy infrastructures are critical parts of the world's transition to renewable energy, and though renewable energies are far less environmentally and socially harmful than fossil fuel infrastructures, these infrastructures still have far-reaching consequences that should be minimized for the protection of impacted populations, who are usually otherwise vulnerable or marginalized populations.

These conclusions on the proper practices of renewable energy infrastructure are only the beginning. Many countries in the world are transitioning, quickly or slowly, to renewable energy, so large-scale renewable energy projects such as the Alqueva Dam will be constructed more frequently in the future. Still, there is much to examine and understand about the long-term effects of these renewable energy infrastructures on the communities they displace. The case of Aldeia da Luz and the Alqueva Dam is a prime opportunity for further research on the subject. My project was limited by my rudimentary knowledge of the Portuguese language and the short time frame to complete this research (approximately one month) but future researchers who are fluent in Portuguese and have a more extended research period can expand upon this work, particularly through extensive retrospective interviews in Portuguese with living residents who experienced the displacement of the village. More research should be done, using voluntary interviews, about the psychosocial effects of infrastructure projects like the Alqueva Dam on both individuals and communities. Additionally, while it is difficult to compare cases that differ greatly in terms of geography and socioeconomic conditions, there is a gap in the literature

where a future researcher could compare decision-making procedures and public engagement strategies across several case studies, with special attention paid to formal and informal inclusion of public input and superficial versus concrete decision making power in impacted communities. The field studying accumulation by decarbonization and green grabbing is still in its infancy, so more research can be conducted there, especially in expanding the application of the theory of accumulation by decarbonization to include renewable infrastructures, not just conservation and carbon offsets. As there are several dams in the process of planning or construction in Portugal, future researchers can conduct long-term studies on the rhetoric and practice of accumulation by decarbonization using research before, during, and after the hydropower dams are constructed.

In conclusion, this study found that though EDIA and the Portuguese government attempted to create mechanisms in the displacement process to achieve procedural and distributive justice, the inhabitants of Aldeia da Luz were treated unjustly and inequitably anyway. The population of Luz was dispossessed of their homes, land, and village in a process that enriched developers and wealthy landowners and centralized capital, land, and power into the hands of EDIA and the Portuguese government. Thus, the displacement of Luz is a prime example of accumulation by dispossession, specifically accumulation by decarbonization. The case of Aldeia da Luz shows that the mainstream principles of environmental justice are not adequate enough to protect marginalized populations, especially from accumulation by dispossession, because these principles alone do not recognize the complex and multilayered spatial, geographic, and demographic power dynamics that underlie all infrastructure and development projects, even so-called “green” or renewable energy infrastructures. For the present and future renewable energy transition to have any hope of being implemented equitably, the principles of environmental justice must be interrogated, revised, and utilized in a way that recognizes how infrastructure and development are used to accumulate land and capital for the powerful by dispossessing the already marginalized.

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