

AFP Investments in Extractive Companies with a High Environmental Impact

Work Documents of the social security area



Recaredo Gálvez - Benjamín Sáez

Andrea Sato - Caroline Stevens



AFP Investments in Extractive Companies with a High Environmental Impact¹

Recaredo Gálvez_a Benjamín Sáez_b Andrea Sato_c Caroline Stevens_d

September de 2020

¹Fundación SOL work document.

a Bachelor's in Public Administration, Universidad de Concepcion, Master's in Politics and Government, Universidad de Concepcion, Researcher at Fundación SOL, e-mail: recaredo.galvez@fundacionsol.cl

b Bachelor's in Sociology, Universidad de Chile, Researcher at Fundación SOL, e-mail benjamin.saez@fundacionsol.cl

c Bachelor's in History, Universidad de Santiago de Chile, Master's in Sociology of Modernization, Universidad de Chile, Researcher for Fundación SOL, e-mail andrea.sato@fundacionsol.cl

d Bachelor's in Journalism, Universidad Diego Portales, Master's in Public Policy and Sustainable Development, Universidad Autónoma de Barcelona, Researcher for Fundación SOL, e-mail: caroline.stevens@fundacionsol.cl

Fundación SOL / Miraflores 113, oficina 48, Santiago de Chile / Telephone: (+562)6328141
www.fundacionsol.cl

This project is covered by the Creative Commons License
Attribution-Non Commercial-Share Alike
4.0 International

This research study was conducted thanks to the support and funding of Fundación Heinrich Böll. The analysis and conclusions of this report are the exclusive responsibility of Fundación SOL.



*Updated version, October 22, 2020.

The cover page uses pictograms from Iconoclasistas.net

Contents

1 1. Extractivism Around the World	10
1.1 Historical Perspective: Extractive Companies in Chile	17
2 AFP Investments in Extractive Companies with a High Environmental Impact	23
2.1 General Description of Companies and Sectors	24
3 3. The Sexual Division of Labor, Communities and Homes in Exploited Lands	37
3.1 Sexual Division of Labor and Extractive Companies with a High Environmental Impact	40
3.2 Employment Quality and Extractive Activities	43
3.3 Household Perspective	44
4 Conclusions	47
5 Bibliography	49

List of Figures

1 Summary of the effects of the neoliberal model in the Chilean forestry sector	20
2 Pension fund investments administered by AFPs - By sector (Main sectors) (2015-2020)	27
3 Descriptive diagram of the extractive cycle in territories	38
4 Percentage of salaried workers in extractive activities	41
5 Percentage of salaried workers in extractive activities by activity	42
6 Productive insertion of male heads of households employed in extractive or high-impact activities	45
7 Productive insertion of female heads of households employed in extractive or high-impact activities	46

List of Tables

1 Number of companies selected by sector and year	25
2 Top 10 issuer companies - Percentage of total companies selected per year	26
3 Investments by sector for each period, total amount by period	26
4 Investments by sector, maximum amount by institution, by period	28
5 A) Top companies receiving investments 2015-2017	29
6 B) Top companies receiving investments 2018-2020	29
7 Top 10 companies in 2015 - Investments of pension funds administered by AFPs	30
8 Top 10 companies in 2016 - Investments of pension funds administered by AFPs	30
9 Top 10 companies in 2017 - Investments of pension funds administered by AFPs	31

10	Top 10 companies in 2018 - Investments of pension funds administered by AFPs	31
11	Top 10 companies in 2019 - Investments of pension funds administered by AFPs	32
12	Top 10 companies in 2020 - Investments of pension funds administered by AFPs	32
13	Selection of 6 extractive companies with a high environmental impact receiving investments from AFPs as of June 2020	33
14	Economic activity in “sacrifice zones” and national average	39
15	Number of men and women working by activity sector	43
16	Workers hired directly or through outsourcing, supply, or recruitment services by activity	44
17	Number of people working without a written contract, by activity	44

Executive Summary

- As of June 2020, AFPs invest over US\$15.8 billion in national companies through the purchase of Shares in Open Corporations and Private and Public Company Bonds.
- Of these investments, 56.3% is concentrated among 10 issuer companies.
- Most of the investments are directed towards extractive activities with a high environmental impact, including the Electricity sector (US\$5,033 million), Forestry (US\$2,162 million), Hydrocarbons (US\$1,827 million), Mining (US\$1,659 million), Water (US\$915 million) and Monoculture (US\$325 million). As a whole, extractive activities represent 75.5% of AFP investments in companies operating in Chile.
- 45.6% of all AFP investments in national companies as of June 2020 is concentrated in the electricity or forestry sectors, both of which are involved in extractive activities with a high environmental impact.
- As of June 2020, AFPs invest US\$1,659 million in mining companies and investment funds for mining projects.
- All together, when considering workers employed in extractive activities, these total 392,452 people at the national level, equivalent to only 5.6% of salaried workers.
- Agriculture, livestock, forestry, and fishing activities account for 69% of women employed in extractive sectors. This is followed in terms of importance by mine and quarry exploitation at 15.8%.
- In the case of men, 53.3% are employed in agriculture, livestock, forestry, and fishing activities, which are precisely those sectors that require a more intensive use of labor. The second activity of greatest relevance is again mine and quarry exploitation, but with a higher percentage of 28.9%.
- 11.8% of jobs in the agriculture, livestock, forestry, and fishing sectors have no written contract. This figure is significantly higher than the national average of around 8.8%.
- The area with the greatest degree of outsourcing is mining, where 18.2% of workers are hired through subcontracting, supply, or recruitment services. This situation is observed in water supply activities, representing 16.5% of all workers. As a whole and at the national level, 13.2% of salaried workers in the extractive sector are outsourced.
- While 54.8% of the working age population at the national level are employed, in the so-called sacrifice zones, this percentage is 49.6%. “Inactivity” (from the perspective of paid labor) in these areas is 44.3% in comparison to 40.6% at the national level

- Celulosa Arauco, ENAP, AES Gener, Agrosuper and ENAEX are among the companies receiving direct investments from the AFPs. All of these companies been involved in conflicts with the community and the justice system. The investment in these companies is over US\$1.57 trillion (MUS\$1,575,893).

Introduction

This study offers an overview of the relationship between AFP investments and the installation or expansion of extractive companies with a high environmental impact in Chile that have short-, medium-, and long-term consequences on the environment and the community. This relationship implies that workers' retirement savings are used -through the purchase of shares, bonds, and other instruments- to capitalize companies whose activity revolves around the appropriation of resources.

This nexus strongly reflects the importance of the financialization of the economy and the relationship established between the flows financial speculation and natural common goods. In concrete terms, one of the greatest characteristics of the global financialization process during recent decades has been the greater independence of financial companies with respect to banking and their direct operation in financial activities. In one way or another, AFP investments through the purchase of shares and bonds has allowed for the financialization of companies, using workers' savings as capital.

From this perspective, this study has been developed for the purpose of clarifying this connection between the appropriation of natural goods and capital flows, as well as its consequences on the working world from a viewpoint that emphasizes the sexual division of labor.

The first section presents a conceptual review aimed at situating local extractive activities within global chains and the sexual division of labor which determine gender roles and tasks, depending on the respective sector and type of extraction. In this logic, extractive activities not only include the activities themselves, but also transportation networks and connections by which these "enclave economies" coordinate with a world economy that is stratifying global production.

It also includes a historical review of the extractive companies in Chile and their impact on the consolidation of a production matrix which involves appropriation, exploitation, and greater social and environmental risk.

The second part of this study systematizes and reclassifies AFP investments in companies operating in Chile within extractive sectors or involved in activities that have a high environmental impact. This study focuses on the period between 2015 and 2020, covering over 70 companies and amounts exceeding US\$15 billion.

These types of activities are also seen in the majority of companies receiving capital from pension funds. In some cases, the holdings in AFP ownership are also the owners of companies that, at the same time, receive investments from retirement savings, delivering capital to fund projects that will have permanent consequences for the lands and communities.

Moreover, it reviews the forms of labor insertion by household, which ultimately determine the distribution

of paid and unpaid labor necessary to sustain these activities.

Finally, the third part of this document analyzes the impact of extractive companies on employment, considering the appropriation activities developed by companies with 11 or more employees in the agricultural, mining, water supply, electricity sectors, and others.

1 1. Extractivism Around the World

A systemic look at environmental exploitation.

*The miner makes good money,
but for the foreigner's wallet;
Exuberant industry where many
women work for just a few dollars,
and they have to because their husbands
do not make enough to make ends meet.*

Violeta Parra

"Al centro de la injusticia" (English
translation).

The organizational myth of the accumulation model is based on the pursuit of a country's development (Wallerstein, 1999). In this sense, the great driver for transforming underdeveloped economies into developed ones is economic growth. Particularly in the Southern Hemisphere, this economic growth is closely tied to the intensive and mass exploitation of natural common goods². Within this organizational myth, the development narrative is cemented upon the condition that countries in the economic hubs of the world manage to extract the greatest amount of natural resources to sustain the demand for raw materials. This predatory relationship is justified by the idea that the countries in the Southern Hemisphere need income derived from the exploitation of nature to achieve the "development" ideal (Acosta, 2016). Under this premise, the global economic hubs exploit the peripheral and semi-peripheral lands with no concern for the biophysical limits of nature. This capitalist accumulation project is not only unsustainable but has been the leading force in the predatory advancement of the current economic system (Acosta, 2011).

Extractivism is just one of the key components of the environmental crisis we are facing, whose maximum expression is climate change, a phenomenon that has been intensifying in recent years, with serious alterations in the natural ecosystemic flows, as seen by the rise in temperatures in emblematic areas such as Antarctica, or in the Metropolitan Region in Chile with dramatic evidence of the "gradual death of vegetation in sclerophyllous forests in the Santiago basin"³ due to a prolonged drought and other factors. For decades, the environmental and social limits have been clear, but the appropriation of natural common goods continues to be the main factor in their depletion. The exploitation of human and non-human life is spreading throughout the planet. Mega mining, monoculture, fracking, and oil drilling are dangerously expanding throughout the Americas (Gudynas, 2003). This exploitation of

²Natural common goods have replaced the notion of Natural Resources, as a term that considers the communitarian nature of water, land, and the elements. Reference in Drogueyt, Francisca (2019) "extractivismo y patriarcado: la defensa de los territorios como defensa de la soberanía de los cuerpos" Red Chilena Contra la Violencia (Drogueyt, 2019)

³Revista Virtual Ladera Sur

nature is nothing new, but it has gotten worse over the last two decades, particularly in the global south (Mies, 2019). Latin America has been the major provider of raw materials for other economies, collateralizing sustainability, and its production matrix. Moreover, inequality among territories is fertile land for “development projects” throughout the continent that depend upon the workforce and their dispossessed lands (Gudynas, 2003).

Extractivism is a concept that has contributed to the definition of chains of exploitation, concentration, and depredation of the environment. As both concept and signification, it has been key to evidencing the misleading nature of the myth of development and growth, where it attempts to create a narrative that justifies the unequal relationship between territories. Therefore, to speak about extractivism is to talk of a process rooted in a concrete historical moment; it is inaugurated and consolidated with the expansion of the global capitalist system through colonizing encroachment upon Latin American, African, and Asian territories (Mies, 2019; Vandana and Mies, 1998; Wallerstein, 2004).

As an appropriation tool, extractivism helps construct the scaffolding that facilitates the primitive accumulation of global economic hubs to the detriment of the peripheries. That is to say that the system is sustained upon the provision of raw materials to the global economic centers. Therefore, while extractivism finds its historical origin in the 15th century, the colonization and plundering of territories and individuals continues to be seen -and with greater force- primarily in our region. The configuration of the world economy (Wallerstein, 1996) necessitates the colonizing organization of global peripheries.

The need for raw materials by burgeoning capitalist centers has condemned the nations that provide them with such raw materials to “underdevelopment” (Cardoso and Faletto, 1996; Mies, 2019). In this way, the vast peripheral regions have delivered raw materials to economic centers, which perform manufacturing with the raw materials from the impoverished south (Cardoso, 1968). This dependency/depredation relationship has sustained to present day, where the unequal structure between countries and regions is primarily due to extractivism (Gudynas, 2003).

Debates surrounding extractivism and its significance intensified during the first decade of the 21st century. The increasingly evident effects of the environmental crisis have served as a catalyst for the reflection process and a search for alternatives. These debates question state participation, the self-management of work on the lands, food sovereignty and the contradictory nature of “false alternatives” (Gudynas, 2012) which propose short-term reforms with no profound transformation project. Likewise, they have emphasized the need not only to distribute wealth, but also social power and, from there, achieve a structural transformation from which to rethink the sustainability of the land, human and non-human life (Vandana and Mies, 1998; Gago and Mezzadra, 2015).

To contextualize this discussion, extractivism refers to activities that remove large volumes of unprocessed

(or lightly processed) natural common goods, used primarily for export depending on the demand of central countries. Moreover, it is not just about minerals, but there are several types of extractivism, each with its own unique characteristics with respect to the land and the form of exploitation (Schuldt, 2005).

Therefore, extractivism is considered to be plural (extractivisms), incorporating sectors traditionally classified as such -like mining and oil-, but also including fishing, agriculture and livestock, and others. In this sense, it does not consider "production" or raw materials, since the extractive process has nothing to do with production, but rather the appropriation of these resources (Gudynas, 2014). In this process, there is no industry or production, but rather a model of territorial and environmental dispossession (Schuldt, 2005).

Going deeper into this definition, Eduardo Gudynas (2014) affirms that "extractivism must simultaneously meet three conditions: a high volume and/or intensity of extraction, unprocessed or slightly processed resources, and a primarily export destination. It is not enough to meet one or two of these conditions, but all three must occur at the same time." Thus, there are three fundamental conditions that define a form of appropriation as extractivism:

1. **Volume of natural resources extracted:** mostly physical indicators are used to measure and identify the material extracted and removed to attain raw materials that can be commercialized. How are they extracted? How much is extracted?
2. **Intensity of extraction:** this refers to the environmental impact of the extraction of raw materials, even when the volume of material extracted is minimal. What is the impact?
3. **Destination of raw materials:** this refers to where the extracted resources are sent to be processed or consumed. In this sense, it must be determined whether it is involved in a local, national, or international circuit. If the greatest quantity of resources is intended for export, we can consider this to be an extractive relationship. Who benefits?

This definition "operationalizes" extractive activities, distinguishing them from other forms of appropriation of natural goods, such as local economies, subsistence, self-consumption, and small-scale agriculture activities. With the understanding that the activities present different volumes, destinations, and intensities. Extractivisms, therefore, respond to an extraction that is massive, intensive, and intended for the global markets (Wallerstein, 1996).

There is also a key relationship with global circuits. This is seen in cases where the volumes of natural goods extracted exceeds the needs of the countries where they are extracted, since these are really focused on the consumption of other continents. Local dependence prevents national governments from being

able to manage this activity, since the international markets are the ones that control the commercial circuit of natural common goods. Extractivisms are anchored to exploited lands, but its distribution is global.

In this context, we can also find extractive value chains, which are defined as an integrated network to generate value through the production or extraction of raw materials and the different intermediate phases -which may include commerce and services- leading to the consumption of a final product (Pelupessy, 2001). Global value chains (Bair, 2005) are part of the extractivist model in Latin America and the Caribbean. To understand the cycle of natural common goods and commodities is to understand how companies and corporations transnationalize production and consumption, constructing a new configuration of production, distribution, and consumption. Extractive value chains are included within the extractivist model, because although they are activities that may be beyond the traditional definitions of extractivism, they collaborate to maintain an economic order that depends on the exploitation of natural common goods (Brown, et al., 2010).

To understand global value chains, four country dimensions are considered from an extractivist perspective (Pelupessy, 2001).

1. Input-Product Structure
2. Geographical Location
3. Social-Political and Institutional Context
4. Production Matrix

Analyzing extractive value chains is key to understanding globalized production patterns and fully outlining the generation of value through the transformation, commercialization, and service provision phases (Pelupessy, 2001). Based on this perspective, we can also see the distribution of income, economic market ties and even demand (Brown, et al., 2010). Most extractive activities in Latin America are organized by chains that control a significant part of the production and commercialization processes.

Current extractive processes, particularly in Latin America and the Caribbean, are constituted as enclave economies, located in regions where there is a presence of easily marketable natural common goods. In these economies, generally more than one good is exploited, thus generating a multidimensional impact on communities. The productive connections to the local economy are practically non-existent. Labor is poorly paid, and at times, workers are required to operate in extremely hazardous areas. Most of these projects do not last over 30 years, primarily due to the depletion of resources. Moreover, they fail to provide significant benefits to the population, beyond tax contributions in areas where the enclaves are developed. Therefore, extractivism is an economic model not only tied to the exploitation of natural common goods, but the entire network is constructed around accumulation.

Extractivism -or extractivisms- as a concept is the subject of great debate aimed at reflecting on the scope of projects that exploit and plunder the environment at the social level. Authors coincide on the need to analyze extractivism from a broader feminist perspective (Svampa, 2015). The exploited lands and women's unpaid domestic work have sustained the exploitation of capital as an overshadowed network of labor and resources with little to no cost for capital (Gago and Mezzadra, 2015). The unpaid work of households and availability of land exploitation are elements that lead to the expansion of the accumulation model (Federici, 2004). In this sense, we must take a differentiated look at the impact of land exploitation among men, on the one hand, and women on the other (Vandana and Mies, 1998).

In this line of thought, household organization and its false dichotomy between productive and non-productive aspects has allowed for a "dark value" tied to the invisible work done by households to guarantee reproduction and labor (Clelland, 2014). This is the basis for maintaining the low cost of reproduction of labor, transferring the reproductive responsibilities to the households themselves, to the environment, and to the income of households that make a living from labor (Dunaway and Clelland, 2017). Labor's total contribution to goods consists of total working hours -both paid and unpaid- which are incorporated in the production and pre-production of the workforce. Workers residing in global peripheries survive in households that supply the lower level of the capitalist global economy, where precarious employment is expanded, labor is made more flexible, and the free labor of women is exploited to outsource the maintenance of household reproduction without affecting the earnings of capitalist reproduction (Vandana and Mies, 1998).

In all commodity chains, we can see an unequal appropriation and exploitation among countries and households. Households are considered to be the central axis of these chains, since it is there where invisible value is created through reproductive and care functions, guaranteeing the reproduction of the accumulation system. The hidden subsidy provided by households to commodity chains is even greater in the lands appropriated by extractivism, since care-taking and life management tasks are even more oppressive and demanding, making for true "dark value extraction chains" (Clelland, 2014).

Several authors consider colonizing attacks to be part of the network of violence driven by extractive processes (Mies, 2019). In this sense, the inequalities between men and women are understood as intensified by the installation of the capitalist model, configured as a process of primitive accumulation (Federici, 2004). Therefore, the dualities and binary notions of Nature/Culture and Man/Woman are transferred to perceptions on territories. "In this way, nature is feminized and associated with notions of valuation and devaluation in specific contexts, which generates greater social inequalities for women. These inequalities are expressed in extractive processes, specifically mining, and in the actions of the different stakeholders, including the State" (Ulloa, 2016).

The mass expansion of extractivisms and their penetration in territories displaces and breaks down local

and popular economies. It is a process that breaks apart the production and social reproduction systems, altering the relationship between households and the land (Carrasco, 2019). Local and popular economies redirect their objectives to align with those of the companies. This process of disarticulation of traditional economies brings with it an imposition of a highly masculinized productive economy, which consequently brings about a greater sexual division of labor. Local and popular economies are relegated to a secondary position and marginalized from social reproduction circuits (Herrero, 2012).

Moreover, jobs created in lands where extractive companies are installed are seen to be highly masculinized, which implies the reinforcement of traditional gender roles -male provider, female caretaker. Women who historically take on domestic labor resent the increased work load when extractive activities begin to have an effect on their family's health.

These gender roles are replicated across different dimensions, and extractive dynamics establish control and discipline over gendered bodies. The new forms of leisure implemented in these areas as a consequence of the extractive activities condition and promote the appearance of sex work and spaces designated for it. In most cases, this has been tied to processes of human trafficking for the purpose of sexual exploitation (Svampa, 2014). This constructs a close connection between extractivism -often as forced labor-, while sex work becomes a functional dimension of capital accumulation, as it serves to channel the stress of the male workforce (Laite, 2009). In this sense, the social control of women's bodies is part of the patriarchal capitalist accumulation scenario that promotes extractive activities. From this perspective, we can conceive of a "re-updating" of Patriarchy in lands where extractive companies operate (Ulloa, 2016).

Harvey (2003) proposes that during the current era of capitalism, the system's periodic crises of accumulation have had to be resolved by changing the terms that condition the ties between capital and labor, accelerating capitalism's inherent processes of depredation, Harvey calls this depredation process "accumulation by dispossession." According to the author, all of these processes form a new "enclosure of the commons." This is to say that commercialization is developed with the complicity of the State and within the need to "solve" the crisis of capital itself.

Several authors complement the vision of Harvey and Marx, based primarily on the writings of Rosa Luxemburgo with respect to colonization processes in the Americas and Africa (Mies 2019, Federici and Fortunati 1987; Federici 2004). Maria Mies, in her most well-known piece, "Patriarcado y acumulación a escala mundial," re-edited in 2019, considers that the ongoing growth and accumulation of capital has been made possible by the commercialization of human and non-human production. Mies (2019) considers that women, the environment, and impoverished countries in the global periphery, have become the foundation for the invisible exploitation sustained by this accumulation model. In this sense, she coincides with Harvey and Luxemburgo, stating that primitive accumulation is not only a time in history,

but also that “new enclosures” are a necessary condition for the ongoing reproduction of the capitalist model.

The strategy of dividing the economy into “visible” and “invisible” sectors is nothing new. This method has been employed by the capitalist accumulation process from the beginning. The invisible parts were excluded, by definition, from the “real” economy. But they were the foundation upon which the “visible” and productive economy developed. These exclusions are dimensions that enable the accumulation of capital, like the domestic labor of women and the human and non-human exploitation in the marginal continents of Africa, Asia, and Latin America (Mies, 2019:17). From this perspective, we can understand the importance of not only looking at the nation state, but also the global division of the working class. This is because female workers are inserted within broader productive chains, incorporating diverse and sometimes contradictory economic units.

Primitive accumulation is a process that is reinaugurated in each phase of capitalist development, with different capital strategies according to the specific crisis faced. As proposed by Arrighi (2014), the succession of the Money-Goods-Money cycle has also been manifested as Goods-Money-Goods, revealing the phases of production and speculation in the operation of capitalism. At present, we can see how new niches of capital accumulation have extended to non-marketed spaces, such as social rights and domestic labor, all within a scenario that attacks paid labor, exploits individuals, and their lands in the global peripheries. This updated primitive accumulation, like the first model, requires a State that adjusts the limits of exploitation, privatizes social rights, contains the action of trade unions, and leads to more precarious labor in both the private and public sphere. These suppose the return “at the global level, of a series of phenomena usually associated with the genesis of capitalism,” such as a new round of enclosures (Mies, 2019) and the “rationalization of social reproduction aimed at destroying the last vestiges of common property and community relations, imposing more intensive forms of exploitation” (Mies, 2019).

1.1 Historical Perspective: Extractive Companies in Chile

Sociohistorical Narrative of the Installation and Development of Extractive Companies in Chile

Although the extractivist model in Latin America has mostly been expressed in oil extraction activities in the Amazon, the transformation of rural lands through extensive soy crops and the advancement of mining and hydrocarbon extraction in the southern part of the continent (Gudynas, 2018), particularly in Chile, has been tied to the intensification of mine exploitation and the dramatic development of the forestry, fishing and agricultural sectors, all representative of our national development strategy based on the extraction and export of raw materials.

While the exploitation of these resources has been seen practically throughout the history of Chile, different policies and regulations have attempted to shape the different exploitation processes and mechanisms, the use and destination of the (public and private) economic benefits brought about, and the impact on natural common goods and the land, also considering the communities that inhabit them. What is certain is that the current extractive dimension originated in the 1970s, when a series of neoliberal policies began to be implemented across the country within the context of the civic-military dictatorship in power between 1973 and 1990.

Following the teachings of Milton Friedman, a professor at the University of Chicago (USA), a group of economists known as the “Chicago Boys” advised Pinochet’s regime on the implementation of regulations and policies, ultimately leading to the Constitution of 1980, whose main objective was economic growth through the “liberalization” of the economy. The pillars that sustain this model are still in force today.

During the 1990s and with the arrival of democracy, new political authorities began to echo the international debate and started to discuss sustainable development in Chile. However, this discussion did not imply a more in-depth debate on the development model but sustained the structure already in place. In this sense, it does not propose a revision of the forms of production and consumption, the concentration of land, or the patterns of accumulation that have been developed, but rather continues along this line and strengthens the model, under the premise of creating institutions and regulations to guide sustainability criteria⁴.

Some authors say that, when defining environmental policy for sustainable development in Chile, the concept of “sustainable” is interpreted under a definition that corresponds more to a neoliberal political and economic context, which makes no mention in its guidelines of a new economy, or to the nature-culture relationship, as proposed by sustainable development (Acselrad, 2003).

⁴4Elaboration of the Law on General Environment Foundations No. 19,300 (1994); creation of the National Environment Commission (1994); creation of the Ministry of the Environment (2010)

In production sectors associated with the extraction of natural resources, the structural modifications may have occurred with privatization but, above all, with the commercialization of water, forestry, mining and fishery resources, and others.

It should be noted that in the particular case of mining (and fishing, as we will see later), as such a determinant sector for the country's Gross Domestic Product (GDP), this has been continuously subject throughout Chilean history to privatizations and nationalizations (like that which occurred during the administration of the Unidad Popular). However, the framework governing this sector at present is contained primarily in two laws passed during dictatorship: the Organic Law of Mining Concessions (LOCCM) and the Mining Code, "both for the purpose of permanently incorporating a private and transnational component in the country's economy" (OLCA, 2016).

In terms of water resources, the applicable regulatory status is presented in structural terms as follows: on the one hand, the Political Constitution of Chile says that, "the rights of private parties to water, recognized or constituted in accordance with law, shall grant their holders ownership thereto" (Political Constitution of Chile, Article 19, No. 24); likewise, the Water Code (1981) establishes that "water is a national asset of public use, and private parties shall be granted rights of use to it."

This reveals that although its condition as a national asset of public use means that its ownership and use belongs to the entire nation, and that "these assets are characterized as being outside the market, and are therefore non-prescriptive and inalienable, the rights of use are marketable, alienable and prescriptive"⁵. The structure described above is crucial to understanding how development projects involving the use of water resources are configured and structured, and the origin of numerous social and environmental conflicts arising with respect to this issue in recent decades.

In the case of the forestry sector, and although exotic species plantations such as pine (*Pinus radiata*) and eucalyptus (*Eucalyptus nitens* and *E. Globulus*) saw a progressive surge throughout the 20th century, the creation of Decree Law No. 701 (1974) brought about such an intensification of the activity that it went from approximately 500,000 planted hectares in 1974 to 2.87 million hectares in 2011 (CONAF, 2020), "which have almost entirely been established with fast-growing exotic species" (AIFBN, 2009). These forestry monoculture plantations "alter the water balance of lands, subjecting them to an extremely high risk of fire, and their chemicals contaminate the soils and local population" (Resumen.cl, 2014).

The decision made during the second half of the 1970s to direct the forestry sector towards exports, with almost exclusively productivist criteria, along with the privatization of previously state-owned companies, such as Forestal Arauco, led to a growing concentration of forestry production among a few economic groups, with an increasing number of foreign holdings (Casals V. La política forestal en Chile. Una

⁵ Agua: ¿bien público o privado?, columna de opinión de Laura Noveo Vásquez publicada en CIPER (2014).

perspectiva historica, 1999).

The environmental and socioeconomic consequences of implementing this design have implied the “destruction of native forests, the expulsion of rural communities (particularly the Mapuche community), modifications to the water cycle, a decrease in biodiversity, regression of agriculture, etc.” (Casals V. , 1999).

In 1998, Law No. 19,561⁶, modified Decree No. 701. However, this new regulatory framework established a series of regulations related to different dimensions of the forestry sphere, including some articles on forestation incentives or subsidies. This has been one of the most controversial aspects of said Decree, as subsidies have been used primarily to plant introduced species like pine and eucalyptus. According to these regulations, the incentives would be effective for 15 years starting in 1996; however, in 2011 they were extended for two more years and finally terminated in 2013, at which time the forestation subsidy policy in Chile came to an end.

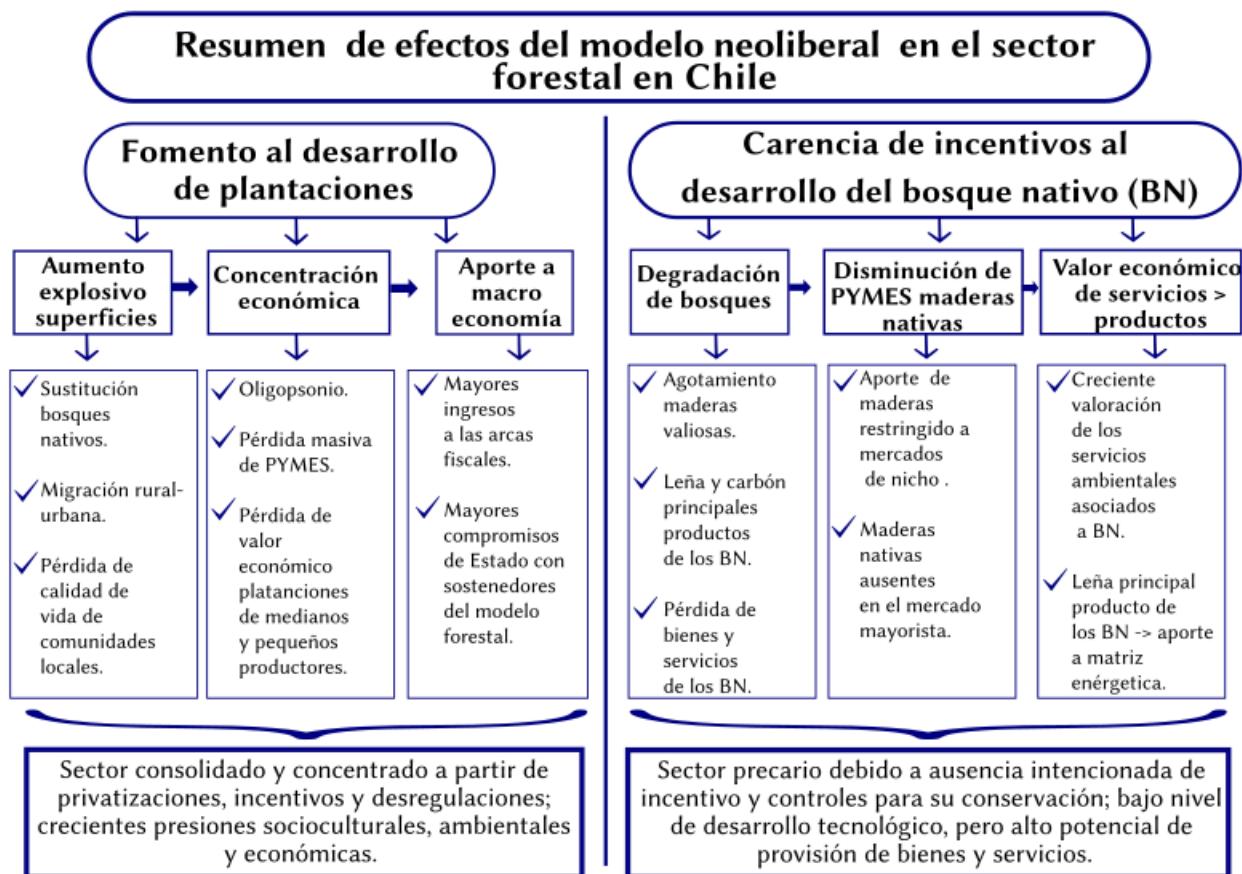
Two other milestones for the sector were the ratification of Law No. 20,283 in 2008, on the recovery of native forest and forestry promotion, which took 16 years to process. This law is aimed at the protection, recovery, and improvement of native forests, for the purpose of ensuring forestry sustainability and environmental policy. The following table (Donoso, Romero, Reyes, and Mujica, 2015), presents an interesting summary on how the model implemented during the dictatorship has impacted the Chilean forestry sector.

Another sector that suffered a drastic change in its extraction and production processes was the fishing sector. In regulatory terms, the instrument that brought about large-scale growth of the national fishing industry is DFL No. 266 for Fishery Promotion (1960), which granted “extremely favorable tax and customs benefits” (Terram, 2018). Over the years, this model did not suffer alterations but rather further consolidation at the hand of new regulations like DL No. 500 (1974), which “granted the Military Government the power to deliver special permits to foreign vessels for the exploration and exploitation of fishery resources south of the 40° latitude South ‘without limitation on any species’” (Terram, 2018).

Subsequently, in 1991 with the arrival of democracy, the General Law on Fishing and Aquaculture (LGPA) was passed and effective until 2002, regulating topics such as fishery management mechanisms and the access to the industrial and small-scale fishing sector. However, one of the most controversial issues was the modification of the attributions of the National Fishery Council (CNP), which, at least according to the text of the law, went from being a mere “consultative” body to being “consultative, resolute and advisory” (Terram, 2018). This authority was allowed to approve the General Catch Quotas (CGC), leading to numerous conflicts with respect to the entity’s unequal integration and the predominance of members of industrial fisheries over local fishermen (Terram, “La regulación pesquera a traves de la

⁶In 1998, Law 19,561 was ratified modifying Decree Law No. 701 of 1974, on forestry promotion

Figure 1: Summary of the effects of the neoliberal model in the Chilean forestry sector



Source: "Precedentes y efectos del neoliberalismo en el sector forestal chileno, y transición hacia un nuevo modelo," by authors: Pablo Donoso, Jennifer Romero, Rene Reyes and Rodrigo Mujica. In the book Democracia versus Neoliberalismo, 25 años de neoliberalismo en Chile (2015).

historia: la genesis de un colapso," 2018).

In 2002, the so-called "Short Fishery Law" (Law No. 19,849) was passed and would go into effect for 10 years, but would not be able to solve the conflicts surrounding the industry, and over time it would be seen to "lack the solid tools to ensure the recovery of marine resources that fishing's economic activity depended upon." Towards the end of the effective period of this regulation, the industry's scenario saw an over-exploitation of the country's main fishery units (Terram, 2018).

The last regulatory modification to the sector occurred in 2013, with the ratification of Law No. 20,657 or "Longueira's Law," drafted by the Ministry of Economy at the time, Pablo Longueira (UDI). The debate and ratification of this law was surrounded by a widespread controversy catapulted by protests organized by small-scale fishermen, who claimed that the law "would leave the ocean business in the hands of 7 families, considerably reducing the intervention of sea laborers. The 7 families benefiting

from the free exploitation of Chile's fishery resources are: Angelini, Sarkis, Stengel, Cifuentes, Jimenez, Izquierdo and Cruz, who have recently merged into three large conglomerates that control no less than 76% of the country's industrial fishing capacity." 7 This originates from the delivery of transferable fishing licenses for a renewable 20-year period to the same holdings that were identified as the main culprits of the over-exploitation of fishery resources.

In the agricultural sector, perhaps the initial orientation that shaped the development and exploitation of this area was the presence of what Bengoa calls the "evil triad" (Bengoa, 2016), that is, the close relationship existing between the plantation system, the Catholic church and the vision of the Chilean nation, which configured the Chilean countryside, practically from the beginning of the Republic to the mid-1950s, when they began to debate -for the first time ever- a potential agrarian reform. The 1960s were key to this process. Facing pressure from multiple sides, the government of Jorge Alessandri passed the first Agrarian Reform law in 1962, Law No. 15,020, which allowed for the redistribution of state-owned lands among farmers and organize fiscal institutions (Biblioteca Nacional de Chile, 2018).

This transformational dynamic continued to grow over time under the slogan "land for he who works it." The new government's reform program sought to modernize the agrarian world through the redistribution of land and the organization of agricultural trade unions. This process lasted between 1962 and 1973, ending with the coup d'état in 1973, which marked the beginning of a counter-reform process that circumscribed land production to the neoliberal model, gave lands back to large plantation and business owners, who also bought back land from small farmers benefiting from the Agrarian Reform Commission and selling them at a very low price. "Of the nearly 10 million hectares expropriated as of September 1973, 4.5 million were revoked, in addition to the lands transferred to public organizations and the armed forces, meaning that over 60% of expropriated lands did not reach the hands of rural farmers" (Chonchol, 2006).

Upon the arrival of democracy, the development model structure was consolidated with a strong emphasis on exports, and the ultimate expression of these efforts -still in place today- is the program known as "Chile Potencia Alimentaria." A document by the Ministry of Agriculture in 2006 stated that: "transforming Chile into an Agrifood Power has constituted a new development paradigm for the national agricultural sector."

The direct consequence of passing the abovementioned regulations and policies has not only been the strengthening of the neoliberal model implemented during the dictatorship, but also the subsequent exploitation and plundering of natural resources, at the cost of the ecosystem, lands, and their inhabitants, and has brought about serious labor, economic, social and environmental conflicts, such as drought, water pollution, forest fires, and the contamination of the ocean, among others.

The extractive dimension of the exploitation of these resources in Chile can be seen to affect entire towns throughout the country. These areas have not only absorbed the negative environmental externalities of the impact of worksites, but they have also been affected by industrial activity, execution, and the impairment of the lands they inhabit.

Only after 1994, with the passing of the Law on the General Foundations for the Environment (Law No. 19,300), were environmental considerations addressed in regulatory matters. This new regulation led to the creation of the National Environment Commission (CONAMA), the first government institution created for the purpose of protecting citizens' right to live in a pollutant-free environment, protecting the environment, preserving nature, and conserving environmental assets, according to its publicity at the time (website). CONAMA operated as such until 2010, when Law No. 20,417 was passed and established a series of modifications to Law No. 19,300, and which creates a new environmental institutionality: the Ministry of the Environment, the Environmental Assessment Service, and the Superintendency of the Environment.

This new national environmental structure, still under development, helps resolve some of the structural problems of the previous administration, which basically had to do with the attributions of CONAMA's Directors' Council, now known as the Council for Environmental Sustainability, which "expands the regulatory powers of the environmental authority to the protection and conservation of biodiversity and natural renewable and water resources. Likewise, while the interministerial commission model remains, it shall be executed precisely for the purpose of pronouncing or making proposals on a series of topics of special relevance" (Guillot, 2010).

While the creation and consolidation of these government structures have taken a completely different approach to the environmental dimension of the development process in Chile than that taken from 1973 to 1990, what is true is that the environmental institutionality as a whole needs to establish and expand channels for dialogue so that all stakeholders can sit down to discuss how they will establish the relationship with natural resources and how the development processes will go about.

2 AFP Investments in Extractive Companies with a High Environmental Impact

The following section provides an analysis of the issuer companies in which the AFPs invest retirement savings. This analysis is based on a review of the “Pension Fund Portfolio by Type of Fund and Total Funds, by Issuer and Instrument,” available in Spanish on the Superintendency of Pensions’ website.⁷

This database shows four categories of investments in Chile using pension fund assets. These categories correspond to the Superintendency’s classification of the different investment instrument issuers, which are defined as: State-Owned, Financial, Corporations and Investment Funds, Mutual Funds, Risk Capital Investment Funds.

This study reviews the latest forms available at the time of analysis, corresponding to June of each year. The period from 2015 to 2020 was selected in order to access the latest information regarding the investments of pension funds. The entities selected are open Corporations whose investment instruments are traded in the Stock Exchange and private entities with state holdings. This is because the AFP investment system defines specific rules regarding the institutions in which its affiliates’ savings can be invested. Pension fund investments in Chile represent 55% of the total funds.

In general, investment instruments can be defined as Shares or Bonds. In this case, when analyzing the Companies, most investments are seen as concentrated in instruments defined as Open Corporation Shares (ACC) and Private and Public Company Bonds (DEB). These types of shares can be understood as representing a part of company equity; in this case, depending on the volume of shares in relation to total equity, shareholders will have different types of rights to exercise control over the institution. AFPs, in their capacity as institutional investors representing individual affiliates within a forced savings system, gain the right to designate members in the companies’ board of directors as permitted by the volume of investment.

In the case of private and public company bonds, also known as Corporate Bonds, these are used by issuer entities to make long-term investments and meet financial commitments such as the refinancing of debt. One important feature of the corporate bonds invested in by the AFPs is that they must be registered in the Securities Register overseen by the Financial Market Commission(CMF). This fact could change upon ratification of the bill contained in Bulletin No. 13,564-05, which incorporates flexibility so that AFPs may invest in bonds not registered with the CMF.

The information available on the Superintendency of Pensions website shows the total amount in Millions of CLP (M\$) and Millions of USD (MUSS\$) that is invested in each institution for each month in reference. This offers a more direct idea of how retirement savings are invested in companies.

⁷ Go to: www.spensiones.cl

The Superintendency of Pensions also provides information on the sectors where investments are made. These entity classifies the institutions into the following sectors: Electricity, Telecommunications, Services, Industrial and Natural Resources.

The following analysis will look at both the sectoral and institutional level, using the total amount of investments in CLP and USD, along with a reclassification of the economic sectors defined by the Superintendency of Pensions, in order to provide a more in-depth analysis of the extractive companies with a high environmental impact, as covered by the concept developed in this study. The analysis has also selected companies that meet these conditions based on the terms of the Superintendency of Pensions.

2.1 General Description of Companies and Sectors

As shown in Table 1 the companies have been grouped into the following sectors: Electricity, Industrial, Hydrocarbons, Mining, Water⁸, Transport, Forestry, Monoculture, Construction and Aquaculture and Fishing, for a total of 10 sectors. These have been constructed for the purpose of reorganizing the classification published by the Superintendency of Pensions, which considers companies like CMPC as industrial or companies related to mining extraction such as White Gold in the “services” sector.

Moreover, it considers the relationship between investment entities and the projects to which they predominantly channel their resources, constituting the financial arms of certain extractive sectors with an environmental impact. This is understood as the alteration of the environment caused directly or indirectly by a project or activity in a given area, as established by Law No. 19,300. Because this study will not analyze the environmental impact as such, we will use secondary sources, primarily journalistic sources, for the selection of companies.

⁸Includes Potable Water and Treatment Services

Table 1: Number of companies selected by sector and year

SECTOR	2015	2016	2017	2018	2019	2020
ELECTRICITY	15	17	17	17	18	18
INDUSTRIAL	16	13	13	13	14	14
HYDROCARBONS	8	9	8	8	8	8
MINING	7	7	7	7	8	7
WATER	7	7	7	7	9	8
TRANSPORT	7	6	6	6	6	6
FORESTRY	4	4	4	4	4	4
MONOCULTURE	3	4	3	3	3	5
CONSTRUCTION	1	1	1	1	1	1
AQUACULTURE AND FISHING	3	3	1	0	0	0
TOTAL	71	71	67	66	71	71

Source: Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Based on these data, the classification has been reconstructed for a more in-depth look at the type of "industry" or specific company. In this process, we have added the categories of Forestry, Monoculture, Water, Hydrocarbon, Transport, and Aquaculture and Fishing. The transport sector has been added to show the complete chain of the natural resource appropriation activities in connection to global production chains, and to include activities with a high impact in terms of urban growth logistics and energy use.

Over 65 companies were analyzed in each period, with the electricity sector representing the greatest number of institutions, followed by the industrial sector⁹ These two sectors alone represent over 40% of assets invested in all of the sectors described above.

The same table also shows an increase in the number of companies in the electricity sector. As of June 2020, the number of companies in this sector receiving investments from AFP pension funds is 20% higher than in 2015.

It can also be seen that the Aquaculture and Fishing sector experienced a 100% drop in presence among issuers of investment instruments for each period analyzed, which has been maintained in the later quarters. The Service, Construction, Hydrocarbons, and Mining sectors show variations in relation to the number of companies between 2015 and 2018. The following sectors: Industrial, Water, Transport and Monoculture, vary by -12.5%, 14.3%, -14.3% and 66.7%, respectively

⁹This sector is comprised of the following companies: Agrosuper, Besalco, Cementos Bio-Bio, Cia. Chilena de Fósforos, Cintac, Coca-Cola Embenor, CCU, El Volcán, Cristalerías Chile, Embotelladora Andina, IANSA, Quinenco, Salfacorp and Watts.

Investments are highly concentrated, with only a few companies receiving the greatest proportion. It can also be seen that among the companies selected, the top 10 companies receiving investments alone represent 50% of all investments each year in extractive companies with a high environmental impact. A breakdown of this is provided in Table 2, while Tables 7 to 12 provide a list of these top 10 companies.

Table 2: Top 10 issuer companies - Percentage of total companies selected per year

2015	2016	2017	2018	2019	2020
63,4%	56,7%	60,3%	58,3%	54,0%	56,3%

Source:: Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Table 3 shows the total amount of investments corresponding to each sector in millions of USD. The year 2019 is seen as the period with the highest amount of investment in the sectors identified, reaching a total of US\$18,963 million. In 2020, a 16.8% decrease is seen in total investments in the sectors identified. However, due to the consistent upward trend since 2016, it is important to consider the negative effect of the COVID-19 contingency situation on investments, leading to an overall drop in the value of pension funds.

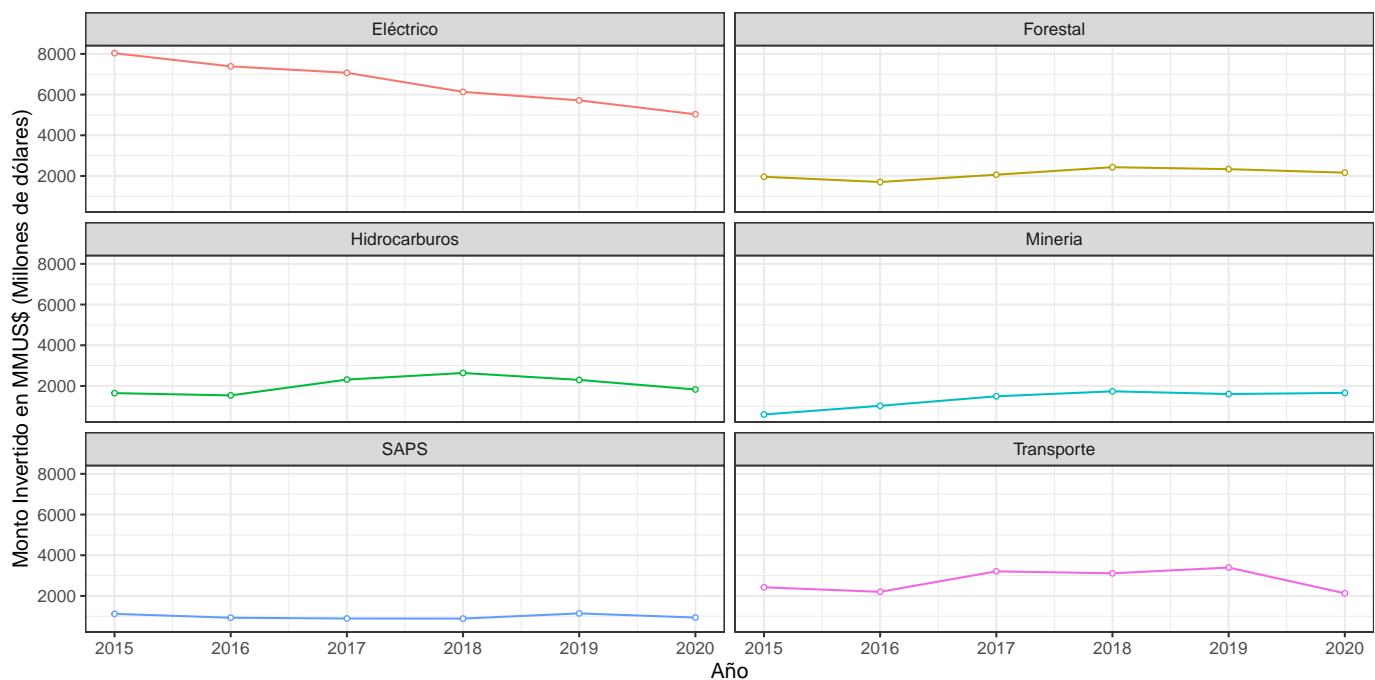
As of June 2020, the investments are concentrated primarily in the Electricity (Us\$5,033 million), Forestry (US\$2,162 million), Hydrocarbons (US\$1,827 million), Mining (US\$1,659 million), Water (US\$915 million) and Monoculture (US\$325 million) sectors. As a whole, extractive activities represent 75.5% of AFP investments in corporations operating in Chile.

Table 3: Investments by sector for each period, total amount by period

SECTOR	2015 (MMUS\$)	2016 (MMUS\$)	2017 (MMUS\$)	2018 (MMUS\$)	2019 (MMUS\$)	2020 (MMUS\$)
ELECTRICITY	\$8,034	\$7,388	\$7,072	\$6,133	\$5,716	\$5,033
FORESTRY	\$1,960	\$1,703	\$2,063	\$2,431	\$2,336	\$2,162
TRANSPORT	\$2,423	\$2,202	\$3,207	\$3,112	\$3,394	\$2,131
HYDROCARBONS	\$1,647	\$1,536	\$2,313	\$2,637	\$2,297	\$1,827
INDUSTRIAL	\$902	\$741	\$1,184	\$1,338	\$2,037	\$1,692
MINING	\$598	\$1,024	\$1,491	\$1,736	\$1,603	\$1,659
WATER	\$1,119	\$928	\$890	\$887	\$1,142	\$937
MONOCULTURE	\$149	\$151	\$146	\$283	\$436	\$334
CONSTRUCTION	\$2	\$2	\$3	\$2	\$3	\$1
AQUACULTURE AND FISHING	\$26	\$11	\$1	\$0	\$0	\$0
TOTAL	\$16,860	\$15,686	\$18,370	\$18,560	\$18,963	\$15,777

Fuente:Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Figure 2: Pension fund investments administered by AFPs - By sector (Main sectors) (2015-2020)



Source: Own elaboration based on the Superintendence of Pensions. Amounts corresponding to June of each year.

Figure 2 shows that the mining sector has sustained an upward trend in terms of the reception of investments from the pension funds managed by AFPs, even as of June 2020.

As of June 2020, 45.6% of all AFP investments in the companies selected is concentrated in the **electricity and forestry sectors**, two extractive activities that can be considered to have a high impact on the environment.

The mining sector receives a significant amount of multinational private funding and Chilean public funding for the capitalization of its projects. This capital is complemented by retirement funds taken from the savings administered by AFPs, which as of June 2020, invest US\$1,659 million in mining companies and project investment funds.

Investment in the industrial sector as of June 2020, while high (US\$1,827 million), is lower than the investment in extractive companies from the electricity and forestry sectors. Services and Construction also show marginal amounts of investment in comparison to the other sectors.

Table 4 shows the highest amount of investment in a single company for each sector. Between 2015 and 2017, the company receiving the highest amount of investment is found in the electricity sector:

Empresa Nacional de Electricidad (2015 and 2016) and ENEL Americas (2017). In 2018 and 2019, it was the hydrocarbon sector with the company receiving the highest amount of investment from AFP pension funds: Empresas COPEC. Once again in 2020, ENEL Americas in the electricity sector received the highest amount of investment.

When adding up the top companies receiving investments by sector, we can see a strong concentration of investments, where the total amount invested in these companies each year exceeds a third of the total amount invested in all companies selected.

Table 4: Investments by sector, maximum amount by institution, by period

SECTOR	2015 (MMUS\$)	2016 (MMUS\$)	2017 (MMUS\$)	2018 (MMUS\$)	2019 (MMUS\$)	2020 (MMUS\$)
ELECTRICITY	\$2,090	\$1,480	\$1,751	\$1,660	\$1,253	\$1,289
FORESTRY	\$747	\$559	\$663	\$934	\$1,056	\$1,063
TRANSPORT	\$850	\$850	\$1,431	\$1,466	\$1,480	\$1,033
HYDROCARBONS	\$1,027	\$947	\$1,320	\$1,812	\$1,556	\$1,156
INDUSTRIAL	\$300	\$275	\$496	\$588	\$724	\$600
MINING	\$312	\$771	\$1,221	\$803	\$687	\$875
WATER	\$399	\$326	\$313	\$311	\$381	\$318
MONOCULTURE	\$79	\$67	\$71	\$145	\$227	\$178
CONSTRUCTION	\$2	\$2	\$3	\$2	\$3	\$1
AQUACULTURE AND FISHING	\$15	\$9	\$1	\$0	\$0	\$0
TOTAL	\$5,822	\$5,286	\$7,270	\$7,721,9	\$7,366,6	\$6,514,1
% OF ANNUAL TOTAL	34.5%	33.7%	39.6%	41.6%	38.8%	41.3%

Source:Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year

Tables 5 and 6 list the top companies receiving investments from AFPs by sector. These show companies whose productive activities have generated a high environmental impact, for example, Celulosa Arauco & Constitución and CODELCO.

Table 5: A) Top companies receiving investments 2015-2017

SECTOR	2015	2016	2017
ELECTRICITY	EMPRESA NACIONAL DE ELECTRICIDAD	EMPRESA NACIONAL DE ELECTRICIDAD	ENEL AMERICAS
FORESTRY	EMPRESAS CMPC	EMPRESAS CMPC	CELULOSA ARAUCO Y CONSTITUCION
TRANSPORT	EMPRESA DE TRANSPORTE DE PASAJEROS METRO	EMPRESA DE TRANSPORTE DE PASAJEROS METRO	LATAM AIRLINES GROUP
HYDROCARBONS	EMPRESAS COPEC	EMPRESAS COPEC	EMPRESAS COPEC
INDUSTRIAL	EMBOTELLADORA ANDINA	QUIÑENCO	QUIÑENCO
MINING	CORPORACION NACIONAL DEL COBRE DE CHILE	CORPORACION NACIONAL DEL COBRE DE CHILE	CORPORACION NACIONAL DEL COBRE DE CHILE
WATER	AGUAS ANDINAS	AGUAS ANDINAS	AGUAS ANDINAS
MONOCULTURE	VINA CONCHA Y TORO	VINA CONCHA Y TORO	VINA CONCHA Y TORO
CONSTRUCTION	EMPRESA CONSTRUCTORA MOLLER Y PEREZ-COTAPOS	EMPRESA CONSTRUCTORA MOLLER Y PEREZ-COTAPOS	EMPRESA CONSTRUCTORA MOLLER Y PEREZ-COTAPOS
AQUACULTURE AND FISHING	EMPRESAS AQUACHILE	COMPAÑIA PESQUERA CAMANCHACA	SOCIEDAD PESQUERA COLOSO

Source: Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Table 6: B) Top companies receiving investments 2018-2020

SECTOR	2018	2019	2020
ELECTRICITY	ENEL AMÉRICAS	ENEL AMÉRICAS	ENEL AMÉRICAS
FORESTRY	EMPRESAS CMPC	CELULOSA ARAUCO Y CONSTITUCION	CELULOSA ARAUCO Y CONSTITUCION
TRANSPORT	LATAM AIRLINES GROUP	LATAM AIRLINES GROUP	EMPRESA DE LOS FERROCARRILES DEL ESTADO
HYDROCARBONS	EMPRESAS COPEC	EMPRESAS COPEC	EMPRESAS COPEC
INDUSTRIAL	QUIÑENCO	QUIÑENCO	QUIÑENCO
MINING	CORPORACION NACIONAL DEL COBRE DE CHILE	CORPORACION NACIONAL DEL COBRE DE CHILE	CORPORACION NACIONAL DEL COBRE DE CHILE
WATER	AGUAS ANDINAS	AGUAS ANDINAS	AGUAS ANDINAS
MONOCULTURE	VINA CONCHA Y TORO	HORTIFRUT	VINA CONCHA Y TORO
CONSTRUCTION	EMPRESA CONSTRUCTORA MOLLER Y PEREZ-COTAPOS	EMPRESA CONSTRUCTORA MOLLER Y PEREZ-COTAPOS	EMPRESA CONSTRUCTORA MOLLER Y PEREZ-COTAPOS
AQUACULTURE AND FISHING	NA	NA	NA

Source: Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year

The following tables cover the periods from June 2015 to June 2020, with a breakdown of each interannual period of the top 10 companies selected receiving pension fund investments. Each table shows the company, sector, and amount in millions of CLP (M\$) and USD (MUS\$). The list includes both private and state-owned companies, with the electricity sector receiving the highest volume of investments, followed by the hydrocarbons sector between 2015 and 2017, and in 2018, the forestry sector outperforms hydrocarbons in terms of total investments.

These extractive sectors also show a concentration among large companies, which receive up to a third of investments in their respective sectors. As the following tables show, these companies continue to be

the top recipients of investments over the years.

Table 7: Top 10 companies in 2015 - Investments of pension funds administered by AFPs

Company / Issuer	Sector	Total MM\$	Total MMUS\$
EMPRESA NACIONAL DE ELECTRICIDAD S.A.	ELECTRICITY	\$1,326,060	\$2,090
ENERSIS S.A.	ELECTRICITY	\$1,212,205	\$1,910
COLBÚN S.A.	ELECTRICITY	\$707,940	\$1,116
EMPRESAS COPEC S.A.	HYDROCARBONS	\$651,647	\$1,027
AES GENER S.A.	ELECTRICITY	\$540,677	\$852
EMPRESA DE TRANSPORTE DE PASAJEROS METRO S.A.	TRANSPORT	\$539,646	\$850
LATAM AIRLINES GROUP S.A.	TRANSPORT	\$475,360	\$749
EMPRESAS CMPC S.A.	FORESTRY	\$474,170	\$747
TRANSELEC SA	ELECTRICITY	\$433,388	\$683
EMPRESA DE LOS FERROCARRILES DEL ESTADO	TRANSPORT	\$425,177	\$670
TOTAL	-	\$6,786,269	\$10,694

Source: Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Table 8: Top 10 companies in 2016 - Investments of pension funds administered by AFPs

Company / Issuer	Sector	Total MM\$	Total MMUS\$
EMPRESA NACIONAL DE ELECTRICIDAD S.A.	ELECTRICITY	\$979,280	\$1,480
ENERSIS AMERICAS S.A.	ELECTRICITY	\$642,582	\$971
EMPRESAS COPEC S.A.	HYDROCARBONS	\$626,708	\$947
COLBÚN S.A.	ELECTRICITY	\$616,289	\$932
AES GENER S.A.	ELECTRICITY	\$596,523	\$902
EMPRESA DE TRANSPORTE DE PASAJEROS METRO S.A.	TRANSPORT	\$561,986	\$850
CORPORACION NACIONAL DEL COBRE DE CHILE	MINING	\$509,899	\$771
LATAM AIRLINES GROUP S.A.	TRANSPORT	\$467,689	\$707
ENERSIS CHILE S.A.	ELECTRICITY	\$444,382	\$672
TRANSELEC SA	ELECTRICITY	\$435,879	\$659
TOTAL	-	\$5,881,217	\$8,891

Source: Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Table 9: Top 10 companies in 2017 - Investments of pension funds administered by AFPs

Company / Issuer	Sector	Total MM\$	Total MMUS\$
ENEL AMÉRICAS S.A.	ELECTRICITY	\$1,161,192	\$1,751
LATAM AIRLINES GROUP S.A.	TRANSPORT	\$949,002	\$1,431
EMPRESAS COPEC S.A.	HYDROCARBONS	\$875,669	\$1,320
ENEL GENERACIÓN CHILE S.A.	ELECTRICITY	\$849,651	\$1,281
CORPORACIÓN NACIONAL DEL COBRE DE CHILE	MINING	\$809,675	\$1,221
EMPRESA DE TRANSPORTE DE PASAJEROS METRO S.A.	TRANSPORT	\$683,154	\$1,030
COLBÚN S.A.	ELECTRICITY	\$619,241	\$934
AES GENER S.A.	ELECTRICITY	\$489,318	\$738
EMPRESA NACIONAL DEL PETROLEO	HYDROCARBONS	\$473,084	\$713
CELULOSA ARAUCO Y CONSTITUCION S.A.	FORESTRY	\$439,514	\$663
TOTAL	-	\$7,349,499	\$11,082

Source:Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Table 10: Top 10 companies in 2018 - Investments of pension funds administered by AFPs

Company / Issuer	Sector	Total MM\$	Total MMUS\$
EMPRESAS COPEC S.A.	HYDROCARBONS	\$1,174,316	\$1,812
ENEL AMÉRICAS S.A.	ELECTRICITY	\$1,075,751	\$1,660
LATAM AIRLINES GROUP S.A.	TRANSPORT	\$950,050	\$1,466
EMPRESAS CMPC S.A.	FORESTRY	\$605,019	\$934
ENEL CHILE S.A.	ELECTRICITY	\$604,364	\$933
EMPRESA DE TRANSPORTE DE PASAJEROS METRO S.A.	TRANSPORT	\$600,716	\$927
COLBÚN S.A.	ELECTRICITY	\$586,077	\$905
CORPORACION NACIONAL DEL COBRE DE CHILE	MINING	\$519,92	\$803
CELULOSA ARAUCO Y CONSTITUCION S.A.	FORESTRY	\$503,152	\$777
EMPRESA NACIONAL DEL PETROLEO	HYDROCARBONS	\$391,520	\$604
TOTAL	-	\$7,010,958	\$10,820

Source:Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Table 11: Top 10 companies in 2019 - Investments of pension funds administered by AFPs

Company / Issuer	Sector	Total MM\$	Total MMUS\$
EMPRESAS COPEC S.A.	HYDROCARBONS	\$1,057,534	\$1,556
LATAM AIRLINES GROUP S.A.	TRANSPORT	\$1,005,913	\$1,480
ENEL AMÉRICAS S.A.	ELECTRICITY	\$851,833	\$1,253
CELULOSA ARAUCO Y CONSTITUCIÓN S.A.	FORESTRY	\$717,925	\$1,056
EMPRESA DE TRANSPORTE DE PASAJEROS METRO S.A.	TRANSPORT	\$629,032	\$925
ENEL CHILE S.A.	ELECTRICITY	\$589,066	\$866
COLBÚN S.A.	ELECTRICITY	\$581,288	\$855
EMPRESA DE LOS FERROCARRILES DEL ESTADO	TRANSPORT	\$561,552	\$826
QUIÑENCO S.A.	INDUSTRIAL	\$492,234	\$724
EMPRESAS CMPC S.A.	FORESTRY	\$471,913	\$694
TOTAL	-	\$6,958,289	\$10,235

Source:Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Table 12: Top 10 companies in 2020 - Investments of pension funds administered by AFPs

Company / Issuer	Sector	Total MM\$	Total MMUS\$
ENEL AMÉRICAS S.A.	ELECTRICITY	\$1,052,392	\$1,289
EMPRESAS COPEC S.A.	HYDROCARBONS	\$943,990	\$1,156
CELULOSA ARAUCO Y CONSTITUCIÓN S.A.	FORESTRY	\$867,699	\$1,063
EMPRESA DE LOS FERROCARRILES DEL ESTADO	TRANSPORT	\$843,335	\$1,033
CORPORACIÓN NACIONAL DEL COBRE DE CHILE	MINING	\$714,625	\$875
EMPRESA DE TRANSPORTE DE PASAJEROS METRO S.A.	TRANSPORT	\$702,589	\$861
ENEL CHILE S.A.	ELECTRICITY	\$617,226	\$756
COLBÚN S.A.	ELECTRICITY	\$524,801	\$643
EMPRESAS CMPC S.A.	FORESTRY	\$492,427	\$603
QUIÑENCO S.A.	INDUSTRIAL	\$489,888	\$600
TOTAL	-	\$7,248,972	\$8,880

Source:Own elaboration based on the Superintendency of Pensions, Aggregate portfolio of investments as of June of each year.

Table 13 shows the six companies that accumulate over US\$2,806 million in investments from the pension funds administered by AFPs. As we will see below, these companies perform economic activities that are directly or indirectly detrimental to human life and the environment. This selection is put together based on a review of the press, for the purpose of determining which companies have been receiving pension fund investments in the most recent period, using June 2020 as the period of reference.

Table 13: Selection of 6 extractive companies with a high environmental impact receiving investments from AFPs as of June 2020

Issuer / Company	Total MM\$
CELULOSA ARAUCO Y CONSTITUCIÓN S.A.	\$867,699
CORPORACIÓN NACIONAL DEL COBRE DE CHILE	\$714,625
EMPRESA NACIONAL DEL PETRÓLEO	\$396,288
AES GENER S.A.	\$162,286
AGROSUPER S.A.	\$136,734
ENAELEX S.A.	\$12,886
TOTAL	\$2,290,518
	\$2,806 Source:Own elaboration based on the S... S...

The magnitude of Pension Fund Administrator (AFP) investments in extractive companies and industries is fairly high. As we have explored in this study and the literature under review, the impact on the areas where extractive companies operate is multidimensional, often bringing about conflicts with the community and residents in sacrifice zones, and the companies selected present the highest level of conflict with the neighboring communities and lands in the past decade.

Celulosa Arauco y Constitucion S.A., Empresa Nacional Del Petróleo (ENAP), AES Gener S.A., Agrosuper S.A., and ENAEX S.A. are companies that have experienced decisive conflicts in the areas where they operate, primarily because their installation and presence have had negative effects on the health of the people who share their lands with these companies. All of these companies are located in so-called “sacrifice zones” and have been signaled as the culprit of mass intoxications, drought, and contamination, which have negatively impacted people and environmental conservation.

In 2018, the board of directors of Celulosa Arauco y Constitution S.A. approved the Arauco Plant MAPA: [El gigante que construirá Arauco para ser el segundo exportador de celulosa en el mundo, Cooperativa July 24, 2018](#) in the town of Arauco. This project expects to plant 48,000 hectares of monoculture products, exceeding their previous annual average of 35,000 hectares. It is estimated to be completed by 2021 and will produce over 2 million additional annual tons. Since 2017, AFP investments in this company have doubled. The extension of plantations implies a greater amount of land occupied by pine and eucalyptus trees in an area that has historically seen confrontations with the Mapuche community.

During recent years, communities have also gone up against Celulosa Arauco due to the installation of ocean outlet pipelines and the contamination of industrial liquid waste¹⁰ by the cellulose production industry. This conflict has been ongoing with communities, due to the fact hat the operation of cellulose alone has significant health effects on people, and the construction of pipelines endangers the ocean, which is the main source of food for families living along the coast.

¹⁰ Access full article here: “Durante 23 años celulosa Arauco se las ha arreglado sin necesidad del ducto, y lo pueden seguir haciendo”, OLCA August 25, 2019

Moreover, Celulosa Arauco has been involved in other environmental disasters, like in 2004 when the Valdivia plant was responsible for dioxin contamination of the Rio Cruces wetlands. A picture of black-necked swans that washed up dead from the rivers mobilized a large number of people in the region. Also in 1999, the Licanten Plant caused a toxic leak into the Mataquito River, causing the death of thousands of fish.

Other companies that have experienced serious conflicts with the surrounding communities include Empresa Nacional del Petroleo (ENAP) for the contamination caused by ENAP in Hualpen, Concon and the Quintero Bay, leading to an environmental catastrophe of proportions in these areas during recent decades. A peak in this ongoing contamination occurred on August 12, 2018,¹¹ when thousands of people experienced nausea, vomiting and headaches due to the faulty treatment of crude oil from Iran in the Quintero and Puchuncavi Plants. The mass intoxications lasted throughout September, with young boys and girls being the most affected by repeat exposure to toxic fumes. In October of that same year, ENAP was responsible for one of the most significant oil leaks in the last decade, where 720,000 liters of oil were scattered across the Patagonia, endangering the area's biodiversity.

AES-Gener S.A. is the controller of 52% of coal-powered thermal power plants in country, which means that of the 26 plants operating in Chile, 15 are controlled primarily by AES. The final controller of AES-Gener is AES Corp., a company controlled by U.S. capital. In Chile, AES-Gener's operative facilities are located in Tocopilla, Mejillones, Huasco and Puchuncavi.¹²

The coal-powered thermal power plants that currently operate in Chile are responsible for 91% of the electric park's total carbon dioxide (CO₂) emissions. This is equivalent to 88% of all particle matter and 97% of sulfur dioxide. These contaminating gases directly affect Mejillones, Tocopilla, Huasco, Quintero-Puchuncavi and Coronel, leading them to be declared latent or pollution-saturated zones. In these zones, cancer-related death indexes are the highest in Chile. In cities where coal-powered thermal plants are built, these consistently see unacceptable indexes with respect to air quality standards, which seriously affects the population's health and quality of life. One of the greatest offenders in terms of greenhouse gas emissions in Chile is the transnational AES Gener, which is also the main company responsible for the Chilean thermal power conflict in four of the five Sacrifice Zones in Chile: Tocopilla, Mejillones, Huasco and Quintero-Puchuncavi.

Agrosuper S.A has also been involved in contamination reports and conflicts with communities for at least ten years. The contamination of the Tinguiririca River and the Las Cadenas canal in 2003, the sewage contamination of Lake Rapel in 2008, bad odors and overexploitation of water in San

¹¹ Ejecutivos de ENAP quedan con arraigo nacional por contaminación en Quintero y Talcahuano. Radio U. Chile November 30th. 2019

¹² Access full article here: [Aes Gener, Enel y Engie, cómplices de las muertes en zonas de sacrificio.](#)

Pedro de Melipilla, and the destruction of the El Yali wetlands in San Antonio, are just some of the environmental issues attributed to the company Agrosuper, whose most mediatic conflict was in Freirina.¹³.

The holding owned by Gonzalo Vial, which includes the brands Super Pollo, Super Cerdo, Sopralval, Super Salmon, and La Crianza, has also received million-dollar sanctions for the accumulation, leakage and pooling of sludge, solid waste leaching, and problems with treatment pools, among other infractions.¹⁴.

The mass mobilization in Freirina was a decisive point in the conflicts experienced with companies operating in the area. Animal breeding plants not only have a significant impact on the animals sacrificed, but also on the surrounding communities. The pig farm was accused of water abuse and bad odors, causing a severe drought in the town of Huasco

Finally, the company Enaex S.A has been signaled as one of the greatest offenders of contamination in Mejillones, in a conflict that has carried over for at least a decade. The latest episode was the intoxication of municipal workers at a cemetery near the company's plant.¹⁵.

Previously, in February 2011, a yellowish nitrous gas cloud escaped from one of the Enaex plants in Mejillones, forcing the company to suspend its operations. According to reports, the emergency was caused by the rupture of a packaging machine in one of the nitric acid and ammonium nitrate plants.

The following year, in May 2012, nine of the company's employees suffered gas intoxication, after other similar incidents occurred the same week. And in 2016, an ammonia leak was produced at the Enaex terminal in the Port of Mejillones during an unloading procedure. According to official information, the leak was produced due to the decoupling of a tube connecting the "Sanko Independence" vessel to the terminal, leaking ammonia residue for one to two minutes, and when it came into contact with the air, it produced a toxic cloud over the ocean.

All companies on this list have been involved in conflicts with the neighboring communities and the justice system. Despite the accusations and charges against them, and a long list of sanctions, these companies continue to operate in Chile financed by Chilean workers' retirement funds. The Courts, civilians and the Superintendency of the Environment have yet to be able to detain or reduce the impact that these companies have on people's lives. Only when territories have gotten organized have they been able to take steps to protect the population. AFP investments and the structure of the current pension system has a multi-dimensional impact on people since the workers' retirement savings are being used to fund companies and industries that harm the health and quality of life of those living in areas where extractive projects operate.

¹³ Access full article here [El prontuario ambiental de Agruosuper](#).

¹⁴ Access full article here [Gonzalo Vial "El señor de los Pollos y los chanchos" otra vez en el ojo del huracán](#).

¹⁵ Access full article here [Reportan intoxicaciones en Mejillones por emanaciones de planta Enaex](#), El Regionalista 27 de septiembre 2018

3 3. The Sexual Division of Labor, Communities and Homes in Exploited Lands

The social organization of care in areas where extractive companies and/or industries have been set up is based on the reinforcement of traditional gender roles within the home. The impact of installing and maintaining extractive companies has direct consequences for the people and groups that inhabit the areas. In these zones, characterized by an enclave economy and precarious masculinized jobs, the traditional role of women as mothers and caretakers is reinforced for the purpose of guaranteeing the free reproduction of labor, along with the objectification of female bodies in exploited lands (Svampa, 2014).

eventually subject to sacrifice, heightening violence against women in the public and private space, since women are considered to be at the bottom of the productive chain, at the service of their own homes and the land exploitation model. Within this same line of thought, there are authors who propose that patriarchy and extractivism mutually reinforce and need each other to cement the structures of exploitation in these territories. This alliance is expressed in different dimensions from human trafficking, femicide, and even the reinforcement of women's traditional roles in the home and paid work (Vandana and Mies, 1998; Herrero, 2012; Gartor, 2014; Ulloa, 2016).

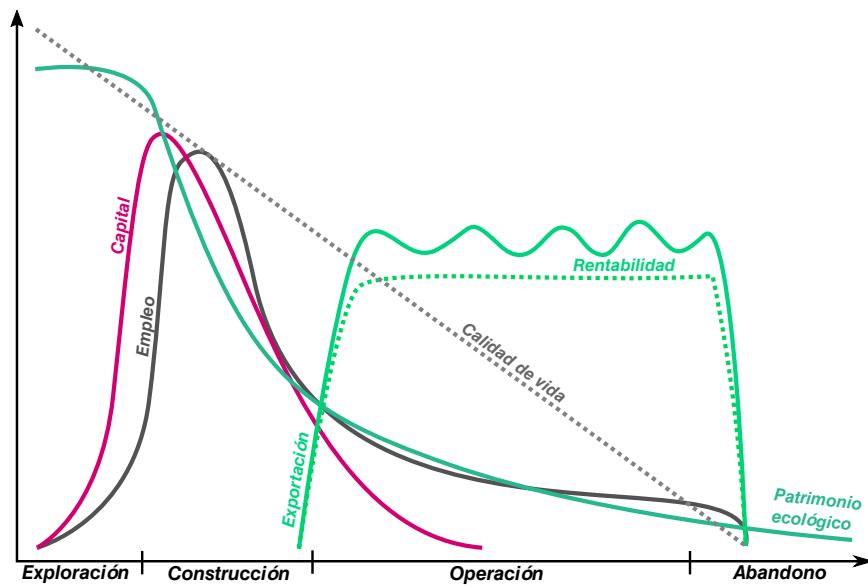
Occupational structure and source of income may have undergone some transformations in the current context, but they do not substantially alter the historical roles assigned to men and women within the organization of housework, nor are there significant changes in occupational segregation or salaries (Federici, 2018). The double or triple workloads for women in this scenario are much more complex, due to weekly shift rotation and restrictions in terms of permits and rest days for men, and women, assuming the main responsibility of taking care of the family, must be available for men's downtime after long working hours. Going against the grain, women with paid jobs must often allot part of that income to pay other women or family members to cover their caretaker responsibilities. Moreover, the income of women in sacrifice zones mostly comes from different services provided to the companies, revealing a strong, deep-rooted chain originating from the extractive companies themselves (Svampa, 2014; Gualda, 2016; Real and Garcia-Torres, 2017).

In this line, women's unpaid work intensifies in terms of both housework and caretaker duties as a consequence of the impact of extractivism in homes and communities. In areas where extractive activities have had negative consequences on health, this has upped women's caretaker responsibilities for others. These extreme, yet not uncommon situations, completely alter life inside the home, and this is intensified in countries like Chile, where healthcare is not a guaranteed human right, and households must assume the responsibility of ensuring family well-being (Bolados, et al., 2017).

Furthermore, with respect to how women use their time, it is concerning to note that there are extraction

zones where the air is severely contaminated, as in the case of Quintero and Puchuncavi, therefore activities tied to cleaning, washing clothes, and preparing food escalate due to dust, ash, and other toxic atmospheric emissions (Salazar, 2017). Both taking care of sick family members and daily housework activities produce an overload for women, requiring extra work that has been sustained over the years, where extractivism rears its ugliest head as it affects human health, and women must care for illnesses incubated in those exposed to different types of contamination (Bolados, et al., 2017). The damage caused to human health and the environment are closely tied, as they directly impact the well-being of communities residing in sacrifice zones.

Figure 3: Descriptive diagram of the extractive cycle in territories



Source: Own elaboration based on Gudynas (2018) "Taller Desarrollo y extractivismos: alternativas al desarrollo y post-extractivismos".

There is a radical transformation in lands where extractive projects operate, losing and destroying all previous forms of production, supply, and consumption, breaking apart the community and homes as a result of long work shifts, primarily for the men. Moreover, several studies indicate that the areas where these types of extractive projects are located see a greater presence of criminal groups, as a direct consequence of the economic and social breakdown suffered by these areas (Salazar, 2017).

The impact of the installation and permanence of extractive companies on the areas where they operate is multidimensional and affects all areas of life, breaking apart communities and homes so that their members operate in the interest of the extractive model.

Another element for evaluating the impact on these areas is the temporal nature of employment and capital flows in extractive sectors (See Figure 3). These are greater during the installation of the projects

and decline over time, along with the environmental wealth of the land. The extensive incorporation of automation and robotics technologies in extraction processes increases the need for specialization while reducing the workforce necessary for operation.¹⁶.

To chart this phenomenon, the CASEN survey has been used to understand the status of economic activity in so-called “sacrifice zones,” including in this case Puchuncavi, Quintero, Huasco, Coronel, Mejillones, Tocopilla and Chanaral. In this way, the analysis brings together a total of 172,089 people covered by the 2017 CASEN survey (the latest available version) in those communities.

While 54.8% of the working age population is employed at the national level, in sacrifice zones this percentage drops to 49.6%. “Inactivity” in these areas, from the perspective of paid work, is 44.3% versus 40.6% at the national level (See Table 14)).

Table 14: Economic activity in “sacrifice zones” and national average

Economic Activity (PET)	Sacrifice Zones		National Average	
	N	%	N	%
Personas ocupadas	85.332	49,6%	7.876.652	54,8%
Personas desocupadas	10.573	6,1%	672.176	4,7%
Personas inactivas	76.184	44,3%	5.831.518	40,6%
Total	172.089	100%	14.204.552	100%

Source: Own elaboration based on CASEN 2017.

¹⁶¹⁷This implies an enormous pressure on the workforce in high-value extractive sectors like the mining or port industries

3.1 Sexual Division of Labor and Extractive Companies with a High Environmental Impact

The data presented below has been obtained from the National Employment Survey, considering extractive companies with a high environmental impact, which employ 11 workers or more, and carry out their activities in the following sectors¹⁷:

1. **Agriculture, livestock, forestry, and fishing.** This section considers the exploitation of natural common goods, including plants and animals. This includes activities involved in farming, animal breeding, lumber exploitation, and the collection of other plants, animals, or animal products in agricultural and livestock exploitations or from their natural habitats.
2. **Mine and quarry exploitation.** This area covers the extraction of minerals found in nature in solid (coal and minerals), liquid (oil) and gaseous (natural gas) state. Extraction occurs through different methods, such as the exploitation of underground or open pit mines, drilling, seabed mining, etc.
3. **Supply of electricity, gas, steam, and air conditioning.** This covers the supply of electricity, natural gas, hot water, and similar products through a permanent infrastructure (network) of pipes and cables, regardless of the size of the network. It also includes the distribution of electricity, gas, steam, hot water, and similar products in industrial polygons or apartment buildings.
4. **Supply of water and waste water evacuation, waste management and decontamination**
This section includes activities related to the management (including collection, treatment, and disposal) of different types of waste, including industrial or domestic solid or non-solid waste, as well as contaminated areas. The result of the waste or wastewater treatment process can be eliminated or used as input for other production processes. It also includes water supply activities, because the same units are often responsible for the treatment of waste water, or there is coordination between them.

As mentioned above, the workforce involved in extractive activities is on a downward trend, with a higher level at the time of installation and a decrease during regular operations. Certain activities such as mining or work in the electricity and gas sectors are less labor intensive than other sectors like agriculture, forestry, and fishing.

As a whole, considering workers employed in these types of activities, there are a total of 392,452 people at the national level, equivalent to 5.6% of salaried workers.

As seen in Graph 4 , there is no region where extractive activities exceed 14% of salaried workers. The regions of Maule (13.8%), Antofagasta (13.7%), Atacama (13.3%) and O'Higgins (12.7%) are those

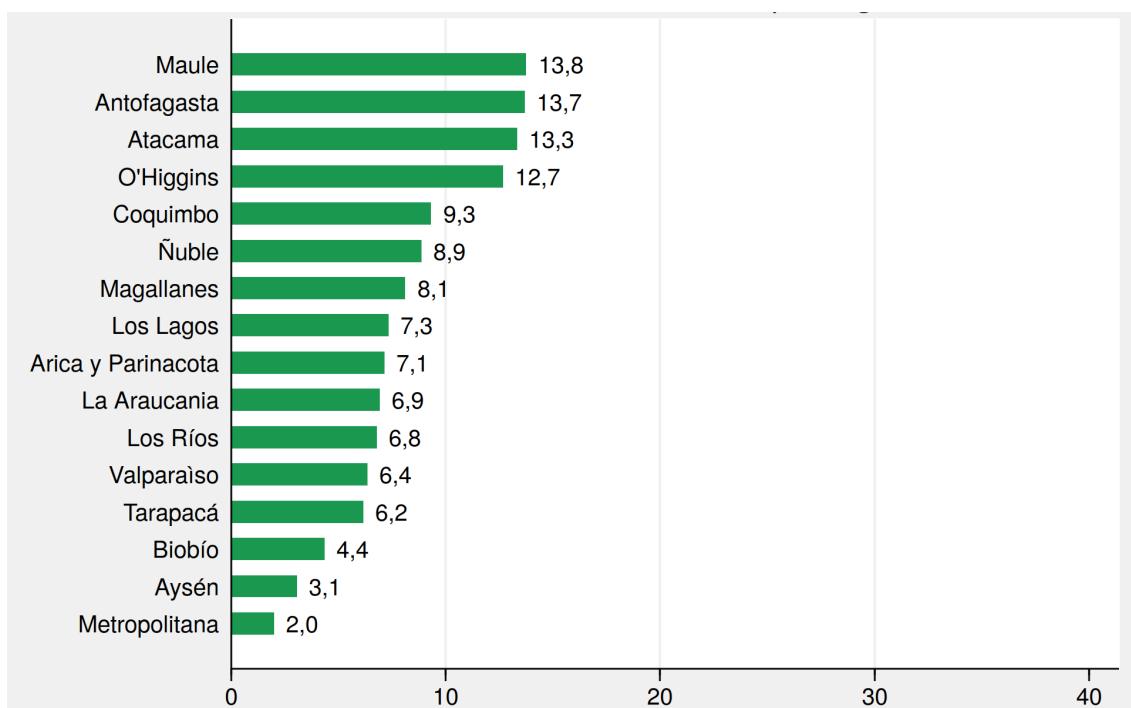
¹⁷ INE (2016) CAENES

with the greatest proportion of workers employed by these extractive sectors. The highly urbanized Metropolitan Region shows the lowest percentage (2%).

From this perspective, we can see how these types of activities have no significant impact in terms of the occupation of the workforce. Although companies exhibit a tremendous capacity for extracting resources and generating profits, the runoff effects and consequences of extraction are the only things left in the areas where they operate. As mentioned before, the labor activity associated with extraction reaches its peak at the beginning of the process, as the infrastructure is being built. Then, the number of job positions drops significantly. Even during the peak workforce demand period, an important part of the labor comes from outside the community.

This situation has intensified with the growing automation of extractive processes, which increasingly reduces the demand for labor associated with these types of activities.

Figure 4: Percentage of salaried workers in extractive activities

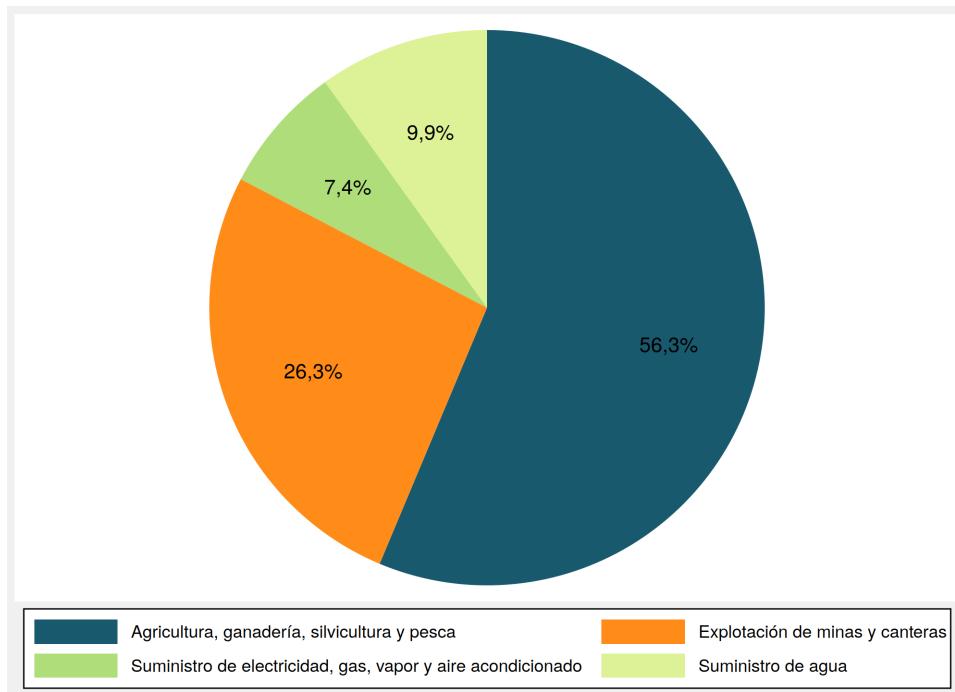


Source: Own preparation based on microdata from the National Employment Survey, April - June 2020.

Graph 5 shows the distribution of people employed in extractive work by economic activity, with the most relevant being Agriculture, Livestock, Forestry and Fishing, which represent 56.3% of the total. These are followed by Mine and Quarry Exploitation with 26.3%, Water Supply with 9.9%, and the Supply of Electricity, Gas, Steam and Air Conditioning at 7.4%.

These sectors reflect the current patterns of the sexual division of labor. Women workers are a minority in extractive sectors, representing only 19.8% of the total people employed at the national level. However, although their direct participation in the extractive sector is low as a whole, the integration of women in related or supporting service activities (cleaning services, food industry, lodging, etc.) is significant. These types of activities are not necessarily reflected in the sector's statistics, due to productive chains and outsourcing mechanisms.

Figure 5: Percentage of salaried workers in extractive activities by activity



Source: Own preparation based on microdata from the National Employment Survey, April - June 2020.* Only includes companies of 11 or more employees.

Among the women participating in these types of activities, we can also see a relevant stratification, with agriculture, livestock, forestry, and fishing activities seeing the highest proportion of female employment. Practically 69% of women employed in extractive sectors work in those activities. This is followed in terms of importance by mine and quarry exploitation with 15.8% (See Table 15).

In the case of men, 53.3% are found in agriculture, livestock, forestry, and fishing activities, precisely those that require a more intensive use of labor. The second activity with the greatest relevance is also mine and quarry exploitation, but with a higher percentage of 28.9%. This is a highly masculinized industry, as opposed to agricultural and fishing jobs, which are more feminized.

Table 15: Number of men and women working by activity sector

Activity sector	Men		Women		Total No.
	No.	%	No.	%	
Agriculture, livestock, forestry and fishing	167,627	53.3%	53,393	68.6%	221,021
Mine and quarry exploitation	91,046	28.9%	12,316	15.8%	103,361
Supply of electricity, gas, steam and air conditioning	21,605	6.9%	7,566	9.7%	29,171
Water supply	34,382	10.9%	4,517	5.8%	38,899
Total	314,660	100%	77,792	100%	392,452

Source: Own preparation based on microdata from the National Employment Survey, April - June 2020.* Only includes companies of 11 or more employees.

3.2 Employment Quality and Extractive Activities

The diversity of extractive activities and the high level of environmental impact means that these are affected differently in terms of employment quality. This brief section shows these contrasts based on data from the National Employment Survey.

As shown in Table 16 , the section with the greatest level of outsourcing is mining, where 18.2% of workers are hired through subcontracting, supply or recruitment services. As shown in Table 16 , the section with the greatest level of outsourcing is mining, where 18.2% of workers are hired through subcontracting, supply or recruitment services.¹⁸This situation is observed in water supply activities, representing 16.5% of all workers. As a whole and at the national level, 13.2% of salaried workers in the extractive sector are outsourced.

It is important to consider that given the pandemic scenario and economic crisis, subcontracting has seen a drop at the national level. Thus, while subcontracting during the April-June 2019 quarter reached a level of 17.7% of salaried workers around the country, it only hit 15.9% during the same quarter this year.

Therefore, despite being a high-income sector, mining generates particular problems related to employment quality, such as subcontracting, which also holds significant weight in agricultural, forestry and fishing activities.

A complementary look considers another indicator of quality associated with the reality of precarious jobs, such as the absence of a work contract. As shown in Table 17 , 11.8% of jobs in the agriculture, livestock, forestry, and fishing sector have no written contract. This is significantly higher than the national average of approximately 8.8%.

¹⁸It is important to remember, for the interpretation of these data, that only companies with 11 or more employees are considered.

Table 16: Workers hired directly or through outsourcing, supply, or recruitment services by activity

Rama de actividad	Contratación directa No.	Contratación directa %	Externalización No.	Externalización %	Total No.
Agriculture, livestock, forestry and fishing	195.808	88,6%	25.213	11,4%	221.021
Mine and quarry exploitation	84.592	81,8%	18.769	18,2%	103.361
Supply of electricity, gas, steam and air conditioning	27.766	95,2%	1.405	4,8%	29.171
Water supply	32.484	83,5%	6.415	16,5%	38.899
Total	340.650	86,8 %	51.801	13,2 %	392.452

Source: Own preparation based on microdata from the National Employment Survey, April - June 2020.* Only includes companies of 11 or more employees.

Una visión complementaria se puede observar al considerar otro indicador de calidad, más asociado a la realidad de los empleos precarios como es la carencia de un contrato de trabajo. Como se observa en el Cuadro 17, un 11,8% del sector de actividades agrícolas, de ganadería, silvicultura y pesca no tienen un contrato escrito. Esto supera de forma relevante el promedio nacional cifrado en un 8,8% aproximadamente.

The rest of the sectors show a figure of less than 2%. Given the weight of agricultural activities in the total workforce for extractive sectors, workers without a written contract represent 7% of the total number of people working in these types of activities.

Table 17: Number of people working without a written contract, by activity

Activity	Contract		No contract		NS/NR		Total N
	N	%	N	%	N	%	
Agriculture, livestock, forestry and fishing	194.213	87,9%	26.118	11,8%	689	0,3%	221.021
Mine and quarry exploitation	100.981	97,7%	1.272	1,2%	1.108	1,1%	103.361
Supply of electricity, gas, steam and air conditioning	29.171	100%	0	0,0%	0	0,0%	29.171
Water supply	38.450	98,8%	449	1,2%	0	0,0%	38.899
Total	362.815	92,4%	27.840	7,1%	1797	0,5%	392.452

Source: : Own preparation based on microdata from the National Employment Survey, April - June 2020.* Only includes companies of 11 or more employees.

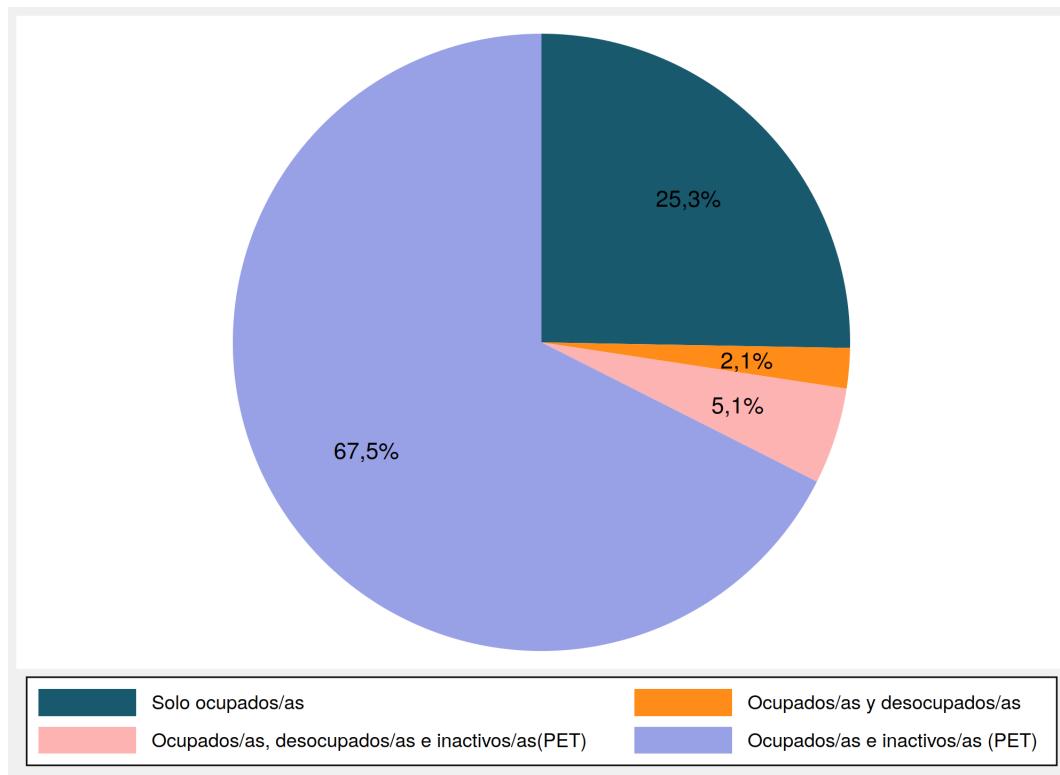
3.3 Household Perspective

Another way to analyze job insertion and the sexual division of labor is by looking at job insertion from the household perspective. As mentioned before, extractive activities with a high environmental impact promote a “male provider”-type organization, which is reflected in a greater proportion of households with active and inactive members¹⁹.

¹⁹That is, households that remain semi-proletarized, as opposed to two-income households. It is also important to consider that this classification only considers the working-age population. See “*No es amor, es trabajo no pagado*” (2020)

Graph 6 shows that 68% of households with a male head of household working in the selected activities include both active and inactive members. This includes different types of households, but predominantly two-parent or nuclear homes.

Figure 6: Productive insertion of male heads of households employed in extractive or high-impact activities



Source: Own preparation based on microdata from the National Employment Survey, April - June 2020.

On the other hand, in the case of women, it can be seen (in Graph 7)) that these types of households represent just over half, with 51.3%. Meanwhile, two-income homes represent 40.6% of the total. 14% of homes with female heads of households working in extractive jobs are single parent and 21% have only two family members.

Figure 7: Productive insertion of female heads of households employed in extractive or high-impact activities



Source: Own preparation based on microdata from the National Employment Survey, April - June 2020.

These are homes where the overall work load is greater, since women constitute both the paid and unpaid work source, thus increasing the socially necessary amount of work time. In order to work one hour, women must do three times as much unpaid work as men. [See the study by Fundación SOL “No es amor, es trabajo no pagado” \(2020\)](#). In homes with a male head of household, there is a significant amount of unpaid work hours by women, who appear to be inactive as they carry out a significant amount of reproductive labor.

4 Conclusions

The background information under review has reinforced some of the initial hypotheses motivating this study. Extractive companies with a high environmental impact represent a privileged area of investment for AFPs. So much so that currently 9 of every 10 Chilean pesos invested by AFPs go to companies that appropriate natural resources or generate a high environmental impact due to global chains of commodity production (like the shipping industry).

Therefore, since their creation, AFPs have been changing their role and taking on a more central position in recent decades in the financialization of the national economy, providing a sector of national (or multinational companies operating in Chile) with capitalization mechanisms outside the banking industry. This form of expansion of the financial realm towards non-financial companies goes hand in hand with the disproportionate growth of the financial sector's weight in all areas of the economy, but especially its growth towards the household sector and a business strategy based on the ties between household resources and open markets (Lapavitsas, 2015).

It is important to remember the distinction between production and appropriation of natural resources. As opposed to industry, forestry processing plants do not "produce" cellulose, but extract and process it through the introduction of single-crop farming, which depletes the soil and drives out other species. This difference is important, since financialization intensifies the disproportion between the production sphere and the circulation sphere (Lapavitsas, 2015). With it, a virtuous circle is created between extraction and financial speculation in a system where increasing profits can be gained without an equivalent increase in "productivity." This is reflected in the sustained downward trend of the GDP.

A historical review of the installation and strengthening of extractivism reveals a coordinated institutional structure to promote the growth and expansion of these types of activities over time. Objectives such as positioning Chile as an Agrifood Power are clear examples of these types of orientations and the force with which a national "development" strategy has been promoted that is focused on the appropriation, extraction, and exportation of resources. The current discussion regarding post-pandemic reactivation reveals more solid guarantees provided to extractive projects and more lax regulations.

AFP investments in extractive companies with a high environmental impact, through the purchase of bonds and shares, are concentrated in certain sectors, the most relevant being electricity and cellulose, both with emblematic projects in terms of environmental damage. Along with the hydrocarbon, transport, and mining sectors, they receive over one billion dollars in AFP investments.

Another feature of these investments is their high level of concentration, since of the companies selected, the top 10 issuing companies represent 56.3% of all shares and bonds purchased by the AFPs in these types of companies. This is a group of companies tied to large national and multinational holdings, like

Matte, Angelini, the Italian holding ENEL, and some state-owned companies.

The results show that extractive labor activities do not generate a great quantitative impact in terms of employment, thus debunking some of the arguments generally offered in defense of these types of activities. Thus, it is confirmed that at the national level, less than 6% of all salaried workers are employed in extractive sectors.²⁰.

In this context, we can see important issues in terms of employment quality. These issues acquire particular characteristics based on the sector. Therefore, high technology and high income sectors like mining use outsourcing as the main way to flexibilize the “use of the work factor” for capital. Subcontracting and outsourcing violate human rights and maintain a lower salary scale, poorer working, and safety conditions, among others.

In the agricultural, livestock, forestry, and fishing sector, on the other hand, the lack of written contracts arises a key violation of labor law and human rights, in an area characterized by low wages and precarious working conditions. These also happen to be the extractive activities with the greatest presence of female workers.

This study has demonstrated the unequal distribution of paid and unpaid household activities, showing that male employment in extractive activities fosters the traditional “provider” figure and the formation of single-income homes. In homes with a female head of household, single person or two-income systems are the most frequent, with a lower percentage of homes with active and inactive members.

The information reviewed provides an overview of the complex relationship between AFP investments and the maintenance of a productive and labor structure that promotes the appropriation of resources with little added value and high environmental impact, allowing for the capitalization of great fortunes that have obtained their initial capital from the privatization of state-owned companies and the capitalization of the workers' savings.

A change in the obligatory pension savings system in individual accounts to a social security-based system not only implies an in-depth debate on transforming a defined contribution systems to a defined benefits system, but also a discussion of the recipients of investments for a collective capitalization that does not contribute to the destruction of common natural goods.

²⁰ Considering companies with more than 11 employees

5 Bibliography

- Acosta, A. (2011). Extractivismo y neoextractivismo: dos caras de la misma maldición. *Más allá del Desarrollo*, 83-118.
- Acosta, A. (2016). Aporte al debate: Extractivismo como categoría de saqueo y devastación. *Negotiating Nature: Imaginaries, Interventions and Resistance*, 25.
- Acselrad, H. 2003, (citado en Contreras, R. 2016 "Políticas ambientales en Chile para la obtención de un "Desarrollo Sustentable", periodo 1990 - 2014. Revisión crítica del concepto de desarrollo sustentable, y el caso del sector forestal. Pág. 11).
- Arrighi G. (2014). El largo siglo XX. Dinero y poder en los orígenes de nuestra época. AKAL. Madrid.
- Bair, J. (2005). Global capitalism and commodity chains: looking back, going forward. *Competition y Change* 9(2), 153-180.
- Bolados, P., Alejandra Sánchez, Alonso, K., Orellana, C., Castillo, A., y Maritza, D. (2017). Ecofeminizar el territorio. La ética del cuidado como estrategia frente a la violencia extractivista entre las Mujeres de Zonas de Sacrificio en Resistencia (Zona Central, Chile). *Ecología Política N°54*.
- Brown, E., Derudder , B., Parnreiter, C., Pelupessy, W., Taylor, P. J., y Witlox, P. (2010). World City Networks and Global Commodity Chains: towards a world-systems' integration. *Global Network* 10.1, 12-34.
- Clelland, D. (2014). The core of the apple: Degrees of monopoly and dark value in global commodity chains. *Journal of World-Systems Research*, 82-111.
- Cardoso, F. (1968). Cuestiones sociológicas del desarrollo de América latina. Santiago: Ediciones Universitaria.
- Cardoso, F., y Faletto, E. (1996). Dependencia y desarrollo en América Latina: ensayo de interpretación sociológica. Siglo XXI.
- Carrasco, C. (2019). El trabajo de cuidados: historia, teoría y políticas. Los libros de Catarata.
- Casals V. La política forestal en Chile. Una perspectiva histórica, 1999
- Droguett, F. (2019). Extractivismos y patriarcado: la defensa de los territorios, como defensa de la

soberanía de los cuerpos. Santiago: Red Chilena Contra la Violencia a las Mujeres.

Dunaway, W., y Clelland, D. (2017). Moving toward theory for the 21st century: The centrality of nonwestern semiperipheries to world ethnic/racial inequality. *Journal of World-Systems Research*.

Federici, S. (2004). Calibán y la Bruja: Mujeres, cuerpo y acumulación originaria. Madrid: Traficantes de Sueños.

Federici, S. y Fortunati, L. (1984): Il Grande Calibano. Storia del corpo social ribelle nella prima fase del capitale, Milán: Franco Agneli.

Gago, V., y Mezzadra, S. (2015). Para la crítica de las operaciones extractivas del capital. Hacia un concepto ampliado de extractivismo. *Nueva Sociedad*, 38-52.

Gartor, M. (2014). El feminismo reactiva la lucha contra el 'extractivismo' en América Latina. *Rebelión*.

Gualda, S. (2016). Mujeres mapuce, extractivismo y kvme felen (buen vivir): la lucha por los bienes comunes en Neuquén. *Revista Ciencias Sociales*.

Gudynas, E. (2003). Ecología, economía y ética del desarrollo sostenible. Icaria Ediciones.

Gudynas, E. (2012). Estado compensador y nuevos extractivismos: Las ambivalencias del progresismo sudamericano. *Nueva Sociedad*, 128-151.

Gudynas, E. (2014). Conflictos y extractivismos: conceptos, contenidos y dinámicas. *Revista Ciencias Sociales*, 27-28.

Gudynas, E. (2018). Extractivismos: el concepto, sus expresiones y sus múltiples violencias. *Papeles de relaciones ecosociales y cambio global*, 61-62.

Gudynas, E., y Acosta, A. (2011). La renovación de la crítica al desarrollo y el buen vivir como alternativa. *Utopia y Parxis Latinoamericana*, 71-83.

Harvey, D. (2003): *The New Imperialism*, Oxford: Oxford University Press.

Herrero, Y. (2012). Propuestas ecofeministas para un sistema cargado de deudas. *Revista CLAR*, 42-77.

Laite, J. (2009). Historical perspectives on industrial development, mining, and prostitution. *Historical*

Journal, 739-761. Mies, M. (2019). Patriarcado y acumulación a escala mundial. Madrid: Traficantes de Sueños.

Lapavitsas, C. (2015). Beneficios sin producción. Traficantes de sueños.

OLCA. (2016). Dimensión socioambiental de los conflictos territoriales en Chile. Santiago: Talleres Editorial Quimantú.

Pelupessy, W. (2001). El enfoque de la cadena global de mercancías como herramienta analítica en las economías en vías de desarrollo. *Economía y Sociedad* 6 (15), 111-120.

Real, I., y Garcia-Torres, M. (2017). Mujeres indígenas y neo-extractivismo petrolero en la Amazonía centro del Ecuador: Reflexiones sobre ecologías y ontologías políticas en articulación. *Revista Brújula*.

Salazar, H. (2017). El extractivismo desde el enfoque de género: una contribución en las estrategias para la defensa del territorio. *Sociedad y Ambiente* 13, 35-57.

Schuldt, J. (2005). *¿Somos pobres porque somos ricos?: recursos naturales, tecnología y globalización*. Fondo Editorial del Congreso del Perú.

Sturgeon, T. (2008). From commodity chains to value chains: interdisciplinary theory building in an age of globalization. Svampa, M. (2014). Comodoro Rivadavia, un modelo de mal desarrollo. *Observatorio Petrolero Sur* vol.11.

Svampa, M. (2014). Comodoro Rivadavia, un modelo de mal desarrollo. *Observatorio Petrolero Sur* vol.11.

Svampa, M. (2015). Feminismos del Sur y Ecofeminismo. Nueva Sociedad. Ulloa, A. (2016). Feminismos territoriales en América Latina: defensas de la vida frente a los extractivismos. *Nómadas*, 123-39.

Ulloa, A. (2016). Feminismos territoriales en América Latina: defensas de la vida frente a los extractivismos. *Nómadas*, 123-39.

Vandana, S., y Mies , M. (1998). La praxis del ecofeminismo: biotecnología, consumo y reproducción. Icaria Editorial.

Wallerstein, I. (1996). The inter-state structure of the modern world-system. *International theory: positivism and beyond*, 87-107.

Wallerstein, I. (1999). Impensar las Ciencias sociales: límites de los paradigmas decimonónicos. Siglo XXI.

Wallerstein, I. (2004). Capitalismo histórico y movimientos antisistémicos: un análisis de sistemas-mundo. Akal Ediciones.

Werlhof, C. V. (2007). No critique of capitalism without a critique of patriarchy! Why the left is no alternative. *Capitalism Nature Socialism*, 13-27.



Address: : Miraflores 113, oficina 48, Santiago

Telephone: (+562) 2632 81 41

Contact E-mail: contacto@fundacionsol.cl

WWW.FUNDACIONSOL.CL