THE IMPLICATIONS OF CHINESE INVESTMENT ON LATIN AMERICA'S ENERGY TRANSITION[*]

Douglas de Castro**

ABSTRACT: China's dominance in molding Latin America's energy environment is highlighted by massive investment methods that have left a particular stamp on the energy sector. Previously, investments favored fossil fuels; but, due to China's worldwide commitments and environmental imperatives, there has been a significant movement toward renewable sources in recent years. The implications of Chinese investment in Latin America's energy transition are examined in this article, which examines their diverse effects. The research goes beyond economic consequences such as capital infusion and infrastructure growth to include social elements such as worker development, community participation, and equitable benefit distribution. In the midst of an urgent climate catastrophe, the environmental factor involves careful assessment; Chinese investment in renewables, from wind farms to hydroelectric ventures, offers opportunities for ecological restoration but requires careful balancing to prevent any trade-offs. Chinese investment has considerably influenced Latin America's renewable trajectory, enabling large-scale projects that accord with sustainability aspirations. This article, anchored by the concept of a just transition and degrowth navigates the junction of Chinese investment and Latin America's energy evolution, balancing economic growth, social fairness, and environmental stewardship. The study uses the representative cases of Argentina, Brazil, and Chile.

KEYWORDS: Chinese investment; energy transition; Latin America

Introduction

China has emerged as a prominent actor in Latin America's energy environment during the previous decade. Its aggressive investment plans have left an indelible mark on the energy sector in the region. While Chinese investment has typically favored conventional fossil fuel projects, there has been a noticeable movement in recent years toward renewable energy sources pushed by Chinese international commitments and national demands for a better ecological response to development. This shifting paradigm has inspired a deep investigation into the consequences of Chinese investment in Latin America's energy transition, a complicated enterprise entwined with economic, social, environmental, and political variables.

This article analyzes the complicated tapestry created by Chinese investment in Latin America's energy sector, investigating its wide-ranging socioeconomic consequences. Beyond the economic implications of these investments, which include capital infusion and infrastructure development, a critical eye is cast on the social implications, which include workforce development, community engagement, and the equitable distribution of benefits among diverse strata of society.

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Professor of International Law, School of Law, Lanzhou University. E-mail: douggcastro@gmail.com.

However, the environmental dimension requires the most careful analysis; as the world faces an increasingly dire climate crisis, the decisions made now will have far-reaching consequences for future generations. Chinese investment can potentially drive environmental rehabilitation, frequently covering the renewable energy spectrum from wind farms to hydropower projects. However, this potential must be balanced against potential ecological trade-offs and the need to adhere to sustainable practices that protect the fragile ecosystems that comprise Latin America's natural heritage.

Furthermore, the intertwining of politics and energy cannot be overlooked. A thorough assessment of the political reasons driving Chinese investment in Latin America sheds light on the geopolitical maneuvering and resource security objectives that underlay these attempts. Additionally, the current situation of global politics, including the rise of national and protectionist interests in industrialized countries and the compounding disruptions caused by the COVID-19 outbreak, adds another degree of complexity to the analysis.[1]

The central question in this investigation is: How has Chinese investment shaped the trajectory of renewable energy growth in Latin America, and what impact does this have on the region's transition to a low-carbon economy? Motivated by this question, we contend that Chinese investment has played a critical role in guiding Latin America's transition to renewable energy sources. Chinese investors' infusion of finance, technology, and knowledge has permitted the realization of large-scale renewable energy projects that would otherwise have languished without such assistance. The expansion of renewable energy's footprint in this setting demonstrates the symbiotic relationship between foreign investment and the region's goals for a sustainable future, which is compatible with what we call in another place the 'Bandung spirit',[2] a resistance stance that refuses to see the world only in materialistic terms by adopting principles of mutual exchange, solidarity and the recognition of shared experiences in dealing with developed countries.

As we explore this terrain, the concept of just transition emerges as a beacon, guiding the future of China and Latin America's energy industry with a compass set to equity and inclusivity. The fair transition paradigm embodies the idea that this epochal change toward a greener energy matrix must be economically sustainable, uphold social justice, strengthen community welfare, and respect the fragile balance of the environment. In addition, we connect to just transition the concept of degrowth, which is essential considering the distribution of accountability for the worldwide environmental crisis. As we proceed through the sections of this paper, the concept of just transition will emerge as a central framework against which the effects of Chinese investment on Latin America's energy transformation will be tested and evaluated.[3]

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[1] Wahaj, Z., Alam, Md. M., & Al-Amin, A. Q. (2022). Climate change and COVID-19: Shared challenges, divergent perspectives, and proposed collaborative solutions. Environmental Science and Pollution Research, 29(11), 16739–16748. https://doi.org/10.1007/s11356-021-18402-5.

[2] Castro, D., & Denny, D. M. T. (2020). Economic Relationship between Brazil and China: An Empirical Assessment Using Sentiment and Content Analysis. Beijing Law Review, 11(1), Article 1. https://doi.org/10.4236/blr.2020.111016.

[3] Note that the study does not include the effects on the production of the equipment for renewable energy production such as photovoltaic panels and wind turbines; however, we call the attention to fact that the region possess a very important reserve of minerals that are essential to the manufacture of equipment: "Nuñez believes Latin America must use the energy transition to reimagine its place in the world. The region has significant reserves of minerals that are in demand as countries move away from fossil fuels, such as lithium, which is used in electric-car batteries. But if minerals are only extracted and exported overseas, the potential to create new jobs will be very limited, he says, compared to if the minerals were instead used in local industries." In

To proceed with the investigation, we select three representative cases in which the theoretical framework is applied: Brazil, Argentina, and Chile. These are specific occurrences to demonstrate and provide insights, capturing significant qualities, patterns, or dynamics regarding the Chinese investments in the regions, at the same time that reflect respectively the large recipient of investments, the new recipient of green investments, and the largest producer of mineral raw material for exportation. With that in mind, we expect to identify universal principles, trends, or consequences, thus, contributing to broader theoretical knowledge.[4]

1.Theoretical Framework: The necessary connection between Just Transition and Degrowth

Incorporating the concept of just transition into our research on Latin America's energy transition is critical since it addresses the social and equity components of the transition process. The notion of just transition emerged from the labor movement and has gained traction in climate and energy policy conversations, referring to a fair and equitable transition from a high-carbon to a low-carbon economy that protects the well-being of workers, communities, and vulnerable groups. The concept has been important for Latin America for three factors: China has been investing heavily in the region since 2012 when President Xi Jinping assumed office as part of a strategy to incorporate a higher standard of development in both internal and external realms; the pressure over Latin America countries to reduce emissions even though the region contribute with less than 10% of worldwide emissions; and the growing inequality in the region that pushed more people to live in vulnerable areas.[5]

In Latin America, the development of renewable energy and the reduction of dependency on fossil fuels are key initiatives with far-reaching implications for the region's sustainable future; as such, dramatic developments have the ability to reshape social and economic landscapes, triggering a profound reevaluation of social equality, labor dynamics, and economic prosperity in addition to their environmental dividends. As Latin American countries embark on an energy transition, a compelling imperative emerges, the need to ensure that these changes are not only technologically advanced but also inherently just.[6]

According to the International Labor Organization, a '[…] just transition for all towards an environmentally sustainable economy, as described in this document, needs to be well managed and contribute to the goals of decent work for all, social inclusion and the eradication of poverty.'[7]

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https://dialogochino.net/en/extractive-industries/363840-just-transition-what-does-it-mean-for-latin-america/. Last access: August 14, 2023.

[4] Seawright, J., & Gerring, J. (2008). Case Selection Techniques in Case Study Research A Menu of Qualitative and Quantitative Options. Political Research Quarterly, 61(2), 294–308. https://doi.org/10.1177/1065912907313077; and King, G., Keohane, R. O., & Verba, S. (1994). Designing Social Inquiry: Scientific Inference in Qualitative Research. Princeton University Press.

[5] Abbass, K., Qasim, M. Z., Song, H., Murshed, M., Mahmood, H., & Younis, I. (2022). A review of the global climate change impacts, adaptation, and sustainable mitigation measures. Environmental Science and Pollution Research, 29(28), 42539–42559. https://doi.org/10.1007/s11356-022-19718-6.

[6] Morena, E., Krause, D., & Stevis, D. (2019). Just Transitions: Social Justice in the Shift Towards a Low-Carbon World. Pluto Press.

[7] Guidelines for a just transition towards environmentally sustainable economies and societies for all. (2016, February 2). [Brochure]. http://www.ilo.org/global/topics/green-jobs/publications/WCMS_432859/lang--en/index.htm, p.4.

The juxtaposition of the energy transition with social and economic justice highlights the complex connection between environmental and human welfare goals, in which renewable energy sources might create opportunities to correct historical inequalities and address long-standing societal disparities. Latin American countries exerting their political and economic sovereignty may chart a course that empowers communities, protects vulnerable people, and fosters an environment of shared benefits by putting inclusion and justice at the center of their energy policies. The Just Transition in Latin America report recognizes the exploitation of the region for decades and reiterates that:

> […] the conditions of this transition - for what purpose, with whom, and for whom - continue to be shaped based on current power relations, and not necessarily with a focus on planning directed towards the quality of life of individuals and ecosystems. Thus, the opportunity to mitigate and delay the effects of climate change carries the risk of falling into the same logics that have perpetuated inequality and environmental injustice. Energy transition programs run the risk of being captured by business groups and governments closely linked to the climate crisis; these entities may limit the ambition and effectiveness of the process to secure their own political and economic interests (Translated by the author from Spanish).[8]

The story continues with labor dynamics, where the transition from fossil fuels to renewables causes a shift in workforce requirements, potentially resulting in shifts in employment patterns, skill demands, and livelihood possibilities; thus, addressing social justice in this environment requires protecting the rights of transition-affected workers, supporting their transition into new sectors, and ensuring that the ideals of decent labor and equitable treatment remain steady in the face of shifting energy paradigms. Polluting businesses are being forced to adjust as the world transitions to sustainable economies with minimal greenhouse gas emissions. However, experts suggest that the manner in which this occurs is just as crucial as the speed with which it occurs in order to avoid creating inequities.[9]

The economic importance of tackling social and economic fairness is obvious as the energy shift provides potential for regional economic growth, job creation, and entrepreneurship, notably in the rapidly growing renewable energy industry. However, equitable distribution of these economic benefits is critical for reducing the risk of aggravating existing inequalities and paving the way for inclusive growth in Latin America.[10]

Therefore, the just transition concept is directly connected to degrowth, which is a perspective that challenges the traditional notion of continual economic growth as the solution to societal problems. It proposes that pursuing perpetual growth is unsustainable and creates an ecological, social, and economic crisis. It advocates reducing consumption, resource use, and economic output to create a sustainable and equitable society. It emphasizes the importance of local economies, community-based initiatives, and more equitable distribution of wealth and resources, envisioning a future where societies prioritize well-being and ecological sustainability over economic growth and material wealth.

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[8] Transicion Justa en Latinoamerica – Pagina principal de proyecto TJLA. (n.d.). Retrieved August 10, 2023, from https://transicionjusta.com/, p.7.

[9] What does a 'just transition' mean for Latin America? (2023, March 1). Dialogo Chino. https://dialogochino.net/en/extractive-industries/363840-just-transition-what-does-it-mean-for-latin-america/.

[10] Swilling, M., & Annecke, E. (2012). Just Transitions: Explorations of Sustainability in an Unfair World. United Nations University Press.

This is especially important to point out the need for developed countries to take off the foot from the development gas pedal so that developing countries can increase their level of development without compromising the need to protect the environment and deal with the ecological crisis. As posed by Jason Hickel, degrowth means:

> Reducing material throughput reduces energy demand, which makes it easier to accomplish a rapid transition to renewables. This approach is also ecologically coherent: reducing material throughput not only helps us to address climate change but also removes pressure on other planetary boundaries. […] It is important to clarify that degrowth is not about reducing GDP, but rather about reducing throughput. From an ecological perspective, that is what matters. Of course, it is important to accept that reducing throughput is likely to lead to a reduction in the rate of GDP growth, or even a decline in GDP itself, and we have to be prepared to manage that outcome in a safe and just way. [11]

Degrowth is a concept that has been gaining attention since the 1970s as a response to the ecological and social crises caused by the traditional economic growth model.[12] The seminal book "Limits to Growth" by Donella Meadows argued that pursuing economic growth was unsustainable and would lead to ecological collapse; in other words, the development model showed signs of systemic failure.[13]

As such, degrowth defenders argue that reducing both consumption and production creates a more sustainable society, limiting material consumption, reducing waste, and shifting towards more sustainable and ecologically friendly forms of production. It also promotes the idea that economic growth does not necessarily lead to greater well-being or happiness. Instead, it proposes improving the quality of life through community-based initiatives, social connections, and the restoration of natural ecosystems. It emphasizes the importance of local economies, where goods and services are produced and consumed within the community, helping reduce resource use, promote social connections, and create more equitable and sustainable communities. Finally, it advocates for a more equitable distribution of wealth and resources, focusing on reducing inequality and promoting social justice.

Therefore, beyond the definition provided earlier by Hickel, degrowth is a form of ecological and social justice, thus, connected to just transition:

> Degrowth signifies, first and foremost, a critique of growth. It calls for the decolonization of public debate from the idiom of economism and for the abolishment of economic growth as a social objective. Beyond that, degrowth signifies also a desired direction, one in which societies will use fewer natural resources and will organize and live differently than today. 'Sharing', 'simplicity', 'conviviality', 'care' and the 'commons' are primary significations of what this society might look like. [14]

The current development model relies on the dispossession, appropriation, and accumulation of global commons, exposing the Global South countries to exploitation and vulnerability. As such, the rush for an energy transition embedded in the so-called green economy without questioning the expectations for development by developing countries and the untapped level

[11] Hickel, Jason. 2021. "What Does Degrowth Mean? A Few Points of Clarification." *Globalizations* 18 (7): 1105–11. https://doi.org/10.1080/14747731.2020.1812222, p.2.
[12] Carson, R., Lear, L., & Wilson, E. O. (2002). Silent Spring (Anniversary edition). Houghton Mifflin Company.
[13] Meadows, Donella H. 2012. *Limits to Growth: The 30-Year Update*. 3rd edition. Chelsea Green Publishing.
[14] D'Alisa, Giacomo, Federico Demaria, and Giorgos Kallis, eds. 2014. *Degrowth: A Vocabulary for a New Era*. 1st edition. New York ; London: Routledge.

of consumption in developed countries is just a matter of imposition of a new model that still relies on GDP and its continuous growth. [15] The true meaning of the green economy is exposed by the No REED in Africa Network:

> […] aim to make us believe that 'sustainable economic growth' is possible and can be 'decoupled from nature' by using capitalist forms of production, or that it is feasible to 'compensate' or 'mitigate' contamination or destruction in one place by 'recreating' or 'protecting' another. Under an unjust and colonialist logic, the 'green' economy subjugates nature and autonomous peoples by imposing restrictions on the use of and control over their territories in order to fill the pockets of a few, even when communities possess the deeds to their land.[16]

Degrowth helps us to shed some light on the farce of international institutions that leave developed countries unchecked in terms of reducing the level of consumption and GDP growth so developing countries might reach their desired level of development. Although it cannot be said that the UN General Secretary has bad intentions, his utterance contributes to the inequalities in addressing both critical issues for developing countries, development, and climate change: "To meet these conditions we have to scale up financing and technology transfer for the developing countries and the energy poor of the world".[17] First, developed countries and international institutions, such as the IMF and World Bank have proved to be detrimental to the economies of Latin American countries; second, the transfer of technology is costly, and intellectual property issues have been a thorn in the relationship with developing countries; third, adaptation depends on high-end consultancy services, usually dominated by transnational corporations in the Global North; and fourth, the rush for the energy transition in developing countries is unjustified as, for instance, Latin America contributes with less than 10% in terms of global emissions,[18] thus, not making differentiation between luxury emissions and survival emissions that is the case for developing countries.[19]

The link between just transition and degrowth is found in their mutual commitment to rethinking societal paradigms to address serious environmental and social concerns. Just transition highlights the importance of an equitable and inclusive transition to sustainable economies, particularly in the context of phasing out fossil fuels, stressing social justice, fair work practices, and community well-being. Conversely, degrowth opposes the current growth-oriented economic paradigm by pushing for an intentional reduction in resource use and output to attain ecological sustainability and social well-being. While just transition focuses on making the transition process socially equitable, degrowth goes a step further by calling into question the core concepts of infinite economic expansion. They provide contrasting perspectives that

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[15] Alam, S., Atapattu, S., Gonzalez, C. G., & Razzaque, J. (Eds.). (2015). International Environmental Law and the Global South. Cambridge University Press.

[16] In https://no-redd-africa.org/index.php/declarations/110-to-reject-redd-and-extractive-industries. Last access: August 8, 2023.

[17] In https://unctad.org/news/energy-crisis-un-global-crisis-response-group-urges-support-most-vulnerable-and-transition. Last access: August 8, 2023.

[18] In https://dialogochino.net/en/climate-energy/364402-ipcc-report-underscores-urgency-of-energy-transition-in-latin-america/. Last access: August 14, 2023.

[19] Pachauri, R. K. (2010). Climate Ethics: Essential Readings (S. M. Gardiner, S. Caney, D. Jamieson, & H. Shue, Eds.; 1st edition). Oxford University Press; Shue, H. (2010). Subsistence Emissions and Luxury Emissions. In S. M. Gardiner, S. Caney, D. Jamieson, & H. Shue (Eds.), Climate Ethics: Essential Readings (p. 0). Oxford University Press. https://doi.org/10.1093/oso/9780195399622.003.0021.

advocate for a comprehensive transformation of society that promotes environmental stewardship, equal prosperity, and a reevaluation of growth-driven goals.

The contrasting perspectives mentioned above can be observed in the engagement between China and Latin America, in which the first has become the main supplier of investments and the second the recipient. Therefore, the combination of these two concepts forms our theoretical framework, which helps us to identify the indicators in the study of the cases, making clear out of the gate that due to space limitations and the fact that some of the energy transition projects are underway not all the indicators might be present in the analysis, which does not invalidate the indicator's empirical strength towards reinforcing our argument. It just proves the need for further research in the field.[20]

2.China: Sharing the Ecological Civilization[21]

The environmental consequences of China's economic rise over the previous three decades have been severe. As a direct result of the internal environmental impacts, China's posture on global environmental protection shifted in the 2010s, particularly with reference to poor nations.[22] China shifted from a position of defending the right to development, technology transfer, financing mitigation and adaptation, absolute sovereignty over natural resources, and common but differentiated responsibilities to a strategy of raising awareness of global environmental threats.[23]

That trend began with tight regulatory measures to deal with the internal environmental repercussions of rapid economic expansion, reinforcing domestic structures to address rising environmental issues and demands, which soon became part of the foreign policy, especially in its flagship development platform: the Belt and Road Initiative (BRI). One might say that the BRI is a form of resistance against the dominant liberal international institutions and economic world order born in the aftermath of the Second World War, which is charged with "[...] the persistence of extreme poverty in the global South is attributable not to random misfortune, but to a global economic order that systematically benefits the wealthy and disenfranchises the poor."[24] Foreseeing the need for an alternative to the Western model, the elected president of Nigeria, Kwame Nkrumah, uttered in 1958 in the context of a decolonization wave in the African continent:

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[20] In https://www.sei.org/wp-content/uploads/2021/09/briefsevenprinciplessept21.pdf, p15. Last access: August 14, 2023.

[21] Ecological Civilization is a principle incorporated in the Chinese Constitution in 2018 to ensure a harmonious relation between humankind and nature, which bounds society and government. See Castro, D., & Zhang, S. (2022). ECOLOGICAL CIVILIZATION AND BELT ROAD INITIATIVE: A CASE STUDY (Civilização ecológica e iniciativa do cinturão e rota: um estudo de caso). *Cadernos Do CEAS Revista Crítica de Humanidades*, *47*, 218–239. https://doi.org/10.25247/2447-861X.2022.n255.p218-239.

[22] For a complete inventory of measures to ensure the protection of the environment under President Xi Jinping, see https://peoplesdaily.pdnews.cn/er/channel/1027/30001556786. Last access: August 18, 2023.

[23] Li, Y., & Shapiro, J. (2020). China Goes Green: Coercive Environmentalism for a Troubled Planet (1st edition). Polity.

[24] Alam, Shawkat, Sumudu Atapattu, Carmen G. Gonzalez, and Jona Razzaque, eds. International Environmental Law and the Global South. Cambridge University Press, 2015, p.9. Of course this positioning as stance of resistance is contested or even attributed to the "selvagerie" among the Global South countries in the form a race to the botton as reflected in the article Ross, Robert J. S., and Anita Chan. "From North-South to South-South: The True Face of Global Competition." *Foreign Affairs*, September 1, 2002. https://www.foreignaffairs.com/world/north-south-south-south-true-face-global-competition.

> We cannot tell our peoples that material benefits and growth and modern progress are not for them. If we do, they will throw us out and seek other leaders who promise more. And they will abandon us, too, if we do not in reasonable measure respond to their hopes. Therefore we have no choice. Africa has no choice. We have to modernize. Either we shall do so with the interest and support of the West or we shall be compelled to turn elsewhere. This is not a warning or a threat, but a straight statement of political reality.[25]

Not only for Africa, but for the whole Global South the alternative has emerged. President Xi introduced the BRI platform in 2013, mirroring Hu Jintao's "Go West" agenda. [26] It has five major goals in terms of cooperation with the participating countries: 1) Policy coordination; 2) Facility connectedness; 3) Unrestricted trade; 4) Financial integration; and 5) Human-to-human bonds. [27]

Since its inception, the BRI has faced harsh criticism for a lack of governance structures to oversee environmental and labor standards. [28] Given the size of the ambitions and the complexity of the BRI, it is extremely possible that some obstacles may develop as part of the foundation-building process. The most important feature, however, is how China has worked internally and with its partners to enhance the standards to improve the project's overall sustainability.[29] As stated by Pepe Zhang in "Four new BRI trends to watch: (i) enforcement of transparency, debt, and environmental safeguards; (ii) growing participation of the private sector; (iii) the role of the advanced economies in BRI; and (iv) new BRI sectors beyond

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[25] Nkrumah, K. (1958, October 1). African Prospect. Foreign Affairs, October 1958. https://www.foreignaffairs.com/articles/africa/1958-10-01/african-prospect, p.53.

[26] See Communique of the Fifth Plenum of the 17th Central Committee of the Communist Party of China - (mofcom.gov.cn). Last access: August 9, 2023.

[27] See The Report of the National Development and Reform Commission, 2015 in National Development and Reform Commission (NDRC) People's Republic of China. Last access: August 9, 2023.

[28] The Concluding observations on the third periodic report of China, including Hong Kong, China, and Macao, China, adopted by the UN Committee on Economic, Social and Cultural Rights at its seventy-third session from 13 February to 3 March 2023, states that: "22. Noting the information provided during the dialogue with the State party, the Committee is concerned about reports of the negative effects of the State party's lending practices and conditions in connection with the Belt and Road Initiative infrastructure development in third countries, which are negatively affecting the enjoyment of economic, social and cultural rights in third countries. Concerns include lack of transparency, corruption and the fact that certain projects have not been viable and have had a low cost-benefit ratio for the borrowing countries, including as a result of conditionalities such as the mandatory use of suppliers and labourers from the State party. The Committee is also concerned that loans have resulted in unsustainable debt levels for borrowing countries (art. 2 (1))." In the Comments on CESCR Concluding Observations on the Third Periodic Report of China, the Chinese government responded: "2. Concerning paragraph 22, "The Committee is also concerned that loans have resulted in unsustainable debt levels for borrowing countries", the Belt and Road Initiative (BRI) has contributed to high-quality economic growth and sustainable development for countries along the Belt and Road, and provided bigger market, more investment and development opportunities to BRI countries. In the long run, the BRI helps narrow down global development deficit and ease debt burden. The COVID-19 pandemic has aggravated the debt issues confronted by some developing countries. China has fully implemented the G20 Debt Relief Initiative, and has become the biggest contributor to debt relief. In August 2022, China announced waiver of 23 interest-free loans for 17 African countries. China will also encourage multilateral institutions and commercial creditors to contribute more to the debt reduction and suspension for developing countries." In https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=INT%2FCESCR%2FCOB%2FCHN%2F51887&Lang=en. Last access: August 9, 2023.

[29] For a representative instance see: *China's Massive Belt and Road Initiative*. (n.d.). Council on Foreign Relations. Retrieved August 10, 2023, from https://www.cfr.org/backgrounder/chinas-massive-belt-and-road-initiative.

infrastructure",[30] which ends the controversy surrounding the BRI's standards. During the 10 years of the BRI much has been learned about how to conduct projects in a diverse array of countries and traditions, to the extent that:

> Over the past few years, China has published guidelines for the work of its companies and financiers operating abroad. This represents a shift from a previous approach based on compliance with domestic regulatory frameworks to a commitment to international best practices and standards, the Latin American NGOs acknowledge. For example, the "Green Development Guidelines for Foreign Investment and Cooperation", jointly published by the Chinese ministries of environment and of commerce, encourage Chinese investors to go beyond "host country rules" and ask that, if local regulations are lacking, Chinese actors such as companies or banks adopt Chinese standards or international best practices.[31]

In addition, this reflects and responds to the findings in the Report Extraterritorial Human Rights Obligations of the People's Republic of China in Relation to Business Activities in Latin America states that the projects are related to the extraction of natural resources (mining, hydrocarbons, food and agriculture), energy and transport infrastructure, which has resulted in civil society complaints about human rights abuses and major environmental impacts on the ecosystems.[32]

Upon his election as General Secretary of the Chinese Communist Party (CCP) and President of China in 2012, President Xi Jinping emphasized the importance of incorporating the ecological dimension into the growth process. On May 24, 2013, he stated at a meeting of the Political Bureau, "We must raise awareness of the need to respect, protect, and accommodate ourselves to nature, follow the basic state policy of resource conservation and environmental protection, and give high priority to conserving, protecting, and promoting natural restoration."[33] The ecological dimension is part of a civilization's quest for harmony:

> Respecting and protecting nature has made an important contribution to the survival and prosperity of the Chinese nation over thousands of years. The concept of "harmony between humanity and nature" is a distinct characteristic of Chinese civilization. To vigorously promote the building of a socialist eco-civilization, China has established a fundamental national policy of conserving resources and protecting the environment, and a national strategy of sustainable development since the launch of reform and opening up.[34]

In terms of the energy transition, internally, China has been presenting over the years a steady course towards renewable energy as pointed out in the China Energy Transition Status Report 2021 made by the Sino-German Energy Transition Project, which summarizes the long-term perception of the country in term of ecological protection while striving for development:

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[30] Zhang, P. (2019, October 9). Belt and Road in Latin America: A regional game changer? *Atlantic Council*. https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/belt-and-road-in-latin-america-a-regional-game-changer/.

[31] In https://dialogochino.net/en/infrastructure/364274-latin-american-ngo-concerns-chinese-investments-un/. Last access: August 14, 2023.

[32] In https://amazonwatch.org/assets/files/2023-02-chinas-human-rights-obligations-in-relation-to-latin-american-business-activities.pdf. Last access: August 14, 2023.

[33] Jinping, X. (2015). *Xi Jinping: The Governance of China:* Shanghai Press, p.239.

[34] The State Council Information Office of & the People's Republic of China. (n.d.). *China's Green Development in the New Era*. Retrieved August 18, 2023, from https://english.www.gov.cn/archive/whitepaper/202301/19/content_WS63c8c053c6d0a757729e5db7.html, p. 1.

> Given the importance of energy in the 13th Five-Year Plan, 2020 represented a major chance to take stock of China's progress on its energy goals, which centre around the country's long-term efforts to ensure economic development, energy security, and technological modernization, leading ultimately to the realization of the vision of a Beautiful China. Clean energy represents a major element of the vision of humans living in harmony with the natural world, in keeping with the concept of an Ecological Civilization.[35]

The international spillover of a more inclusive and greener pathway to development has been forged along the way China emerges in dialectical terms, considering that for some time the country was considered an important contributor to ecological problems and now as one of the potential countries driving the international environmental governance to promising solutions and results. To that end, the Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road (Vision) might be regarded as the backbone of this trend:

> The Initiative is harmonious and inclusive. It advocates tolerance among civilizations, respects the paths and modes of development chosen by different countries, and supports dialogues among different civilizations on the principles of seeking common ground while shelving differences and drawing on each other's strengths, so that all countries can coexist in peace for common prosperity.[36]

As a consequence of the changes along the BRI, which started to reflect not only the Chinese vectors of foreign policy towards development but also the participation of partner countries to meet their internal demands, we observe the rise of a greener vision in foreign policy is not just a rhetorical device but an effort to project internal concerns over the environmental protection. As the Global Development Policy Center report states:

> Since the inception of the BRI, China has made significant strides toward greening its overseas activities. The special policy report tracks over 30 documents providing guidance and regulations for outbound investment and finance…This represents an advancement in environmental governance of China's overseas activities, beyond the more general earlier guidance and statements. As China has developed into the world's largest source of bilateral finance, and one of the world's top sources of foreign direct investment, its environmental governance of overseas activities has been spread across many actors: government regulators, project sponsors and financial institutions, among others.[37]

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[35] In https://www.energypartnership.cn/fileadmin/user_upload/china/media_elements/publications/2021/China_Energy_Transition_Status_Report_2021.pdf. Last access: August 9, 2023.

[36] State Council. 2015. "Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road." 2015. https://www.fmprc.gov.cn/eng/topics_665678/2015zt/xjpcxbayzlt2015nnh/201503/t20150328_705553.html. Last access: August 9, 2023.

[37] In https://www.bu.edu/gdp/2021/09/15/aligning-the-bri-with-the-sustainable-development-goals-research-and-recommendations/. Last access: August 9, 2023. This trend has been reiterated more recently in the *China's Green Development in the New Era:* 'As the world's largest developing country, China is committed to the idea of a global community of shared future. It has offered unwavering support to multilateralism, proposed the Global Development Initiative and the Global Security Initiative, expanded practical cooperation, and actively participated in global environment and climate governance. It has contributed Chinese wisdom and strength to implementing the UN 2030 Agenda for Sustainable Development, creating a community of life for humanity and nature, and building a clean, beautiful and prosperous world of sustainable development.' In https://english.www.gov.cn/archive/whitepaper/202301/19/content_WS63c8c053c6d0a757729e5db7.html. Last access: August 9, 2023.

An additional empirical stance is the China Belt and Road Initiative (BRI) Investment Report 2021 provides insights into realizing the broad perception of a greener development process. Among the findings in the Report, we observe that no coal project received investment;[38] an increment in financing and investments in green energy; and an acceleration of green projects due to the *Guidelines for Ecological Environmental Protection of Foreign Investment and Cooperation Construction Projects*, issued in July 2020. [39] Note that it does not mean that there are no coal projects under the BRI's umbrella, but the evidence that as the platform evolves into a green phase, there is a phase-out in those projects.[40]

According to the think-thank The Asia Society Policy Institute:

> In the face of these challenges, President Xi Jinping recently emphasized that China's commitment to reducing emissions is unswerving, and China will continue to deepen reforms in its energy system — but the country will determine its own path without being influenced by others. This is a clear signal of China's current stance on climate change. Regardless China's climate policies will continue to play a crucial role in shaping global climate actions.[41]

Therefore, the positioning of China in the global arena regarding protecting the environment thru energy transition is robust and presents an alternative to the Bretton Woods development model, which has been contributing to the environmental and social crisis worldwide. [42] As such, the approximation between China and Global South countries to deal with the negative effects of subtle forms of XXI-century forms of colonialism is consistent with what we call the Bandung spirit,[43] a trans-civilizational perspective to face shared experiences and challenges. In this sense: 'Chinese perspective is shared by many countries, especially in the global South, where Western claims to be upholding a rules-based order lack credibility. It is not simply that many governments had no say in creating these rules and therefore see them as illegitimate.'[44]

As stated by President Xi Jinping, 'Right now there are changes – the likes of which we haven't seen for 100 years – and we are the ones driving these changes together,' which is true for the engagement of China with Latin America that can be seen as a coupling of national

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[38] This is consistent with the pledge made by President Xi before the United Nations General Assembly in the 2021 open session. See https://www.reuters.com/world/china/xi-says-china-aims-provide-2-bln-vaccine-doses-by-year-end-2021-09-21/. Last access: August 9, 2023.

[39] The full text is available in http://english.mofcom.gov.cn/article/policyrelease/bbb/201303/20130300043226.shtml. Last access: August 9, 2023. The 2022 Report includes in the findings that 'Green energy engagement (solar, wind, hydro) in 2022 increased 50%: investments by USD0.1 billion to USD2.7 billion; construction projects by USD1.9 billion to USD5.3 billion.' In https://greenfdc.org/china-belt-and-road-initiative-bri-investment-report-2022/. Last access: August 9, 2023. Also, the 2023 H1 BRI Investment Report points out to a greener engagement in the projects in https://greenfdc.org/china-belt-and-road-initiative-bri-investment-report-2023-h1/. Last access: August 9, 2023.

40 Wang, C. N. (2023, February 3). China Belt and Road Initiative (BRI) Investment Report 2022 – Green Finance & Development Center. https://greenfdc.org/china-belt-and-road-initiative-bri-investment-report-2022/.

41 ASPI Climate Action Brief: China | Asia Society. (n.d.). Retrieved August 10, 2023, from https://asiasociety.org/policy-institute/aspi-climate-action-brief-china.

[42] de Castro, D., & Yu, Z. (2023). Unpacking the interplay of class, production, and sustainable development in international environmental law through the lens of Evgeny Pashukanis' commodity theory. *Cogent Social Sciences*, *9*(1), 2238457. https://doi.org/10.1080/23311886.2023.2238457.

43 Castro, D., & Denny, D. M. T. (2020). Economic Relationship between Brazil and China: An Empirical Assessment Using Sentiment and Content Analysis. Beijing Law Review, 11(1), Article 1. https://doi.org/10.4236/blr.2020.111016.

44 Leonard, M. (2023, June 20). China Is Ready for a World of Disorder. Foreign Affairs, July/August 2023. https://www.foreignaffairs.com/united-states/china-ready-world-disorder.

interests among nations that had a very bad encounter with imperialism that led to colonialism, either by physical dominance or International Monetary Fund's structural adjustment programs.[45] According to Dussell Peters in a recent opinion article, the '[…] Belt and Road Initiative's focus on interconnectivity and LAC's infrastructure gap presents enormous cooperation potential for both parties.'[46]

In the next part of the article, we cross-comparison the cases vis-à-vis the theoretical framework.

3.Energy Transition in Argentina, Brazil, and Chile: different realities common trends

The Chinese engagement with Latin America has '[…] deepened substantially in the 21st century and particularly since the launch of China's Belt and Road Initiative in 2013 in any imaginable field […],[47] which in terms of energy transition this trend has been explicitly stated at the high-level diplomatic arena in the China-Celac Joint Action Plan for Cooperation in Key Areas (2022-2024): "7.1 Strengthen communication and exchange of public policies in the energy industry and its resources and promote cooperation especially for the transition towards cleaner and more inclusive energetic systems."[48]

A closer look at reality points out pieces of evidence that consolidate this commitment assumed with Celac and also the role of BRI in the conduction of Chinese foreign relations, although many of the projects in Latin America still are under an outdated policy and legal framework that needs adjustments to comply with a greener vision incorporated by China and Latin American countries. As we will see, even in Brazil, a non-BRI member, the investments follow the greener vision in BRI and CELAC´s institutional documents.

a) Argentina

According to the Monitor of Chinese Infrastructure in Latin America and the Caribbean 2022, Argentina is the largest recipient of Chinese investments in the region followed by Brazil.[49] Argentina's participation in the BRI that was consolidated in 2022 signifies a watershed moment in the country's diplomatic and economic engagement with China and might be considered the main cause for the increase in investments.

Argentinian President Mauricio Macri visited the first Belt and Road Forum in May 2017 in Beijing, demonstrating his country's desire to further align with the program, contrasting with Argentina's tumultuous relations with the United States during the Donald Trump administration, when Argentina and Brazil were targeted with U.S. aluminum and steel tariffs in late 2019 after the US president accused both governments of currency manipulation.[50] The Macri administration also pushed to strengthen commercial ties with Beijing despite facing a series of domestic economic challenges, including ongoing debt difficulties, which led the

[45] In https://www.aljazeera.com/news/2023/3/22/xi-tells-putin-of-changes-not-seen-for-100. Last access: August 9, 2023.
[46] In https://www.chinadaily.com.cn/a/202308/09/WS64d2c80fa31035260b81afe9.html. Last access: August 14, 2023.
[47] In In https://www.chinadaily.com.cn/a/202308/09/WS64d2c80fa31035260b81afe9.html. Last access: August 14, 2023.
[48] In http://gy.china-embassy.gov.cn/eng/xwfw/202112/t20211213_10469237.htm. Last access: August 14, 2023.
[49] In https://www.redalc-china.org/monitor/images/pdfs/menuprincipal/DusselPeters_Monitor_Infraestructura_2022_ENG.pdf. Last access: August 14, 2023.
[50] Farías, M. (2017). Old Buddies and Same Old Stories: Argentina and US relations in the Trump Era. Journal of Latin American Geography, 16(2), 176–179.

country to default on its sovereign bonds in May 2020.[51] To some, this movement was expected since the country joined the Asia Infrastructure Investment Bank in 2020.

The Memorandum of Understanding (MoU) was signed by President Xi Jinping and Alberto Fernandez in 2022 during the latter's visit to China to attend the Winter Games. The signature of the MoU has been part of celebrating the 50th anniversary of the diplomatic relations between the two countries. According to Xinhua, the official Chinese government news outlet:

> Based on their respective interests and national laws, the two sides agreed to actively advance bilateral investment, expand economic complementarity and seek new economic opportunities. The statement added that they agreed to boost green sustainable development, and investment and cooperation in the digital economy.[52]

Upon Argentinian adhesion to BRI, old projects such as the Atucha III power plant and Santa Cruz dams were incorporated into the platform and much of the debt has been subject to negotiations as new projects are in phase of approval.53 It is possible to trace the energy transition in Argentina since the Régimen Nacional de Energía Eólica y Solar (Law 25019/1998) passed to its commitment to the Paris Agreement in 2015, which along with the adhesion to BRI has sped up the process.[54] According to Zabaloy, Ibañez, and Guzowski (2021, p. 7), "[…] Argentina's energy transitions have contributed to the diversification of the energy matrix, moving towards more environmentally sustainable systems." (Translated by the author)

The Cauchari Solar Plant exemplifies Argentina's commitment to using renewable energy sources as a cornerstone of its long-term development strategy. This ambitious solar energy effort, set against the gorgeous Andes Mountains, reflects the country's deliberate drive toward cleaner and more environmentally responsible power generation. The Cauchari Solar Plant, as a prime example of successful collaboration between foreign and local organizations, not only strengthens Argentina's energy security but also resonates with the global need for mitigating climate change through the use of renewable technologies.[55] As we posed before, this project

[51] See https://www.economist.com/the-americas/2020/05/23/argentina-defaults-yet-again-but-hopes-to-get-off-lightly. Also, about the relationship between the two countries: "Argentina enjoys a "strategic integral alliance" with China, a high diplomatic status that the latter confers on only a handful of countries." In https://chinadialogue.net/en/energy/11117-china-builds-latin-america-s-largest-solar-plant/. Last access: August 14, 2023.

[52] In https://english.news.cn/20220206/08612eb21f2d456f858eb95b85b6e5d2/c.html. Last access: August 14, 2023.

[53] In https://dialogochino.net/en/trade-investment/50966-argentina-joins-china-belt-and-road-initiative/. Last access: August 14, 2023.

[54] Zabaloy, María Florencia, María María Ibañez, and Carina Guzowski. 2021. "La transición energética justa y la pobreza energética en Argentina: ¿Qué rol juega el territorio?" *Revista Planeo* (blog). 2021. https://revistaplaneo.cl/2023/07/08/la-transicion-energetica-justa-y-la-pobreza-energetica-en-argentina-que-rol-juega-el-territorio/.

[55] It contracts with another regional project: the mine Olaroz y Olaroz-Cauchari. The native populations of resorts are split between supporting and opposing lithium initiatives as there is a resistance collective, but there are also people from the neighborhoods that work for businesses. There are mining and technological businesses interested in utilizing lithium in these salaries, and lithium projects are progressing, which makes a hard case for stopping as lithium is a mineral necessary for batteries in electric cars. The Environment Justice Atlas classifies the impacts as visible such as groundwater pollution and depletion, disturbance of hydro and geological systems, desertification and drought; and potential such as biodiversity loss, food insecurity, and soil contamination. To that extent, the intensity or mobilization is classified as low. See https://ejatlas.org/conflict/mineria-de-litio-en-el-salar-de-olaroz-cauchari-argentina/?translate=en. Last access: August 14, 2023.

emerges as a paradigm for just transition and degrowth for China and Argentina, although the contribution of both for world emissions is lower if compared with developed countries.[56]

The Cauchari solar plant in Argentina's northernmost province of Jujuy is one of South America's largest photovoltaic (PV) solar power facilities. It is also the world's highest-altitude solar power facility, located at an elevation of more than 4km above sea level. The first phase of the 300MW Cauchari solar plant, worth US$ 390 million, began construction in October 2017, and following the completion of the trial run in October 2019, phase one was begun. It is planned to start commercial operations in 2025, following the construction of the accompanying transmission infrastructure.

Jujuy Energia y Mineria Sociedad del Estado, Power Construction Corporation of China, and Shanghai Electric Power Construction are developing and owning the project. The owners each have a 33% share in the project. The project will generate 720,500MWh of electricity and provide enough renewable energy to power 170,000 households, which is anticipated to offset 129,500,000t of CO2 emissions yearly. The approved Environmental Impact Assessment (EIA) of the project concluded that the "[…] project presents a very low environmental impact and utilizes a renewable and clean resource for energy generation. It enables a significant improvement in the quality of life for the Catua population, making it considered viable from environmental, social, and economic perspectives."[57]

The engagement of the companies and the government concession award was possible due to the RenovAr Program - *Programa de abastecimiento de energía eléctrica a partir de fuentes renovables* (Program for Supply of Electricity from Renewable Sources), which provided the legal framework for the involvement of the private sector in developing the project.[58] Building wind and solar photovoltaic plants is already less expensive than building large-scale gas and coal plants, according to Bloomberg New Energy Finance; thus, the implemented regulations assist new energy firms in entering the market and obtaining finance.[59]

In the context of changing toward more sustainable and environmentally responsible practices, the concept of just transition is inextricably tied to both job development and community participation. A just transition recognizes that as economies transition away from fossil fuels and other high-impact industries, workers' livelihoods and community well-being

[56] According to the Worldometer, the emissions per capita of Argentina and China are respectively 4.60 and 7.44 tons/year, while the United States and Germany reach 15.32 and 9.42 tons/year. In https://www.worldometers.info/co2-emissions/co2-emissions-by-country/. Last access: August 14, 2023.

[57] In https://www.argentina.gob.ar/sites/default/files/eia_san_juan_de_quillaques_abril_2022_ii.pdf. Last access: August 14, 2023.

[58] Section 3 of Act 26 190 reads: "[…] encourages the making of new investments in projects to generate electric power from the use of sources of renewable energy within the national territory. These projects shall comprise the building of civil works, electromechanical works and assembly works, the manufacture and/or import of component parts to include them in locally manufactured equipment and the commercial operation." In https://www.argentina.gob.ar/sites/default/files/ley_26190-2006_english_version.pdf. Last access: August 14, 2023. According to Act 27191 that provided the legal scope for the Act 26190, the sources of renewable energy "[…] consist of nonfossil sources of renewable energy suitable for a sustainable use in the short-, medium- and long-term, including wind energy, solar thermal energy, solar photovoltaic energy, geothermic energy, tidal energy, wave energy, energy from ocean currents, hydraulic energy, biomass, landfill gas, treatment plant gas, biogas and biofuels, except for the uses set forth in Act 26093." In https://www.argentina.gob.ar/sites/default/files/ley_27191-2015_english_version.pdf. Last access: August 14, 2023. For the whole legal framework see https://www.argentina.gob.ar/economia/energia/energia-electrica/renovables/renovar.

[59] See https://bnef.turtl.co/story/neo-2022/page/1?teaser=yes. Last access: August 14, 2023.

must be protected. A key component of a just transition is job creation, which aims to create alternative employment opportunities in rising green sectors such as renewable energy, energy efficiency, and sustainable agriculture, reducing the social and economic disruptions associated with structural changes in the economy by ensuring that displaced workers have access to retraining and skill development programs. Concurrently, community participation is essential to the process in terms of decision-making, planning, and policy development ensuring that their opinions are heard, needs are recognized, and the benefits of the transition are spread equitably. The Cauchari project covers job creation and community participation:

> The government has agreed to provide indigenous communities, who own the land where Cauchari is located, with 2% of its annual profits. This share could equate to up to US$1 million. Community members have also received training and a range of job opportunities at the site, ranging from catering to transportation.[60]

b) Brazil

Chinese investments in the Brazilian energy sector are extremely important, whether for the internalization of Chinese firms, the provision of infrastructural development in Brazil, or the bilateral relationship between the two countries. The importance of the energy industry in this scenario cannot be overstated as from 2013 to 2017, the electrical sector was the first recipient of Chinese Foreign Direct Investment (FDI) in Brazil, accounting for 46% of total Sino-capital inflows, while oil and gas was the second recipient, accounting for 26% of FDI. [61]

Brazil and China began to talk and sign contracts for their bilateral relationship in 2004 when President Luiz Inácio Lula da Silva was elected to his first term. This year, Brazil and China established the China-Brazil High-Level Coordination and Cooperation Committee (CBHCCC). Only two years later, in 2006, the two countries formed an energy and mining subcommittee. Nonetheless, Brazil is frequently regarded as a latecomer investment destination for Chinese capital. This is because investments only became relevant from 2009 to 2010, then fell from 2013 to 2014 before picking up again in 2015.[62]

The Programa de Incentivo às Fontes Alternativas de Energia Elétrica – PROINFA is Brazil's most important renewable energy support program. It was established by Law n. 10.438 on April 26, 2002 and maintained by Eletrobras, and has since been amended to accommodate the complexities and local realities regarding the projects.[63]

The Program considers independent power producers generating electricity from wind, biomass, or small hydroelectric power plants - PCHs. It organized the celebration of long-term contracts with Eletrobras through public calls procedures, with the financial backing of BNDES. The Brazilian development bank has the authority to finance up to 80% of the total expenditure required to finish the project for a period of up to 12 years. PROINFA first implemented a

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[60] In https://chinadialogue.net/en/energy/11117-china-builds-latin-america-s-largest-solar-plant/. Last access: August 14, 2023.

[61] Veiga, P. da M., & Rios, S. P. (2019). China's FDI in Brazil: Recent trends and policy debate. Policy Center. https://www.policycenter.ma/publications/china%E2%80%99s-fdi-brazil-recent-trends-and-policy-debate; and Torres, G. (2020). Chinese Foreign Direct Investment in Brazil: Evolution, Trends and Concerns over Critical Infrastructure. Colección, 31, 17–36. https://doi.org/10.46553/colec.31.1.2020.p17-36.

[62] Veiga, P. da M., & Rios, S. P. (2019). China's FDI in Brazil: Recent trends and policy debate. Policy Center. https://www.policycenter.ma/publications/china%E2%80%99s-fdi-brazil-recent-trends-and-policy-debate.

[63] See the complete legal framework for the program in https://eletrobras.com/en/Paginas/Proinfa.aspx. Last access: August 14, 2023.

nationalization index of 60% of the total construction cost of the projects. In recent years, the regulation has been changed to be more flexible, allowing foreign firms better access to the clean energy equipment supplying industry.[64]

The Chinese participation in renewable energy in Brazil can be summarized to State Power Investment Corporation (SPIC),[65] China Three Gorges Corporation (CTG),[66] and Build Your Dream (BYD)[67] and considering the not-so-good experiences of these companies in hydraulic projects, which led to several debates and holdups, the preference for solar and wind energy has been increasing and concentrated in the Northeast region of Brazil.[68] Nascimento et al. (2021, p.386) confirm this two-fold trend as winds well supply the region, and Chinese companies are among the largest manufacturers of Aeolic turbines:

> Despite the big share of renewable energies in Brazil, the current installed matrix is focused on hydroelectric sources, which face several problems to its expansion. However, Northeast Brazil has a large potential to implement wind and solar sources, growing fast over the years. In this scenario, Chinese companies would practically dominate this initial market, both in direct investment and in the supply of raw material. In this sense and considering the context of economic and geopolitical transformations in the world, in addition to regional aspects, this article points to the need to rethink mechanisms, instruments, and regional institutions that can be mobilized to promote the development of Northeast Brazil.[69]

Several opinions are reflected in the debate over wind energy. Wind energy is assured to be clean energy in terms of social and environmental discourse, as it has a minimal polluting potential and encourages environmental sustainability. However, wind energy, despite being clean energy, might create a vulnerability for the population by failing to recognize the magnitude of the negative effects, both in the social and physical-biotic environments, generated by the construction of these parks. It can be seen that the environmental discourse of clean energy has concealed rampant deforestation practices, impact on the soil, compromising water resources and the local fauna and flora, increased noise and pollution of the landscape, elements that could be managed by the process as a whole if serious inspection in these places and greater action by the public sector responsible for these types of undertakings were conducted.[70]

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[64] OECD. (2015). *Energy Investments and Technology Transfer Across Emerging Economies: The Case of Brazil and China*. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/energy/energy-investments-and-technology-transfer-across-emerging-economies-the-case-of-brazil-and-china_9789264247482-en.

[65] https://www.spicbrasil.com.br/en/who-we-are/. Last access: August 14, 2023.

[66] https://www.ctgbr.com.br/. Last access: August 14, 2023.

[67] https://www.byd.com.br/. Last access: August 14, 2023.

[68] See https://www.ibrachina.com.br/brasil-e-china-parceiros-na-ampliacao-do-uso-de-energia-renovavel/. Last access: August 14, 2023.

[69] Nascimento, A. M., Liu, L., Alves, J. R. C. S., & Oriá, P. (2021). Chinese investment in the Northeast region of Brazil: An analysis about the renewable energy sector. *Revista de Gestão*, *28*(4), 376–389. https://doi.org/10.1108/REGE-12-2020-0147.

[70] See for instance the debate over the social participation and resistance against the installation and operation of some wind farms in the Brazilian State of Paraiba. Many of the arguments are that the environmental impacts cannot be neglected due to the fact that it's producing "clean energy". See https://d3o3cb4w253x5q.cloudfront.net/media/documents/Mulheres-na-luta-contra-dos-projetos-eolicos-no-estado-da-Paraiba.pdf. Last access: August 14, 2023.

The wind farm projects, especially the ones located in the coastal regions such as the Vale dos Ventos and Millennium parks in the State of Paraıba, municipality of Mataraca, have generated no important social or environmental conflicts, which does not mean that over a period of time, some negative effects would not emerge.

> It would be necessary to consider investments in other economic activities, such as agriculture, fishing, tourism and other potential economic activities. At the same time, it would be necessary to pay attention to social issues, in the sense of offering more opportunities for access to health, education and other services to the population, linked to actions aimed at environmental issues aimed at minimizing the effects of socio-environmental impacts and conflicts arising from the installation and operation of wind farms in the localities. (Translated by the author)[71]

The vision presented by the operator of the Vale dos Ventos wind farm addresses the concerns and should be the benchmark for the community to supervise and vindicate improvements during the phases of installation and operation of wind farms (or solar energy for that matter considering that this type of renewable energy has a low social and environmental impact)[72]:

> Over these years, we learned a lot, such as challenges with medium voltage underground cabling, the development of maintenance plans and all of this, always with a concern for people and the environment around the wind farms, as the area has a highly preserved environment. We are happy to see that our learning curve has reached a peak where we can generate the maximum amount of clean energy with operational excellence, because, avoiding unplanned downtime, our level of availability and reliability turns out to be higher than expected. (Translated by the author).[73]

The Brazilian case points out the necessity to follow up on the energy transition along the spectrum at both ends: at one end, the growing investments in renewable energy will demand a high-end workforce in the regions to be implanted in the projects, not the simple "importation" to the region of skilled workers and closer look to the environmental impacts in the long run of said projects and potential adaptability and mitigation, and at the other end, the phase-out of coal and oil projects will demand adjustments for workers and communities, as long as solid plans to deals with the degraded areas where these projects were located (worth noting that those are areas that some type of conflict already exists).[74]

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[71] Barbosa, A. de P. A., & Cândido, G. A. (2023). Sustentabilidade municipal e empreendimentos eólicos: Uma análise comparativa de municípios com investimentos na geração de energia eólica no estado da Paraíba. *Sociedade & Natureza*, *30*, 68–95. https://doi.org/10.14393/SN-v30n2-2018-4, p.86.

[72] Filho, J. T. da S., Lucena, C. R. C., Gusmão, D. M. de A., Gomes, B. N. S. P., Damasceno, J. H. B., Militão, A. H. L. de A., Viana, G. A. de V., & Leite, M. J. de H. (2019). Environmental impacts caused by solar energy photovoltaics in Brazil / Impactos ambientais causados por energia solar fotovoltaica no Brasil. *Brazilian Journal of Development*, *5*(11), Article 11. https://doi.org/10.34117/bjdv5n11-010.

[73] In https://www.paranoaenergia.com.br/noticias/2019/03/26/parque-eolico-vale-dos-ventos-completa-10-anos/. Last access: August 22, 2023.

[74] The Environmental Justice Atlas has already mapped 175 in Brazil, most of them related to extractivist activities and none related to renewable energy projects, which is symptomatic of our argument. See https://ejatlas.org/country/brazil?translate=en. Last access: August 22, 2023.

c) Chile

Chile is by far the most aggressive country in terms of speeding up the energy transition.[75]

Since 2018 the government has been pushing for a clean energy matrix, where coal is no longer the protagonist, which includes the program *Agenda de Energia*, a plan and a design to move forward with the closure of coal-fired power plants by the year 2030 as a reference point, outlining the conditions, requirements, and technical needs that will make this possible.[76]

The whole set of policies encompasses an ambitious agenda that reaffirms the significant strides Chile is taking to achieve carbon neutrality by 2050 and a 70% share of renewables in its energy matrix, aligning with the Paris Agreement and the commitments of the Inter-American Development Bank (IDB) with the region, also reflecting Chile's Vision 2025, which encompasses topics such as digital economy, climate change actions, gender, and diversity.[77]

Mainstream media, government, some non-governmental organizations, and translational companies usually portray the energy transition under a four-prone strategy: 1) harnessing renewable energies (solar, wind, hydroelectric) and embracing electric vehicles and sustainable mobility to increase energy efficiency, 2) ensuring the growth of small-scale technological applications, 3) reducing coal, oil, and gas consumption, and 4) strengthening international cooperation to develop clean and cost-effective technologies. The problem with this vision, which the Chilean government adopts in its rush for energy transition, is that the minimum requirements for a just energy transition are absent, such as environmental decommissioning for phase-out projects, and local labor and social implications.

The government declared that it will speed up its efforts to decarbonize Chile's energy system. This entails the early shutdown of four additional coal-fired power plants, including the highly industrialized Angamos 1 and 2 and Nuevas Ventanas (Ventanas 3) and Campiche (Ventanas 4) from the company AES Andes.[78] The annual CO2 emissions will drop by almost 6 million tons with the closure of the four power facilities, which is the same as removing more than 2.4 million private vehicles from Chilean roads.[79] A change has followed this trend in the legal framework that has shown a u-turn in terms of energy transition. For instance, Law 367 expressly prohibits the installation and operation of burning coal to produce energy by 2025.[80]

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[75] The country is already in a great state of environmental conflicts that worsens the scenario in which energy transition is being proposed. According to the Environmental Justice Atlas, there are 61 environmental conflicts in Chile that the majority is related to water management and extractivism of minerals. In https://ejatlas.org/country/chile?translate=en. Last access: August 22, 2023.

[76] See https://www.gob.cl/noticias/agenda-de-energia-2022-2026-conoce-la-hoja-de-ruta-para-la-transicion-energetica-de-chile/. Last access: August 22, 2023.

[77] In https://www.oecd.org/chile/chile-policy-priorities-for-stronger-and-more-equitable-growth.pdf. Last access: August 22, 2023.

[78] The decision to close the Ventanas has been taken amidst pollution and accident episodes since the 1960s, being the last and most severe in 2022, which has pushed the government to the push. See https://www.elmostrador.cl/cultura/2022/06/23/el-historial-medioambiental-de-la-fundicion-de-ventanas-un-ejemplo-del-fracaso-de-normas-y-remaches/#:~:text=La%20fundici%C3%B3n%20de%20Ventanas%20tiene,y%20fue%20fundada%20en%201964. Last access: August 22, 2023.

[79] In https://www.latercera.com/pulso/noticia/gobierno-anuncia-aceleracion-del-plan-de-descarbonizacion-se-adelanta-salida-de-cuatro-centrales-al-2025/HRYDR74Y2ZFWRPIENADNHLSEJY/. Last access: August 22, 2023.

[80] In https://www.camara.cl/legislacion/ProyectosDeLey/tramitacion.aspx?prmID=13743&prmBOLETIN=13196-12). Last access: August 22, 2023.

As reported by Dialogo Chino, despite the environmental problems that needed to be addressed and the international commitments, the Chilean government has not considered one factor in the decision: the workers: "In response to the announcement, workers at Ventanas called a strike, claiming they hadn't been consulted about the closure, which they said would result in the loss of local jobs. Finally, after days of tension, they agreed to end the protests, when the government committed to providing support for workers who would lose face unemployment."[81]

All around Latin America, what happened in Chile is being duplicated. Polluting industries must adapt as we move toward sustainable economies with reduced greenhouse gas emissions. However, experts assert that the manner in which this occurs is just as crucial as its speed in order to prevent escalating inequities.[82] The report Jobs in a Net-Zero Emissions Future in Latin America and the Caribbean made by the Inter-American Development Bank and International Labour Organization point out the case of Chile, which is representative for most of the Latin American countries, kept their specificities:

> The example of Chile reveals two key difficulties for managing the labor impacts of the transition, which is discussed more in depth in subsequent chapters of this report. One problem is that the communities where coal power plants are currently located can be significantly impacted by a phase down of coal power. In the most exposed communities, coal power represents almost 4 percent of local GDP and 7.1 percent of residents of these communities work in a coal power plant (Viteri Andrade, 2019). The other issue is that coal power plant jobs tend to pay above-average wages and come with many social benefits (e.g., health insurance, retirement benefits). Even if more jobs are created in the renewable energy sector, there is no guarantee that the jobs will be located in the same communities. Coal power plant workers employed by large electricity generators in Chile may benefit from agreements with their employers that allow them to keep their jobs and transition to other power plants in the country. This can be the case more generally for upstream fossil fuel workers employed by firms that diversify into renewable energy production. But at the territorial level, avoiding the negative impacts of the transition may require providing alternatives that translate into better working conditions in the affected communities.[83]

To make matters worse, certain regions or communities in Chile have been subjected to the detrimental repercussions of these activities in pursuit of economic growth and development, while the benefits and profits are frequently enjoyed by external companies or more privileged elements of society. The term "sacrifice zones" means that these communities are essentially sacrificed for the country's broader economic goals, resulting in social inequity, environmental

[81] In https://dialogochino.net/en/extractive-industries/363840-just-transition-what-does-it-mean-for-latin-america/. Last access: August 22, 2023.

[82] See https://transicionjusta.com/wp-content/uploads/2021/10/informe-transicio%CC%81n-justa-final.pdf. Last access: August 22, 2023.

[83] In Saget, Catherine, Vogt-Schilb, Adrien and Luu, Trang (2020). Jobs in a Net-Zero Emissions Future in Latin America and the Caribbean. Inter-American Development Bank and International Labour Organization, Washington D.C. and Geneva - https://publications.iadb.org/publications/english/document/Jobs-in-a-Net-Zero-Emissions-Future-in-Latin-America-and-the-Caribbean.pdf

injustice, and a loss of quality of life for those who live there, which now are being left to their fate due to the energy transition that is being taken elsewhere.[84]

4.Conclusion

There is no rush for energy transition in Latin America, so any pressures from developed countries should be seen with reservation as the cases demonstrated. They push for decarbonization in the region without considering the survival emissions for one side and for another, developed countries do not touch their luxury emissions based on growing consumption or the push for green consumption to put at ease their conscience.

The fact that we argue that there is no need to rush in energy transition does not mean that the countries should not engage in actions to make sure their NDCs according to the Paris Agreement should not be met or that other sources of pollution shouldn´t be attacked, such as burnings in the Amazon forest.

The energy transition in China, which is reflected in the countries' foreign policy is a source of pressure for the recipient countries, however, as demonstrated, the recipient countries have the agency to point out the priorities for the investments as programs or legal frameworks are created to regulate the vectors for the investments, which should be follow by the Chinese corporations investing in the country. In the event that legal frameworks are loose, the countries should make the necessary changes to adapt, not simply succumbing to the attractiveness of receiving money from foreign investors, which leads several developing countries to get stuck with social and environmental problems (as it happened in the Bhopal case in India).

The energy transition should be based on just premises that include environmental protection, preservation of employment, and respect for local communities' traditions and practices. Despite the fact that renewable energy production is less potentially damaging to the environment, and, thus, projects tend to produce less conflictual relations, the local communities need to be consulted, and long-term effects should be monitored. In closing: "The key to making employment and environment compatible is the just transition," said Vinicius Pinheiro, the ILO's head for Latin America. "We need a transition that ensures that the passage to a sustainable economy is done on an equitable way, guaranteeing workers have the necessary skills and means to get a job in the future." [85]

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[84] See https://dialogochino.net/en/climate-energy/42193-the-complex-energy-transition-of-chiles-sacrifice-zones/. Last access: August 22, 2023.

[85] In https://dialogochino.net/en/climate-energy/45064-chile-wants-to-close-all-its-coal-fired-power-plants-by-2025/. Last access: August 22, 2023.

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