

Cleaning Up Our Act: Accelerating
Cleantech Adoption Through
Asia-LATAM Partnership



CLEANTECH

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Environmental sustainability is today a global priority. From climate change to water pollution to declining biological diversity, it has become increasingly clear that humanity is facing a host of potentially existential threats

Top of the list, for instance, is climate change. As the world experiences increasingly frequent and intense

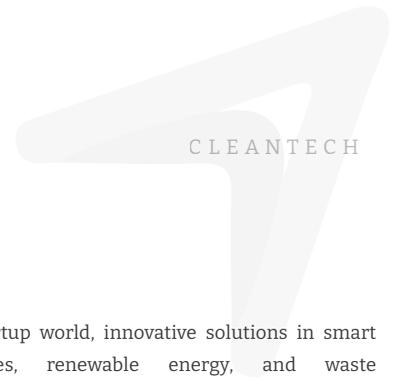
storms, droughts, heat waves, fires and a whole host of other natural disasters, global climate change is demanding our attention.

With climate change affecting the lives and livelihoods of potentially billions around the world, the World Health Organisation (WHO) has deemed it the greatest threat to global health in the 21st century¹. Since then, the international community has accelerated efforts to contain climate change's devastating effects, drawing up international agreements and policies such as the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement, and the Montreal Protocol.

The global COVID pandemic has also sent shockwaves through both the global economy and the global energy system, causing an unprecedented 6% drop in global energy demand.² With established players in coal and oil taking huge hits, the time may be ripe for renewable players to emerge as new leaders within the global markets.

At the same time, a recent report from the International Renewable Energy Agency (IRENA) outlined how renewable energy could be the cornerstone of long-term economic recovery, returning between USD 3-8 for each dollar invested.³

In the private sector, businesses ranging from large corporations to start-ups have also been increasingly investing in clean energy and clean technologies. Some of the world's largest companies including Microsoft, Apple, Tesla, Boeing, and Nike have invested, through one form or another, in sustainability initiatives⁴. In the



startup world, innovative solutions in smart cities, renewable energy, and waste management have been making major strides⁵.

Developments in Latin America and Asia

In 2016, investments in renewable energy in emerging markets overtook that of developed markets, with Latin America leading the way⁶. Mexico increased investments by 810%, Argentina by 777%, and Costa Rica aims to become the world's first carbon-neutral country by 2021⁷. A number of Latin American and Caribbean countries, including Chile, Peru, Ecuador and Costa Rica, have also pledged to achieve a target of 70% renewable energy use by 2030⁸. Despite the accelerated efforts and increasing interest in cleantech, the region's efforts over the past few years have been in general more aspirational than concrete. In addition, oil and gas producing countries like Brazil, Mexico and Argentina have resorted to doubling down on fossil fuels in attempts to boost economies battered by COVID.

In contrast, Asia is increasingly leading clean energy innovation with markets like China, for instance, seeing the largest growth in cleantech patent filings⁹. More recently, at the United Nations General Assembly in September 2020, Chinese president Xi Jinping pledged to achieve carbon neutrality by 2060 - a daunting task for the world's largest emitter of greenhouse gases wherein technology will undoubtedly play a tremendous role.

As we trudge on in the global fight against climate change, no man, island, or region can go it alone. International cooperation is the only way forward, and it is prime time for enhanced partnership between the economies of Asia and Latin America.

¹ <https://www.ipcc.ch/report/ar5/syr/>

² <https://www.weforum.org/agenda/2020/05/covid19-energy-use-drop-crisis/>

³ <https://www.irena.org/publications/2020/Apr/Global-Renewables-Outlook-2020>

⁴ <https://www.lovemoney.com/gallerylist/87987/what-the-worlds-biggest-companies-are-doing-to-save-the-planet>

⁵ <https://www.seedstars.com/content-hub/insights/rise-and-future-cleantech-industry/>

⁶ Ibid

⁷ Ibid

⁸ <https://www.reuters.com/article/us-climate-change-un-colombia/latin-america-pledges-70-renewable-energy-surpassing-eu-colombia-minister-idUSKBN1WA26Y>

⁹ <https://www.thedialogue.org/wp-content/uploads/2016/02/Clean-Energy-Innovation-in-Latin-America.pdf>



Global trends in Renewable Energy and Cleantech

Across the world, renewable energy uptake and investments in cleantech are on the rise. From 2004 to 2015, new investments in renewable energy have increased by 18%, with a higher share for developing countries for the first time in 2015¹⁰. In that same year, global new renewable energy power capacity additions reached 147 gigawatts while heat energy additions were 38 gigawatts-thermal.¹¹ Renewable energy accounted for 19.2% of global electricity consumption, with total transaction value related to renewable energy assets growing by 19%.¹²

There has been a major uptake in various forms of renewable energy that goes beyond the proof of concept stage, to mainstream use as a commercial alternative to fossil fuel based energy sources¹³. In developing regions, a growing number of international private

equity firms are setting up dedicated green energy funds and ramping up investments in the space.¹⁴ New investments in renewable energy grew by 18% (in CAGR terms) between 2004 and 2015, to US\$285.9 with a higher share for developing countries¹⁵.

Overall, we are evidencing shifting renewable energy profiles where developing regions are taking on more responsibility and showing higher levels of commitment to going green. As the spotlight focuses on emerging regions such as Asia and Latin America, it is important to understand the challenges and opportunities surrounding the clean energy sectors of these regions and what we can do to best promote cooperation for a greener future.



¹⁰. <https://assets.kpmg/content/dam/kpmg/sg/pdf/2016/11/Global-Trends-in-Renewable-Energy.pdf>

¹¹. Ibid

¹². Ibid

¹³. Ibid

¹⁴. Ibid

¹⁵. Ibid



Latam's clean energy challenges and opportunities

Latin America is home to some of the world's most plentiful wind and solar resources; Chile and Mexico have the highest solar radiation levels in the world, for instance. IRENA estimates that the current total renewable energy generation of 3138 Twh only represents 6% of the region's overall renewable power potential¹⁶, with renewable energy supplying around a quarter of the region's energy.

Renewable energy is already cost-competitive against new thermal generation in the region, unlike in others, even without public subsidies¹⁷. At the same time, the exploding middle class in the region is spiking up electricity demand, with the Global Wind Energy Council expecting electricity consumption to rise more than 70% by 2030. With global concerns over carbon emissions and climate change intensifying, especially amongst younger generations, it is unlikely that this demand will be met by traditional sources. Accordingly, IRENA expects Latin America to see an additional 131GW of installed wind capacity and 172GW of new solar capacity by 2050¹⁸.

Many stakeholders and industry observers also see cleantech as a key component of the region's economic recovery post-COVID.



As Latin American capital markets and investors grow in sophistication, many are increasingly viewing investment in clean energy as a hedge against future risks and stranded assets. Much like real estate investment, while the initial cost outlays are high, once the project is completed, it becomes a stable asset with low operating costs and extremely long-term revenue streams that can be coupled with pension and insurance obligation maturities¹⁹. In 2019, foreign investment in clean energy in Latin American countries amounted to nearly USD 12 billion, out of which USD 6.5 billion was in wind energy and USD 5 billion was in solar energy²⁰.

Some notable countries at the forefront of the clean energy movement include Paraguay, whose electricity generation is produced by 100% renewable energy sources; Uruguay, who generates around 98% of its electricity from carbon-free sources²¹; and Costa Rica, where renewable energy supplies around 98% of the electrical energy output, with wind and hydropower being the main sources. Chile has also introduced a decarbonization roadmap to be completed by 2040²², including the closure of 8 coal power plants by 2025 and the complete elimination of coal plants by 2040. Coal currently accounts for about 40% of electricity generation in the country, from a total 28 coal plants²³.

¹⁶ https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Apr/IRENA_GRO_R0_LAC.pdf?la=en&hash=1493165ED11340CC1F2681321F8D24754F0292C6

¹⁷ <https://www.atlasrenewableenergy.com/en/why-now-is-the-time-to-invest-in-latin-americas-renewables-market/>

¹⁸ <https://www.iea.org/reports/renewable-energy-market-update/challenges-and-opportunities-beyond-2021>

¹⁹ <https://www.atlasrenewableenergy.com/en/why-now-is-the-time-to-invest-in-latin-americas-renewables-market/>

²⁰ <https://www.statista.com/statistics/1109060/clean-energy-investment-latin-america-sector/>

²¹ <https://www.hydropower.org/country-profiles/paraguay#:~:text=Paraguay's%20electricity%20generation%20is%20produced,to%2060%2C000%20GWh%20per%20year.> ; <https://ratedpower.com/blog/renewable-energy-latin-america/> ; <https://mashable.com/2017/01/01/costa-rica-renewable-energy-2016/#cz0T6VNleQob>

²² <https://ccap.org/chile-launches-ambitious-decarbonization-plan-ahead-of-cop25-presidency/>

²³ Ibid



Latam's clean energy challenges and opportunities

Challenges Abound

Despite the wealth of opportunities presented by the rising renewable energy and cleantech sector, the region continues to face a host of challenges in implementing green initiatives and technological innovation. Governmental and regulatory red tape continues to obstruct important decision making processes. Across the region, electricity auctions have consistently been delayed and postponed due to inefficiencies and crises such as the COVID-19 pandemic²⁴. Regulatory roadblocks also continue to plague countries such as Mexico, limiting their ability to operate new renewable energy plants²⁵.

Poor infrastructure also restricts the accessibility of renewable energy sources. With most of the renewable resources in Latin America located in areas far away from the urban demand centres, expensive transmissions lines are required²⁶. However, most of these transmission lines

across the region are already operating at their full capacity and works are required to have them expanded further²⁷. This serves as a huge structural obstacle to the expanding clean energy initiative.

One of the most imminent challenges faced by the region is the slow progress in cleantech innovation. Latin America is home to some of the largest renewable energy markets in the world. Yet, the region trails behind across many indicators of innovation in energy and other sectors, filing fewer patents, investing less in technology R&D, and receiving far lower royalties²⁸. Latin American countries face many barriers in developing clean energy technologies such as access to capital, inadequate government incentives, and lack of industry-academia ties²⁹.

²⁴ https://www.wearefactor.com/docs/RE_LAC.pdf

²⁵ <https://www.pv-tech.org/judge-grants-temporary-block-to-mexicos-renewable-restrictions-reports/>

²⁶ <https://dialogochino.net/en/climate-energy/37701-can-renewables-push-latin-america-towards-a-green-recovery/>

²⁷ Ibid

²⁸ <https://www.thedialogue.org/wp-content/uploads/2016/02/Clean-Energy-Innovation-in-Latin-America.pdf>

²⁹ Ibid



Cleantech innovations in Asia

In recent decades, renewable energy capacity across Asia Pacific has grown steadily, and the range of technologies has diversified. The list of top 5 countries in Asia Pacific with the highest shares of renewables in total final energy consumption (TFEC) is dominated by Southeast Asia, with Myanmar, Philippines, and Indonesia exceeding 45% in 2016³⁰. Myanmar leads the way, coming in first with 68%³¹. Mainly driven by the rising incomes, industrialization, and urbanization, the energy demand in Southeast Asian countries will grow by 60% by 2040³².

In terms of investment, cleantech has already become one of the top VC investment sectors in Southeast Asia. Cleantech startups across the region have been gaining much traction in terms of recognition and funding. Cambodia based cleantech startup ATEC, whose biodigester technology helps farmers process farm

waste into free biogas for clean cooking and organic fertiliser, received a significant investment from US-based impact investor Beneficial Returns³⁵. In Singapore, smart solar power startup Third Wave Power has won multiple awards including the OCBC Emerging Enterprise Award for Sustainability in recognition of their efforts to empower rural and urban communities with their lighting solutions³⁶. Sensorflow, another cleantech startup in Singapore that focuses on hotel energy efficiency, successfully raised USD2.7M in funding for expansion in Southeast Asia and globally³⁷.

Emerging markets in Asia prove to be increasingly leading clean energy innovation with the rising number of startups and new technologies. China, for example, has seen the largest growth in cleantech patent filings in recent years³⁸. Since 2002, Asia has seen the highest growth in terms of patent applications, culminating in 83,784 applications in 2014³⁹. In contrast, Latin America has experienced little to no growth over the decade, filing only 1,308 patent applications in the same year⁴⁰.

In Southeast Asia, renewable energy sources accounted for 17% of the region's total electricity generation in 2015³³. Hydropower, bioenergy, and geothermal energy are the main contributors of the region's exponential growth in renewable power generation capacity³⁴.



³⁰ <https://www.adb.org/sites/default/files/publication/611911/asia-pacific-renewable-energy-status.pdf>

³¹ Ibid.

³² <https://www.iea.org/news/3-new-iea-reports-provide-fresh-insights-into-southeast-asias-energy-future>

³³ <https://www.adb.org/sites/default/files/publication/611911/asia-pacific-renewable-energy-status.pdf>

³⁴ Ibid.

³⁵ <https://techcollectivesea.com/2020/04/20/top-five-cleantech-startups-in-southeast-asia/>

³⁶ <https://www.thirdwavepower.com/>

³⁷ <https://techcollectivesea.com/2020/04/20/top-five-cleantech-startups-in-southeast-asia/>

³⁸ <https://www.thedialogue.org/wp-content/uploads/2016/02/Clean-Energy-Innovation-in-Latin-America.pdf>

³⁹ Ibid.

⁴⁰ Ibid.



The case for Asia-LATAM cleantech collaboration

Asia and Latin America may appear to be extremely unlikely partners at first glance, given the vast cultural differences and geographical distance. However, upon closer analysis, both regions share many similarities of emerging economies that prime them to be great collaborators.

Both Asia and Latin America are evidencing relatively high growth rates and high growth potential compared to developed regions due to the untapped nature of their markets. Both also have rapidly growing and relatively young populations that are eager to explore innovative ideas and solutions to solve society's problems. Both regions⁴¹ are also developing burgeoning ICT sectors and experiencing rising internet penetration rates that reflect a distinct ability to adopt and adapt for new tech solutions.

In the area of cleantech, both regions face similar structural challenges in the deployment of renewable energy technologies. Regulatory obstacles and infrastructural weaknesses continue to hinder the development of the clean energy sector in both regions. However, when it comes to the area of innovation, Latin America has much to gain from enhanced partnership with Asia. Asia is leading the way in terms of cleantech innovation, having seen the greatest increase in patent applications from below 20,000 in 2002 to

83,784 in 2014⁴². In contrast, Latin America has experienced little to no growth, filing just 1,308 patent applications in 2014⁴³.

This is a result of large companies occupying a disproportionate share of the clean energy space, posing an incredibly high barrier to entry for smaller potential private sector actors and dampening the development of innovative cleantech companies⁴⁴. Overall, the region has shown lacklustre performance in terms of cleantech R&D investment, private sector participation, and use of IP as a competitive advantage⁴⁵. By partnering with Asia to welcome innovative cleantech companies to the region, Latin America could enhance the competition and vibrance of the cleantech startup space and inspire local entrepreneurs to break into the arena as well. On the flip side of the coin, Latin America presents itself as one of the largest renewable energy markets in the world with a wealth of opportunities for Asian cleantech companies to tap on.

As we work towards a greener future, deeper collaboration between Asia and Latin America can help pave the way for accelerated growth in the global clean energy space and bring us closer to our collective goal of saving the earth.

⁴¹ <https://www.pv-tech.org/judge-grants-temporary-block-to-mexicos-renewable-restrictions-reports/> ; <https://theasianpost.com/article/renewable-energy-challenges-southeast-asia>

⁴² <https://www.thedialogue.org/wp-content/uploads/2016/02/Clean-Energy-Innovation-in-Latin-America.pdf>

⁴³ Ibid

⁴⁴ Ibid

⁴⁵ Ibid



About Latin Leap



Latin Leap is a unique Venture Capital Studio that aims to soft-land purpose-driven tech scale-ups in Latin America. With a focus on tech scale-ups from Asia, Latin Leap provides a full suite of soft-landing services to facilitate expansion in the Latin American region. Latin Leap's viable soft-landing model connects expanding businesses to the relevant corporate, public sector, media, and talent networks in Latin America while helping them navigate regulatory procedures and localize their operations - particularly crucial in the healthcare space, which is intrinsically very local.

Latin Leap is an official in-market consultant for Colombia of Enterprise Singapore and a proud member of the Singapore Venture Capital Association. With strong roots in the Singaporean start-up ecosystem, Latin Leap is in a prime position to serve as a gateway to Latin America for Southeast Asian tech companies looking to set foot in the region.

Internationalize your business and expand your network with us!

Latin Leap is looking to partner with promising tech scale-ups that are ready to embrace the vibrant Latin American market, as well as fellow investors and venture capital studios that want to participate in the exciting market growth in Asia and Latin America.

Whether you are a tech company seeking to internationalize in the Latin American region, or a venture capital firm looking to expand your network and portfolio of companies, we would love to hear from you! For healthtech start-ups specifically, reach out to us at accelerate@latinleap.vc and for any other start-ups, reach out to us at contact@latinleap.vc.

For more information on Latin Leap, visit our website at <https://latinleap.vc/>.