



## International Dialogues Panel

Patents and Public Policies for  
the Green Transition in  
Latin America and the Caribbean



The Center of Strategic Studies and Management (CGEE) publishes publications on various topics that affect the agenda of the National System, Technology and Innovation (SNCTI).

The editions are aligned with the Center's insitutional mission to subsidise decision-making processes on Science, Technology and Innovation issues, through strategic research and evaluation based on a broad partnership.

The publications bring results from some of the Center's major work, within approaches such as food production, human resource training, sustainability and energy. They're all free for *download*.

The institution also produces the magazine Strategic Partnerships, which presents contributions from SNCTI actors to strengthen the area in the country.

You're getting one of these publications, but you can get access to the Center's entire asset through our website: <http://www.cgee.org.br>.

Good reading!



# **International Dialogue Panel**

## Patents and Public Policies for the Green Transition in Latin America and Caribbean

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Executive Summary



Brasília – DF  
2023



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# International Dialogues Panel Patents and Public Policies for the Green Transition in Latin America and the Caribbean

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Executive Summary

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# Summary

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<b>Presentation</b>	<b>7</b>
<b>1. Methodological Roadmap</b>	<b>9</b>
Objectives of the <i>Webinar</i>	9
Programming	10
Dynamic of the <i>Webinar</i>	10
<b>2. Product</b>	<b>11</b>
Opening	11
<b>3. Presentations</b>	<b>13</b>
Block 1 – Supporting Green Transition and Innovation	13
Additional Block 1 Considerations	19
Block 2 – Green Patent Projects and Public Policies	20
Additional Block 2 Considerations	23
<b>References</b>	<b>25</b>
<b>4. Next Steps and Closing</b>	<b>27</b>
Appendix A – Moment Questions	27
Appendix B – List of participants	28
Appendix C – Photographic Record	31
Appendix D – Presentations Made Available	34
Block 1 – Supporting Green Transition and Innovation	34
Block 2 – Green Patent Projects and Public Policies	51
<b>List of acronyms and abbreviations presents in this publication</b>	<b>60</b>







# Presentation

The Center for Strategic Studies and Management (CGEE), a social organization supervised by the Ministry of Science, Technology and Innovation (MCTI), promoted, on November 22, 2022, the *International Dialogue Panel – Patents and Public Policies for the Green Transition in the Regional Scope of Latin America and the Caribbean*. The event took place in partnership with the National Institute of Industrial Property (INPI) and was supported by the Latin American Network of Innovation Agencies (ReLAI).

The *Webinar* brought together experts from Latin America for an exchange of information and experiences on green patents, with the aim of promoting dialogue on Sustainable Development, Innovation and Climate Change. The online event had the simultaneous participation of over 150 participants on the Zoom platform, among speakers, organizers, collaborators and audience, and provided simultaneous translation into English and Spanish.

The following pages provide general information about the event and the results of the collective dialogue. This record does not necessarily bring the literal transcription of the speeches of the speakers and the participants, but the free synthesis and systematization made by the rapporteur.

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**International Dialogue Panel  
Patents and Public Policies for the Green Transition Latin America and the Caribbean**

# International Dialogues Panel Patents and Public Policies for the Green Transition in Latin America and Caribbean

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## 1. Methodological Roadmap

### Objectives of the *Webinar*

- Bring together experts from Latin America to exchange informations and experiences on green patents and promote dialogue on Sustainable Development, Innovation and Climate Change.

## Programming

Schedule	Activity/
9h	<b>Opening and Welcome</b> Presentation of the event <b>Jean Campos</b> – CGEE Moderation <b>Nelson Cruz</b> – Indecopi Opening <b>Fernando Rizzo</b> – President – CGEE <b>Júlio César Castelo Branco</b> – Director of Administration – INPI <b>Daniella Fartes</b> – Technical Advisor – CGEE
9h20	<b>Support for green transition and innovation</b> <b>Carlos Mussi</b> – Director ECLAC Office in Brasilia <b>Matteo Grazzi</b> – Expert in the Competitiveness and Innovation Division – IDB <b>Peter Oksen</b> – Green Technology and Research Manager – WIPO GREEN
9h50	Open Debate
10h20	<b>Green patent projects and public policies</b> <b>Nelson Cruz</b> – Specialist in the direction of inventions and new technologies of the National Institute of Industrial Property of Peru – Indecopi <b>Júlia Hoppstock</b> – Counselor at the National Direction of Multilateral Economic Negotiations – MRECIC <b>Paz Osório</b> – Technological Surveillance Unit Coordinator – Inapi <b>Fernando Cassibi</b> – Researcher in IP from the International Relations Coordinator – INPI
10h50	Open Debate
11h30	Closing

## Dynamic of the Webinar

Guided by a reflective approach from dialogues, the methodology of the Webinar “*Patents and Public Policies in favor of the Green Transition in the Regional Scope of Latin America and the Caribbean*” was based on dialogic presentations and debate. The entire process was carried out *online* by the Zoom application and is available on the CGEE’s Youtube Platform (CGEE, 2022a).

The first stage started with the welcoming remarks and was followed by six 10-minute presentations by experts in the field of green patents and innovation. The presentations were divided into two blocks: Supporting the green transition and innovation, and green projects and public policy. Each round of presentations was followed by a space for debate – with questions submitted via the application’s Q & A and *chat*. The event was moderated by Nelson Cruz, expert in the direction of inventions and new technologies from the National Institute of Industrial Property of Peru (Indecopi), and was presented by Jean Campos, from CGEE. It is noteworthy that a brief presentation of the Peruvian context was also made at the beginning of the second block, by the moderator of the event.

The registration of the event was done by means of a specialized report, and this report presents the main results of the event, which had about 150 participants *online*, among speakers, organizing and support staff, and audience

## 2. Product

### Opening

**Fernando Rizzo**

*Director-president – CGEE*

The event was opened by the CEO of the Center for Strategic Studies and Management (CGEE), who began by greeting all partners and participants present at the *Webinar*. The team of CGEE's Positive Agenda on Climate Change and Sustainable Development started its work with patents in 2021, with the ISES (Innovations in Sustainable Energy Solutions) report on renewable hydrogen (CGEE, 2022b). In 2022, the subject of patents began to be explored, also, in the project *Energy Big Push 2.0* (CGEE, 2019), in order to seek indicators to assess the evolution of innovation and sustainable energy solutions in Brazil, with a view to expanding Inova-E platform (EPE, 2021) - operated by Energy Research Company (EPE)-. Still, it is highlighted the development of an ISES report on the evolution of fuel cells foreseen for 2023. At the end of speech, it was wished a good event to all.

**Júlio César Castelo Branco**

*Director of Administration – INPI*

The representative of the Brazilian National Institute of Industrial Property (INPI) thanked the invitation for the Webinar and greeted the various speakers, collaborators and participants. The theme of the Webinar was cited as a very sensitive and fundamental theme for all countries, especially those present at the event. In this sense, the BPTO has been contributing to the search for technologies that mitigate environmental impacts and damage to the environment, and that generate other means to achieve a more sustainable society.

**Daniella Fartes**

*Technical Advisor – CGEE*

CGEE's Technical Advisor thanked everyone for the opportunity to exchange experiences and learn about the Webinar topic, and then gave a brief explanation about CGEE's experience with patents.

CGEE, as a social organization linked to the Ministry of Science, Technology and Innovation - MCTI, has, as one of its main activities, to develop strategic studies for the decision-making of various actors in the National System of Science, Technology and Innovation. Given this, it is important for the Center to know more about the subject of patents and its available data, so that more useful information can be brought to the decision makers. In this sense, several technical areas of CGEE are developing studies

on patents, data collection and treatment, including some specialists of the Positive Agenda for Climate Change and Sustainable Development, who are organizing this event.

As an example, the ISES report was cited, which dealt with the topic of renewable hydrogen, the dialogues about patents, dialogues about green hydrogen from the previous year, the research of articles, and other means that allowed to follow and understand which technologies are at the development level and which are consolidated. In the scope of the Energy Big Push project, with ECLAC (Economic Commission for Latin America and the Caribbean) and EPE, a partnership has been carried out where the patent data is part of the strategic information of the project, and where it is hoped that, as a result, more investments will be made in sustainable energy solutions. Furthermore, it is worth mentioning that work about fuel cells was also carried out, seeking information for the improvement of the technology and for the decision makers. At the end, all the participants were invited to follow the CGEE's website (CGEE, 2022a) and its events and announced the planning for the development of more patent studies by CGEE.

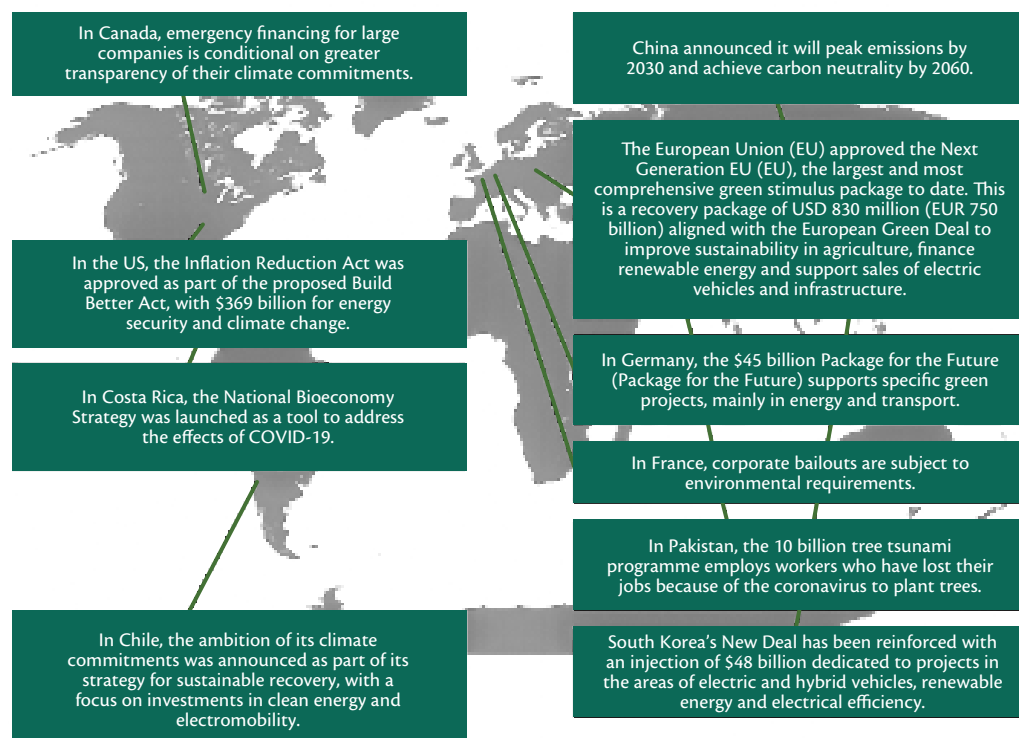
### 3. Presentations

#### Block 1 – Supporting Green Transition and Innovation

Carlos Mussi

Director of ECLAC Office in Brasilia

The creation of patents was a first degree of state intervention in innovations, protecting them and stimulating their development by increasing inventors' rights. More related to sustainability, it is emphasized that society is in a singular moment, where the environmental issue is gaining prominence. There is an effort by several countries to implement green strategies for economic recovery, especially after 2008 and the Covid-19 pandemic. Besides introducing the green issue as a stimulus for the growth of economies, this issue is also used as a norm in the face of climate change. Despite not being a dominant component of the economy, the theme already inserts innovation capacity and stimuli to several sectors and technologies.



Mapa 1 – Global Green Recovery Strategies

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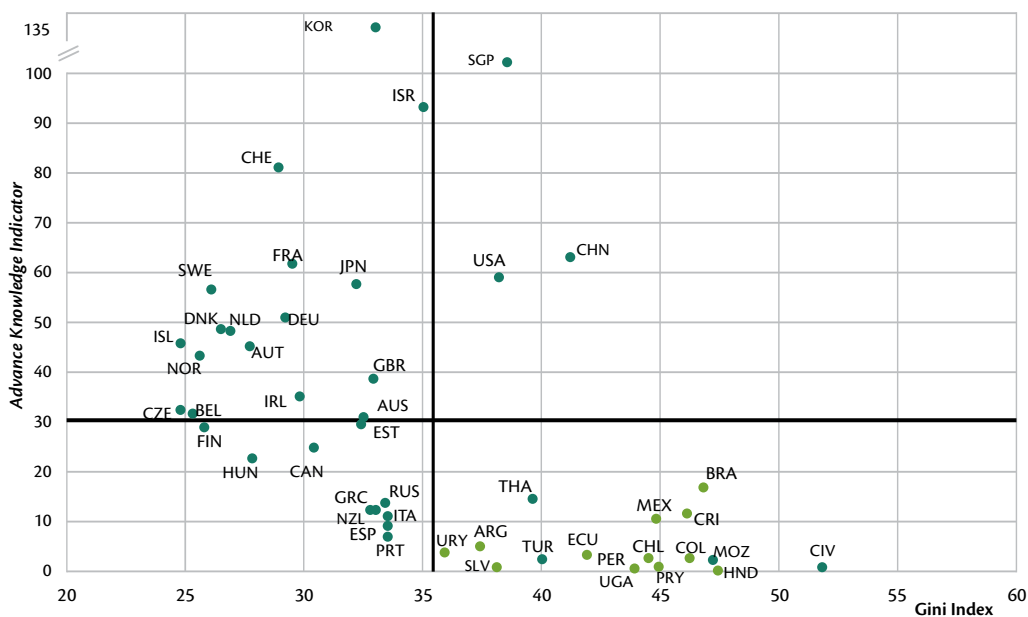
In this context, ECLAC has been making an effort to develop a project entitled “Big Push for Sustainability”, based on three guiding efficiencies: 1) Schumpeterian efficiency, with productive diversification, with knowledge- and learning-intensive processes that are able to radiate technological change and innovation throughout the economy; 2) Keynesian efficiency, seeking to act in rapidly expanding domestic and international markets, allowing for gains in scale and scope that accelerate the economy and multiply jobs; and 3) Sustainability efficiency, which enters aspects of social-institutional justice (including participatory and conflict resolution mechanisms), long-term economic viability, and environmental sustainability. The Big Push approach is based on pillars for new development styles, broad policy coordination, complementary investments at scale, and impacts.

The pillars for the new development styles are based on triple efficiency (mentioned above), on national vocations and aspirations, as well as on mechanisms to face global challenges. Policy coordination must involve all spheres (public, private, community) at all geographic and sectoral levels, including actions, measures, strategies, programs, funds, and other initiatives. Investments, which should be more mobilized in a policy alignment scenario, should focus on infrastructure, technologies, and sustainable practices, and there should be complementarity among types and sources of investments. Finally, the approach foresees impacts on socioeconomic aspects, with the reduction of structural gaps, on environmental aspects linked to the recovery of natural capital and reduction of greenhouse gas emissions, and the increase of technological and innovative capacity, as well as the development of production chains. This would generate a change in the style of development as a whole.

In these pillars, it is observed that innovation is a central element, one of the great opportunities, of the Big Push for Sustainability in Latin American and Caribbean (LAC) countries. It is a means to develop the region’s technical solutions, to reduce the costs of transition to low carbon and sustainable economies, and also to retain in the countries the socio-economic benefits of technological transition. Innovation acts by reducing negative environmental externalities (e.g., contaminant emissions, waste) and generating positive ones, with spillovers, feedbacks, and increased productivity and competitiveness. Investment is needed in this area, so that the ecological transition is not made through imported technologies and products, with exportation of income, jobs and investments. Here it is worth pointing out that there is evidence that the more diversified and complex economies, from the technological point of view, have greater capacities to reduce emissions, and that socioeconomic inequalities limit the accumulation of capacities. However, it is important to analyze the incorporation of technologies in this technological progress.

In 2020, ECLAC observed the presence of an empty quadrant in the graph below, correlating the knowledge intensity in the economy of some countries and their GINI index, which is also reflected in the issue of patent generation. Environmental patents are predominantly in OECD countries, and although there are advances in the LAC region, there is still much to be done, highlighting several warnings from CGEE regarding the low levels of investment in CT&I (Science, Technology and Innovation) in Brazil.





**Gráfico 1** – Countries selected: Knowledge intensity in economy and GINI index

**Source:** ECLAC based on F. Solt, 2020, *The standardized World Income Inequality Database*.

At the end, several points were cited in order to renew the strategic role of industrial and STI policies, aiming to promote the Big Push for sustainability: 1) Place CT&I policies as central to industrial policy; 2) Act according to the strategic role of CT&I in competitiveness, inclusion and sustainability (Ecoinnovation); 3) Integrate CT&I policies to the government agenda, considering the demands of society; 4) Strengthen productive chains, preferably functional to regional and sub-regional integration; 5) Prioritize support for experimental R&D (Research and Development) to solve specific challenges, without prejudice to the development of general specific capacities; 6) Promote the articulation of the various sectors of society and the strengthening of the formulation, implementation and evaluation of public policies in the sector. Investments in capacity building must be seen as an essential way to generate quality jobs. In addition, the need for further risk analysis on the subject was highlighted, and the work developed on green patents by ECLAC and the various Webinar partners was emphasized.

**Matteo Grazzi**

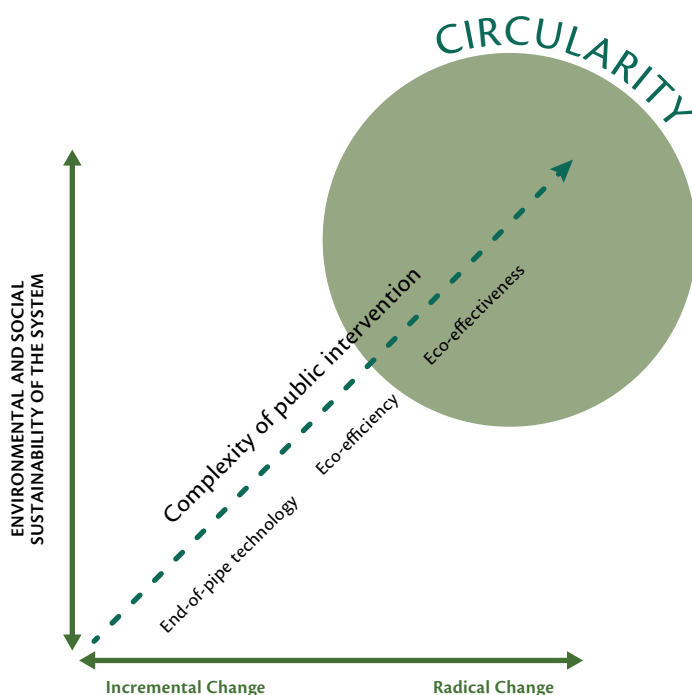
*Specialist in the Competitiveness and Innovation Division – IDB*

Green innovation has been gaining a lot of relevance, but policy makers end up using several variations of the term, such as Eco innovation, sustainable innovation, among others. According to the European Commission (2010) (CE, 2011), the term refers to all forms of innovation that create business opportunities and benefit the environment by preventing or reducing impacts and optimizing the use of resources. Green innovation would be the way to break the dichotomy between conservation and economics, and a basis for other more sustainable economic models, such as the circular economy and sustainable growth. Broadly speaking, four types of green innovation are defined: product (e.g., new bio-detergents), process (e.g., new waste management system), organizational (e.g., new department to lead topic), and marketing (e.g., eco-labels and labels).

The impacts of this transition linked to green innovation would be diverse. Market growth of almost 7% is estimated due to green innovations; in Europe the added value of green innovation is already around 2.2% of GDP (Gross Domestic Product); and it is estimated that circular economy models could deliver a value of \$4.5 billion between 2021-2030. Particularly in relation to the need for economic recovery post-Covid-19 pandemic, one study noted that out of nearly 700 initiatives, measures aimed at promoting green and circular economy were those with the greatest potential for short-term returns.

To measure the performance of green innovation in Latin America, the IDB (Inter-American Development Bank) conducted research on the measurement frameworks in the world and found that these were not adapted but directly used in the Latin American region. In this sense, a selection of indicators was then made in four areas: 1) Enabling factors, which include environmental regulation, availability of complementary technologies, and innovative climate; 2) Inputs, linked to human capital, research, and investment and financing; 3) Activities and results related to business innovation and entrepreneurship; and 4) Socioeconomic and environmental impact. Among the indicators that already have data, imports of environmental goods and services, inputs to innovation, patents in environmental technologies as a percentage of total patents, and waste impact were cited. This definition of indicators is important because of the IDB's need to formulate policies based on evidence, not just formulate and measure their implementation impact.

In terms of policy design, it can be observed that the complexity of public intervention is usually as great as the ambition of the impact that the policy achieves. If a radical change is being sought, one must think about eco-efficiency, more efficient use of resources, and see how this change in economic model can be achieved, which involves acting on the determinants and barriers of green innovation. These determinants and barriers involve factors internal and external to the company, mediated by regulations and standards, and programs and policies. Internal factors include the costs and benefits of adopting green innovation, internal knowledge and human resources, financial and physical resources, and reputation and cooperation. External factors include the influence of consumers, financial institutions, and other stakeholders.



Fonte: apresentação do webinar.

Regarding public policies for green innovation, these can be supply, demand or systemic policies. The supply policies are related to the promotion of green innovation, subsidies, technical assistance, among others, while the demand policies are related to the consumer and the needs of the State. On the other hand, the systemic instruments make the innovation system have a better development, being the WIPO Green (WIPO, 2013) (The Marketplace for Sustainable Technology) of WIPO (World Intellectual Property Organization) one of these examples.

Within the IDB, four areas of activities are being worked on. The first is related to knowledge, measurement, and research, since there is not much knowledge and scientific data on the subject. The Bank aims to promote this topic to better understand the dynamics involved for innovation, with research on management models for decarbonization scheduled for 2023. A second area, which is a classic of IDB activity, is that of capacity building and policy dialogue. Currently a policy workshop is being held and a course is being designed for the development of policy instruments to support circular economy and innovation development for next year. Also, the implementation and finalization of public policies based on technical dialogues with governments, and the inclusion of an environmental focus in all the projects that the bank finances is underway. There is an institutional mandate that at least 30% of the investments must be for mitigation and adaptation, and 40% for environmental issues. In each of the bank's operations there is the obligation to identify how the resources can be used in environmental issues, observing the issues of supply, demand, articulation of policies, instruments, and the system. And, finally, it also seeks to raise awareness in the region of operation, through public events, blogs, articles, and other informative materials.

Peter Oksen

*Green Technology and Researcher Manager – WIPO Green*

The World Intellectual Property Organization (WIPO), one of the 15 UN agencies, and active since 1967, is focused on the issues of innovation, creativity, and intellectual property, supporting a global intellectual property system through 23 international treaties. WIPO Green, a green technology matchmaking platform, connects global needs and challenges, such as climate change, food security, and other environmental problems, with green technologies and solutions. Recently, in the framework of COP-27, the report “WIPO Green Technology Book 2022 - Solutions for climate change adaptation” was launched (digital version) (WIPO, 2022), which aims to present technological solutions to specific problems linked to climate change adaptation.

The report focuses on three areas identified as most challenging now - Agriculture and Forests, Water and Coastal Regions, and Cities - demonstrating some available technology solutions. These are divided into proven solutions, frontier solutions, and horizon solutions, expected in the next 3-5 years. Overall, the report is not an academic study, but a catalog of solutions to generate inspiration and see what can be implemented as a solution. There is a presentation of the companies related to the solutions (and their contacts), but there is no connection of the project with these, nor have any tests been performed on the technologies. In addition, the report provides a direct link to the WIPO Green Database, which gives more details of the companies and solutions, as well as allowing users to enter information about other solutions, demonstrating what is available and inspiring people. Now there are about 3000 entries in the Database, 127,000 articles on the subject, and a patent registration tool (Patent2Solution). This tool uses artificial intelligence to map the use and existence of patents.

Another WIPO initiative is the LAC project - Climate Smart Agriculture (WIPO, 2020) , which includes Argentina, Chile, Brazil and Peru, identifying needs and solutions in forestry, sustainable agriculture, soil re-carbonization, no-till farming and the wine sector. Launched in 2019, this network has created a strong network of partnerships, fruit of the more than 200 actors contacted, 185 entries in the database, 70 needs and 115 possible solutions identified.

A third example of initiative concerned acceleration projects in China and Indonesia. In the latter country, the project involved building a catalog of technology solutions for the palm oil industry, funded by Australia, FIT and WIPO Green. Here 19 needs and 24 solutions were identified for methane capture, biogas, solid separation for fertilizers, biodiesel, among others. At the end of the presentation, countries that have not yet defined their representatives at WIPO Green (which supports Intellectual Property - IP offices) were asked to do so via e-mail<sup>1</sup>. WIPO Green provides support in the design and implementation of green technology initiatives in their national systems. In all, 13 concept notes and a sequence of Webinars have been produced.

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<sup>1</sup> E-mail for nominating representatives: [ipogreen@wipo.int](mailto:ipogreen@wipo.int)

## Additional Block 1 Considerations

- The technological transition is essential for energy sustainability. When we talk about green innovation, one of the most affected sectors is energy production, but depending on the sector we talk about (wind energy, solar energy), there are more embryonic or emerging technologies.
- Regarding regulations and certification of products aimed at the green market, one of the important points of debate is the privatization of Eletrobrás, and the role of ANEEL (National Agency for Electrical Energy) and other institutions in this new arrangement. Here it will have to be clearly defined what green innovation is, and the INPI and the EPE (Brazilian Energy Planning Company) have been working on this front with the CGEE. The period now is one of technological transition, but also of normative transition, and we must wait for definitions from the new government regarding the continuity of the transition process, the new norms, and the issues of institutional coordination, challenging especially in federative countries the size of Brazil.
- Still on the theme above, it is highlighted that the main aspect to be examined is environmental governance, and how mechanisms for evidence-based policies are created in the technology business. The inclusion of the environmental issue always implies losses that often impact and plaster the governance process.
- The theme of the bioeconomy has many approaches and definitions, but within the innovation system it is seen to use biological resources to ensure a sustainable economy based on technological progress. Specific to the Amazon, such a unique ecosystem, one must always remember important words for the sustainability of the area, such as research, innovation, technology, institutions, coordination, and governance.
- To achieve more efficient governance in the Amazon area, it is necessary to better track changes on the ground. Today there are several satellites and remote sensing techniques used around the world for monitoring land use change and fires.
- Among the technological solutions for decreasing the consumption of fossil fuels in machinery in soy monoculture, the following were cited: replacement of older machinery for more efficient ones, changes in the type and use of fertilizers, precision farming, reduction in energy consumption, etc.
- WIPO Green does not monitor the companies or the contact between technology seekers and providers.

## Block 2 – Green Patent Projects and Public Policies

**Nelson Cruz**

*Specialist in the Direction of Inventions and New Technologies of the  
National Institute of Industrial Property of Peru – Indecopi*

Currently, all countries are involved in the problem of climate change, and, in this sense, innovation offers an opportunity for the main actors to combat it. Among the strategies adopted by Peru to stimulate innovation is a national contest that rewards the best green-patent inventions. In the area of public policies, there is a growing movement to speed up patent procedures. And, finally, a multilateral project is underway with Argentina, Brazil and Chile, which will be addressed by the next presenters, representatives of these countries. At the end, it was emphasized that it is necessary for everyone to have clear objectives in order to face climate change, both individually and collectively, with more efficient technological solutions for a greener future.

**Júlia Hoppstock**

*Advisor to the National Direction of Multilateral Economic Negotiations – MRECI*

The WIPO Green Project (or WIPI Green) has participation from Argentina, Chile, Brazil, and most recently Peru. In Argentina, the project has been running since 2019 with the focus of promoting sustainable agriculture in the country, including themes of intensification of crop rotation, soil re-carbonization, direct seeding, carbon sequestration, and water use efficiency, aiming at adaptation to climate change.

This choice of theme is due to the fact that the sector contributes to the priority of hunger elimination and poverty eradication and is particularly vulnerable to the effects of climate change, thus being able to contribute to the 2030 Agenda, Paris Agreement and other goals. The latest FAO report (FAO et al., 2022) highlighted that in 2021 there was an increase in hunger of 150 million people in the world (now with about 828 million people). In this sense, in order to meet the demand for food and in the face of climate change, the challenge is to increase food production under different climatic conditions, requiring the use of appropriate technological solutions.

In its first phase (until April 2020), the project aimed to identify national needs and solutions with the support of consultants and WIPO. The second phase (2020-2021) promoted the expansion of a collaborative network between national demands and technology suppliers, in collaboration with WIPO and the consultancy. In this phase a sector study on sustainable agriculture was carried out with the collaborating countries.

The current phase, the third phase, has the objective of mapping technological projects and offers in the National System of Science, Technology and Innovation, identifying needs and offers, matchmaking, events, among others, with the support of the government of Japan. It is noteworthy that several national agencies participate in the process, to deepen the survey on technological needs and identify possible offers and solutions; establish connections with other relevant networks and intensify cooperation with the WIPO Green database.

As results achieved, it was cited the preparation of a report with information on the technological needs identified, including those related to satellite issues, biotechnology, risks, etc.; technological offers, with the inclusion of information on seeds, agricultural machinery, biotechnology, satellite monitoring, viticulture, water efficiency, others; and a matchmaking part. In addition, partnership letters were signed between the Argentine Forestry Association and WIPO, as well as data uploaded to WIPO Green's base about the national technological needs and developments in Argentina, giving them visibility.

Among the next steps within the project was cited its continuity with a view to promoting innovative technologies for environmental and food security challenges, facilitating the link between needs and offers, mainly in the most important sectors for the regional economy (viticulture, horticulture, fruit growing, forestry). The promotion and transfer of technologies to the productive sector is essential in the post-pandemic economic recovery. Additionally, besides this matchmaking process, it is sought to foster cooperation with regional partners, develop sectorial studies, promote actions to increase the visibility of the project's database, and an approach with development banks and international organizations, so that they can assist in the transfer and diffusion of technologies related to the project.

**Paz Osório**

*Coordenator of the Technological Surveillance Unit – Inapi*

The INAPI (National Institute of Industrial Property) is an agency responsible for services related to intellectual property in Chile, aiming at its protection and the dissemination of the technological collection and information available on the subject. The agency contributes to the Government of Chile's innovation strategy, generating efficient systems for the use and protection of intellectual property rights, and promoting innovation, entrepreneurship, and knowledge transfer.

The WIPO Green Project has been developed in Chile since 2019, but with a different theme than the one previously presented, being more focused on the wine industry. In a first stage of the project, with support from ANAGEA consulting (which worked with all the countries), a partnership with the Wines of Chile Consortium was carried out, as well as letters of intent agreed with several wineries. Here green solutions were also researched, later introduced in the WIPO Green website. In the second stage, there was a greater focus on the issue of viticulture, which was developed in partnership with the consultancy IALE Tecnología. In this stage updates and deepening of the previous patent research were carried out, and a survey of technological needs and available sustainable solutions was done, cataloging a total of 26 solutions, organized into 5 categories. This stage generated a catalog of green technologies for the wine sector from WIPO Green. The third stage, just started, and that will also count with the newly selected IALE Tecnología for consulting and the support of an inter-sectoral



committee, will focus on the impact of technologies in the Chilean industry. Here we will seek to identify the needs of industries and how to promote technology transfer in the selected industries.

Regarding green technologies in Chile and Public Policies, the country has been showing important advances regarding climate change, with the government mainly prioritizing the area of climate change mitigation in many of the public policies (CHILE, 2022) - REP Law, Climate Change Framework Law -. The REP Law, from 2016 (CHILE, 2016), but effective only as of 2023, creates a mechanism where disposal is included as part of production processes, while the Climate Change Law aims to maintain greenhouse gas emissions neutrality until 2050, creating cross-cutting governance across all ministries, sectors, and regions, including public participation.

It is emphasized that a new development model is necessary considering the country's challenges, inequality, and lack of diversification. Chile is an extractive country, with copper as its main product, and it is necessary, in addition to increasing production, to move forward with the various challenges and reduce GHG emissions, allowing the transition to an economy that prioritizes the environment, job creation, sustainability, gender equity, and territorial development. At the moment there is an effort for the creation of a National Lithium Industry and the promotion of the production of Green Hydrogen, which are an opportunity to move from an extractive economy to a knowledge-based economy, where ST&I can fulfill its role (with the Ministry of Science and Technology working on knowledge and the Ministry of Economy on the development and use of patents).

For INAPI, WIPO Green is a priority project, and it has created greater interlocution with the Ministries of Economy, and with the Ministry of Finance and Economy of Chile, besides the other actors in the innovation system. In this sense, INAPI has also been invited to be a relevant actor in the policies that are being implemented, besides acting as an advisor in any discussion related to intellectual property. All this work has drawn the attention of ministries and several experts on the subject of green policies, green energy, lithium, among others. The INAPI and WIPO Green partners will be collaborating on a Pilot Program in 2023, with the goal of using patent information as input for a new model of economic development. The partnership between the various countries in Latin America and the Caribbean will be essential throughout this process.

**Fernando Cassibi**

*Researcher in IP from the International Relations Coordinator – INPI*

The INPI's Green Patents Program was initiated in 2011 after an international benchmarking that pointed out priority initiatives of patent offices for green initiatives, being the first initiative in this area in the American continent. This initiative was well received in the Institute, but it also generated concern since climate change and sustainability are essential for human survival, and the issue of patents is essential in the face of these challenges. Thinking about patents means thinking about commercialization, about business, but it has to be economically feasible for the industry to be able to produce on a large scale, a growing challenge in terms of green patents.



In this scenario, the partnership with WIPO Green since 2013 is strategic, having been strengthened from the beginning of the LAC Acceleration Project in 2019 (WIPO GREEN, 2020). Along with Argentina and Chile, Brazil accepted the challenge, listing the no-till area as a priority for 2020-2021. Five players sought technologies in this topic, with 10 needs and 21 technologies identified. Furthermore, business rounds were held as an additional product to the insertion of technology by the project's stakeholders.

An important product within the WIPO Green coordination was a round of sector studies on innovative and green technologies, with Chile, Argentina and Ecuador partnering on the themes of sustainable agriculture and waste management. In addition, each country also pointed out and developed secondary themes appropriate to their needs. The sector studies here are seen as tools to be used in various ways, as inputs for decision makers in industry and government, providing an overview of the patenting status of technologies. A study on renewable energy has recently been released, and one on green hydrogen will soon be released.

Regarding Green Patents, the program was started in 2012 around the identification of priorities in the theme, and soon became to have 6 axes of action (training and capabilities; dissemination; expansion of partnerships; publications and studies; matchmaking; and business round). It is worth noting that training and capacity building are essential for any patent office seeking to be able to examine advanced green technologies. In the case of Brazil, the office was very impacted with delays in internal processes (backlogging), subsequently there is a great need to move quickly to deal with the cutting-edge technologies. The training issue should also be extended to other government officials and key decision makers on the topic. It is noteworthy that the scope of the green technology theme in Brazil is defined by regulations, and includes the themes of sustainable agriculture, waste management, energy conservation, transportation and solar energy.

The INPI Business Program, of 2020, was the basis for phase 2 of the acceleration project and the business rounds. Here 22 initiatives were carried out, including the negotiation of a memorandum of understanding for the establishment of innovation networks and business rounds. As a result, it is expected that there will be an increase in co-authored patent applications between Brazilians and foreigners, and/or transfer of technological contracts in the green technology sectors, as well as an increase in knowledge of the sector's capacity for innovation and solutions.

And finally, the INPI and WIPO Green, together with several partner actors (CEPAL, Euroclima+, European Union, Danish Cooperation) will conduct a multilateral round of business in green technology in 3 sectors (sustainable agriculture, waste, renewable energy, and a specific deployment for green hydrogen). The challenge is open to all interested projects and the rounds should start in 2022, with INPI acting only as a promoter of the negotiations.

## Additional Block 2 Considerations

- The world today demands green hydrogen as a vector for energy transition, and there is a quest for scale to secure climate targets. However, there is still great demand for the development of green hydrogen solutions for industrial issues and they need to be supported.

- In Chile, the main challenge today is related to climate change and the targets that have been set. For this, society needs to act quickly, and the technological options must be quickly implemented, with their development coming from basic research, using the technologies already available, and seeking partnerships between government and private sector, agencies, states, and various actors that can act in this transition.
- The university and INAPI relationship in Chile are fundamental, and has involved collaboration, technology exchange, capacity building, transfer offices, and other areas and initiatives for many years.
- In Brazil, the relationship between patent offices and universities is old, but also part of a vision of the future. The INPI has a department that conducts a close dialogue with universities. It is worth pointing out that the model adopted in the country is distinct, because in each university there are technological training centers, created by specific law that aims to support the patenting of technologies with the INPI. The work of the business round at the INPI also led to an innovation in the relationship, seeking now also to understand how the centers can be assisted, where they need financing, among other demands.
- In Argentina, the partnership of universities in WIPO Green stands out, especially from the second phase of the project. Here the formation of networks and links with technology and innovation support centers were sought. The idea is that the universities can also visualize in the projects with small producers of viticulture/horticulture/fruit growing, the existing demands and can glimpse what needs to be developed in the future.

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## 4. Next Steps and Closing

### Appendix A – Moment Questions

1. “Are there technological solutions to fossil fuel consumption for monocrop machines in soybean fields?”
2. “On the WIPO Green webpage is there any tracking of the advancement in green patenting, and tracking of what is being implemented in terms of green material?”
3. “I would like to better understand the correlation between the issue of energy sustainability and the issue of technology transition, with a focus on emerging technologies like 5G and its corresponding technologies.”
4. “How are the issues of regulation and certification of products aimed at the green market? We have Law 10.438/2002 that created PROINFA (BRASIL, 2002), and decree 5.882 of 08/31/2006 (BRASIL, 2006) gives Eletrobras the competence and right to regulate and market what is produced by PROINFA (correct?). We also have the bill 581/21 that creates the MBRE (BRASIL, 2021). Any future forecast for regulation in Brazil?”
5. “How does bioeconomy enter within the known and widespread concepts of green innovation? How do you use the concepts for the Amazon?”
6. “What are the types of sustainable energy that should be adopted by countries? Is there a consensus at the global level?”
7. “At the International Maritime Organization, we are working on measures that can promote technological development and the availability of low- or zero-emission alternative fuels for shipping. Some of the proposals involve the creation of compulsory funds for investment in research and development in projects for technology that are already well advanced for maritime transport. One of the criticisms presented is related to the Intellectual Property of this developed technology, because in theory there would be double payment. Initially, the compulsory contribution of the fund by market-based measures, such as taxing the use of fossil fuels or cap-and-trade, and later the payment for the acquisition of this new technology. - Would there be any mechanism that could relax the patents of the technology developed, so as to facilitate technology transfer to other countries?”
8. “At some point Latin America will start to export Hydrogen to the world. Is there any concern about extracting the tritium ( $^3\text{H}$ ) produced together in the process before selling the Hydrogen? Are financial resources available for stimulating nuclear fusion in Latin America?”
9. “The world today demands Green Hydrogen as an energy transition vector and seeks ways to ensure production at sufficient scale to meet climate goals. However, there is a great demand to develop solutions and applications of Green Hydrogen whether in urban mobility or industrial processes. How can you support the development and R&D of these applications?”

10. “Given the current regulations in place in Brazil, what would be the impact of patenting technologies and products? For example, fuel cells or financial products.”
11. “How does INAPI see interaction with Universities and other knowledge sectors in the future? Would it be of interest to respond to local/global demands and identify capabilities?”

## Appendix B – List of participants

N	Name	Organization	Country
1	A T	–	Ecuador
2	Adriana Marinho	CNPq	Brazil
3	Agustin Tomás	ReLai	Argentina
4	Ai Ren Tan	INÖ	Brazil
5	Alejandro Falkner	Enel	Spain
6	Alessandra Diniz Coelho	INPI - Brazil	Brazil
7	Alfonso Navarro Carvallo	EliteSDGs Business Consulting	Peru
8	Aline Albaneze	MSc student in Materials Science and Technology	Brazil
9	Aline Nobre	Ministry of Education (MEC)	Brazil
10	Alvaro Werneck	Green Rio	Brazil
11	Amanda Coelho	Anglogold	Brazil
12	Amanda da Silva Sá Teles	Bank of Brazil (BB)	Brazil
13	Ana Vásquez	National Research and Innovation Agency of Uruguay	Uruguay
14	Ana Beatriz Abreu Santa Marinha	INPI	Brazil
15	Ana Beatriz Gorini da Veiga	Federal University of Health Sciences of Porto Alegre (UFCSA)	Brazil
16	Ana Claudia Dias de Oliveira	Abifina and IPI Patents	Brazil
17	Ana Lúcia Paulo da Silva Paulo da Silva	MEC	Brazil
18	Ana Luísa dos Santos Azevedo	MEC – CGEGES/DDES /SESu/MEC	Brazil
19	Ana Paula Moccellin	Federal University of Santa Maria (UFSM)	Brazil
20	Ana Paula Moreira	MEC	Brazil
21	Anabela Mariel Zabala	Cba I+E Agency	Argentina
22	André Furtado	Unicamp	Brazil
23	André M Nunes	Zane	Brazil
24	Angela Greenhalgh	ONS	Brazil
25	Antonio Carlos Villalba Codorniz	Apex-Brazil	Brazil
26	Ariel Safr	National Agency for Research and Innovation	Uruguay
27	Arturo Vicente	Promoter	Costa Rica

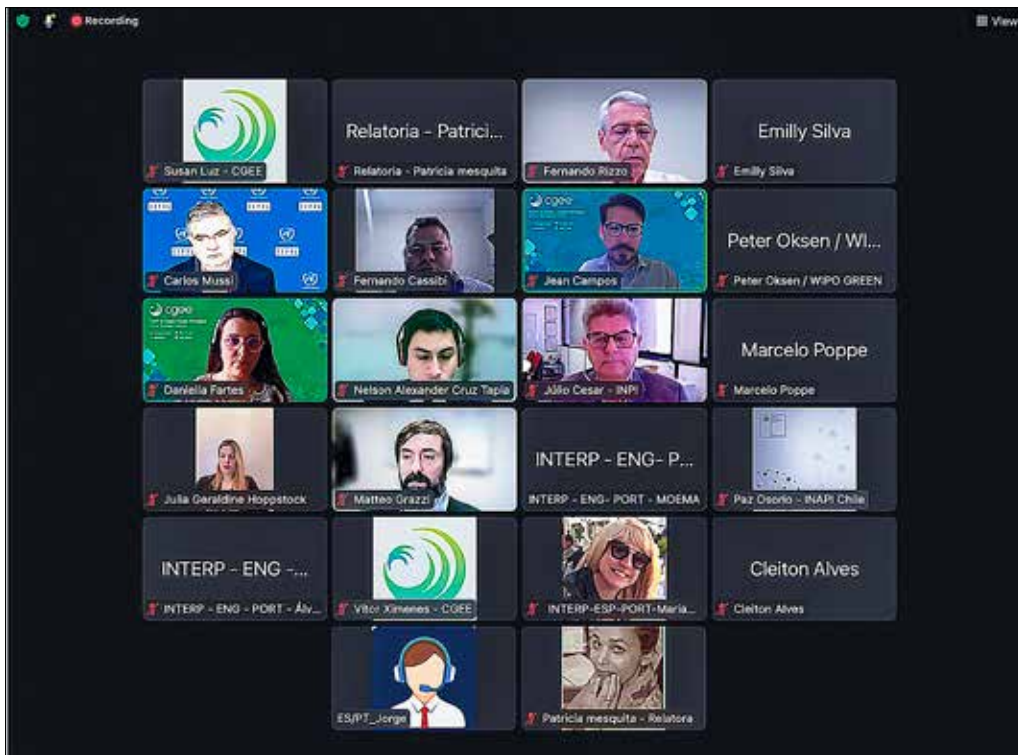
N	Name	Organization	Country
28	Astrid Criaes	CONCYTEC	United States
29	Bárbara Marques	UFPE	Brazil
30	Bárbara Sobreira de Moura	Gusmão & Labrunie	Brazil
31	Beatriz Camacho	Indecopi	Peru
32	Beatriz Santos	–	Brazil
33	Breno Santos	IFSP	Brazil
34	Bruno Alves Mundim	Predictive	Brazil
35	Camila Castro	USP	Brazil
36	Camila Chaves Santos	INPI	Brazil
37	Camila Ferraz	EPE	Brazil
38	Carla de Freitas Figueiredo	Oxitenio	Brazil
39	Carla Patrícia Guimarães	National Institute of Technology	Brazil
40	Carmen Sanches	Aneel	Brazil
41	Carolina Epifanio	USPTO	Brazil
42	Carolina Fernandes	IFUSP	Brazil
43	Catalina Roig	Agency I+D+i	Argentina
44	Catia Regina Pinho Gentil Silva	Licks Attorneys	Brazil
45	Cicera Angelina	NIT Unila	Brazil
46	Cleiton Evandro Corrêa Pimentel	Objetiva's Eagles of Adventure Standard	Brazil
47	Cristian Hernandez	MICM	Dominican Republic
48	Cristiana Dobre	IBICT	Brazil
49	Cristiane Fernandes Gorgulho	INPI - Brazil	Brazil
50	Cristiane Pereira	Espaço Multiplicidade/Ibrachics/Assespro DF/Codese DF/Codese GO	Brazil
51	Cristine Elizabeth Alvarenga Carneiro	UFOB	Brazil
52	Daniel Gallegos Chávez	AIC - Ecuador	Ecuador
53	Daniel Teotonio do Nascimento	UNILA	Brazil
54	Débora Justino	Inatel	Brazil
55	Deuzanira Lima dos Santos	–	Brazil
56	Diana Marcondes de Paula	Di Clasi Parente & Associados	Brazil
57	Diego Reyes	UdeC	Chile
58	Dione Vitor Santos	Ministry of Science, Technology and Innovations (MCTI) <sup>2</sup>	Brazil

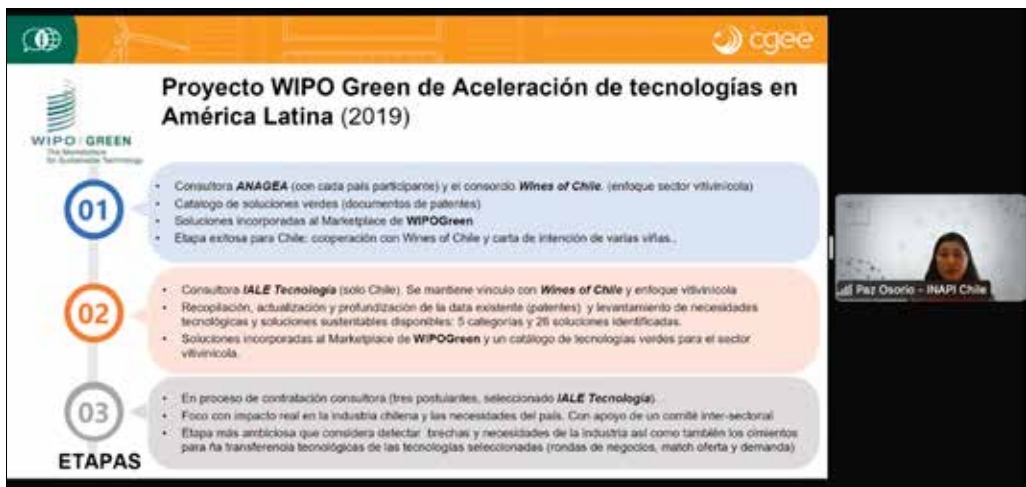
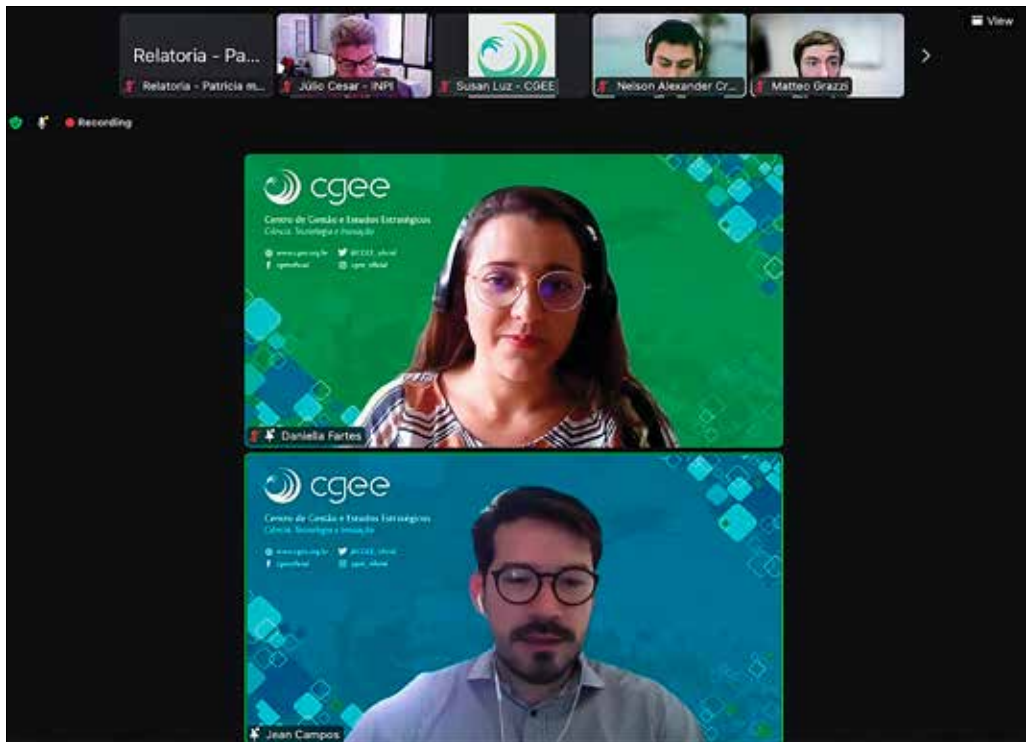
<sup>2</sup> At the time of the event, that was the name of the Ministry. However, due to the Provisional Measure 1154, dated January 1st, 2023, the name of the Ministry was changed back to Ministry of Science, Technology and Innovation (in Portuguese, MCTI).

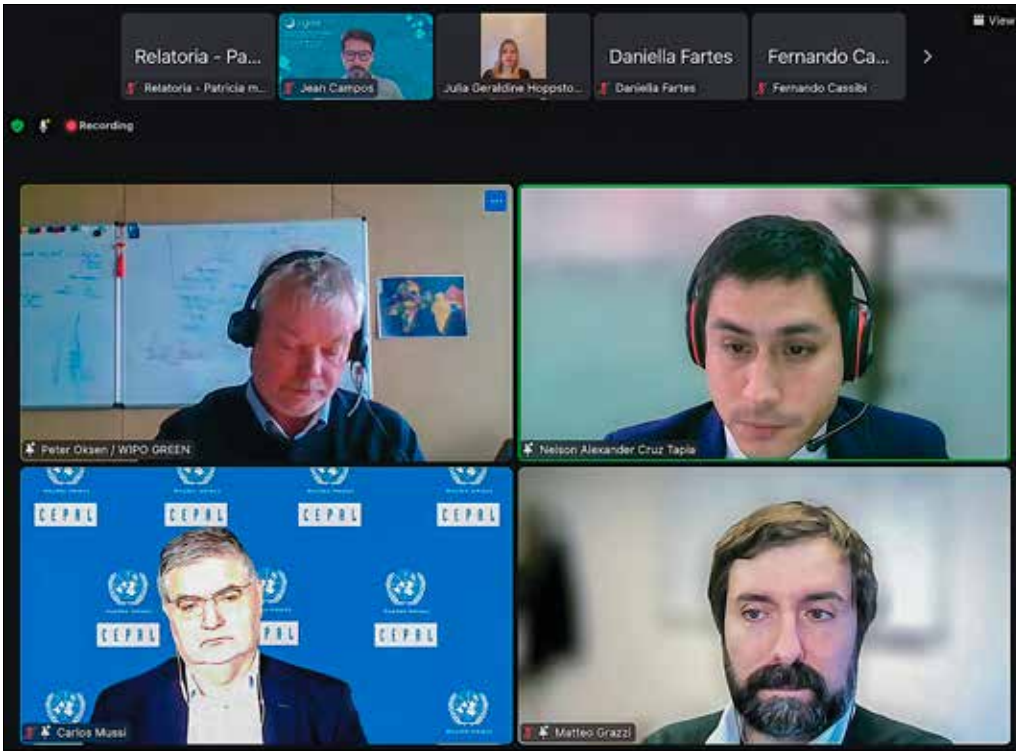
N	Name	Organization	Country
59	Diony Carbajal	Alide	Peru
60	Edi Braga	INPI	Brazil
61	Edilson Niehues Rodrigues Lima	UnB	Brazil
62	Edilson Pedro	MCTI	Brazil
63	Edina Dorilda de Oliveira	Federal University of Latin American Integration – Unila (NIT-Unila)	Brazil
64	Edirce Peres	Technopolis Development Foundation (Funtec)	Brazil
65	Edmeia Tereza Gardenghi Adorno	Secretary of Education of Barrinha/SP	Brazil
66	Edna Milena Bautista Rodriguez	Superintendence of Industry and Commerce	Colombia
67	Eduardo Moresi	CGEE	Brazil
68	Eileen Frodden	Inapi	Chile
69	Elaine Cristina Ruby	–	Brazil
70	Elaine Nehme	CGEE	Brazil
71	Elaine Ruby	INPI Brazil	Brazil
72	Eliana Dias	Damapel Paper Industry	Brazil
73	Eliana Maria Cruz Ramos	MCTI	Brazil
74	Eliane Bahruth	Finep	Brazil
75	Erica Robin	International Energy Agency	France
76	Erika Almeida	Superintendency of Amazon Development (Sudam)	Brazil
77	Evellen Vitória Alves	Federal University of Western Bahia	Brazil
78	Fernanda Basso	USP	Brazil
79	Fernando Fernandez	IPT	Brazil
80	Flávia – NIT	Federal University of Viçosa (UFV)	Brazil
81	Flavio Caiafa	ANII	Uruguay
82	Flavio Mathuiy	Brazilian Navy	Brazil
83	Francisco	PI3T Consulting	Brazil
84	Francisco das Chagas Magalhães	Nutec Ceará	Brazil



## Appendix C – Photographic Record







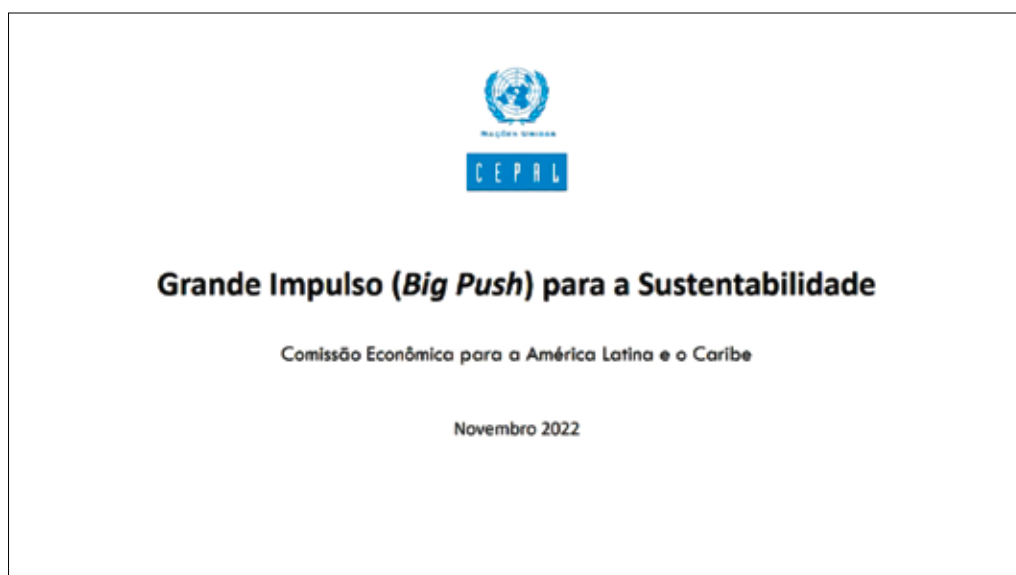


## Appendix D – Presentations Made Available

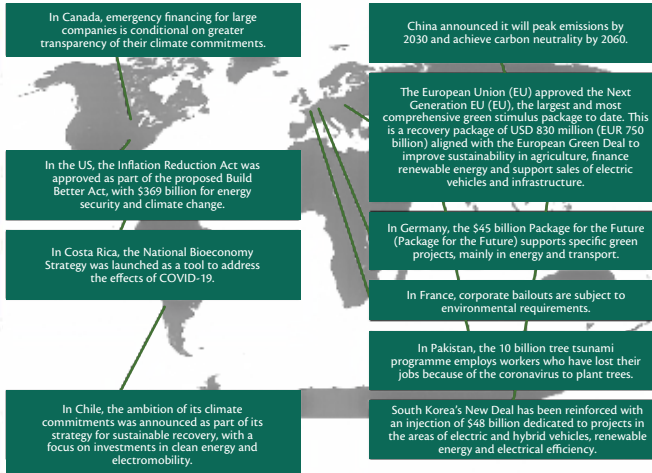
### Block 1 – Supporting Green Transition and Innovation

Carlos Mussi

Director of ECLAC Office in Brasilia - ECLAC

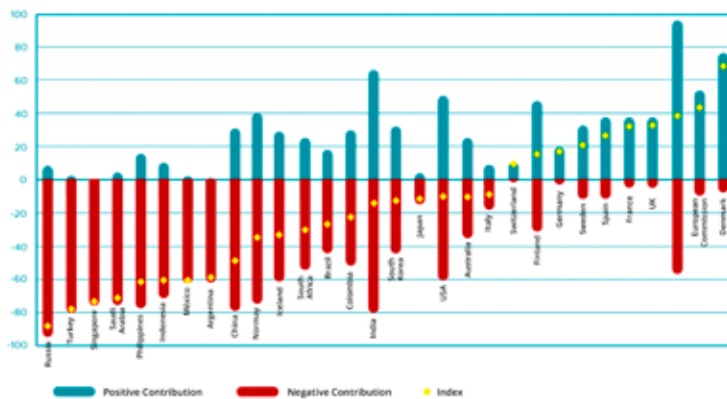


## O mundo está apostando em estratégias verdes de recuperação



## Os estímulos fiscais “verdes” alcançam ~US\$ 1,8 trilhões, mas não são dominantes

Figure 1 | Greenness of Stimulus Index



Source: Vivid Economics using a variety of sources, consult annex B for the entire list of sources  
Note: Updated on 30 June 2021

Fonte: Vivid Economics (2021), "Greenness of Stimulus Index" (online) <https://www.vivideconomics.com.br/casesstudy/greenness-for-stimulus-index/>



Caminhos para transformação do modelo de desenvolvimento nos países da América Latina e Caribe

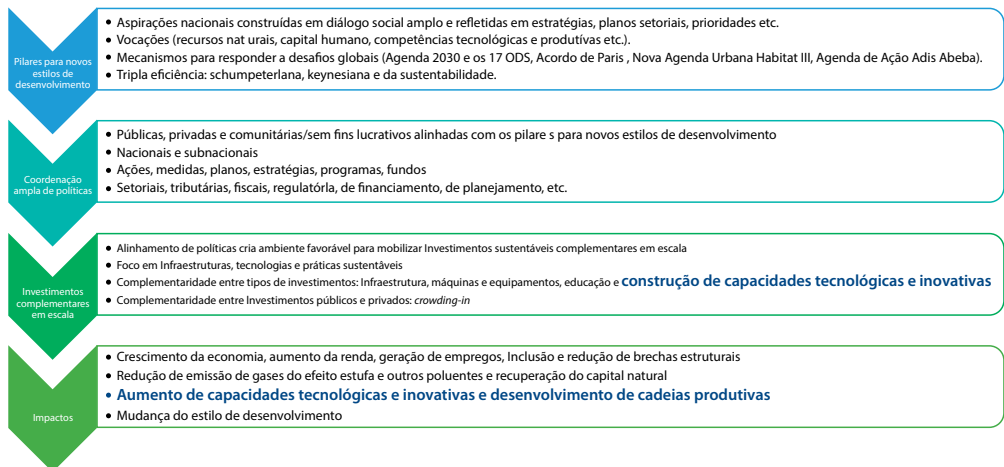
Grande Impulso (*Big Push*) para a Sustentabilidade

## Três eficiências norteadoras

### *Big Push* para a Sustentabilidade

- **Eficiência schumpeteriana**
  - Diversificação produtiva com processos intensivos em conhecimento e aprendizado, que seja capaz de irradiar a mudança tecnológica e a **inovação** por toda a economia.
- **Eficiência keynesiana**
  - Atuar em mercados em rápida expansão doméstica e internacional, permitindo obter ganhos de escala e escopo que aceleram a economia e multiplicam empregos.
- **Eficiência da sustentabilidade**
  - Justiça social-institucional (mecanismos participativos e de resolução de conflitos), viabilidade econômica de longo prazo e sustentabilidade ambiental

## A abordagem do *Big Push* para a Sustentabilidade



**Construção de capacidades  
endógenas**

**A inovação é central no *Big Push* para a Sustentabilidade**

## A inovação é uma das grandes oportunidades para o Grande Impulso para a Sustentabilidade nos países da América Latina e do Caribe

Atua simultaneamente sobre duas externalidades

- Reduz externalidade negativa ambiental (emissão de contaminantes, geração de resíduos etc.)
- Gera externalidades positivas da inovação (spill-overs, efeitos de retroalimentação, aumento de produtividade e competitividade)

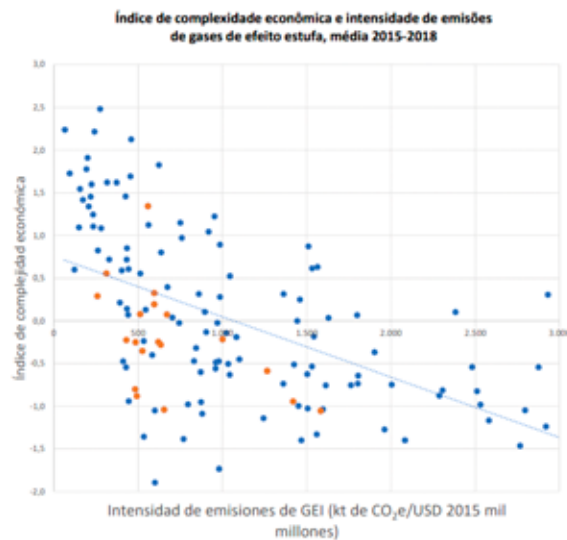
A inovação é chave, pois ela é o meio para:

- Desenvolver soluções técnicas adequadas à realidade da região
- Reduzir os custos da transição para economias baixas em carbono e sustentáveis
- Reter nacionalmente os benefícios socioeconômicos da transição tecnológica.

É a inovação e a construção de capacidades tecnológicas e produtivas que faz da transição ecológica uma oportunidade de desenvolvimento

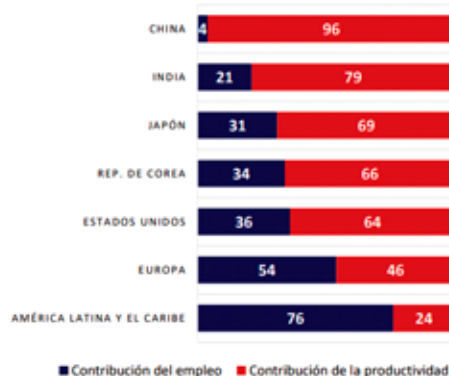
- Sem investimentos nessa área, a transição se dará por meio de tecnologias e produtos importados, transferindo para o exterior os multiplicadores de geração de renda, emprego, investimentos etc.

As economias mais diversificadas e complexas tecnologicamente desenvolvem capacidades para reduzir emissões

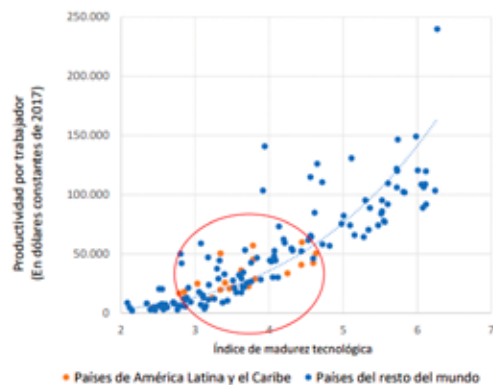


## No entanto, o conhecimento não tem sido motor de crescimento na região

Países e blocos selecionados: contribuição da produtividade e do emprego ao crescimento, 2019

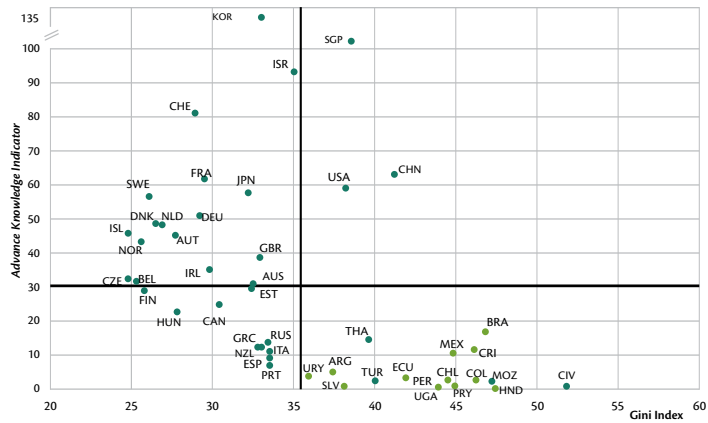


Países selecionados: Produtividade e maturidade tecnológica, 2018-2019



## As desigualdades socioeconômicas limitam a acumulação de capacidades

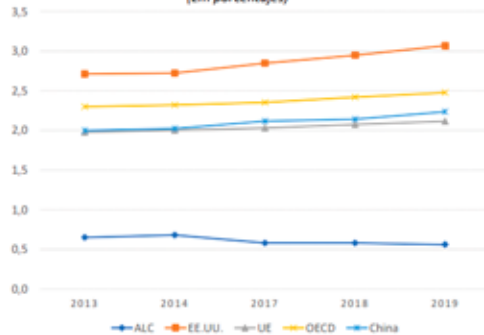
Paises selecionados: Intensidade de conhecimento na economia e índice de GINI, 2020



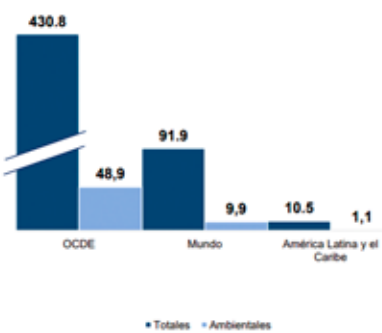
Fonte: CEPAL con base en F. Solt, 2020, "The Standardized World Income Inequality Database."

## Existem esforços em materia de inovação e ecoinovação, porém há brechas claras com economias avançadas

América Latina e Caribe e países e blocos selecionados:  
 Gasto em P&D em relação ao PIB  
 (Em porcentajes)



Patentes totais e ambientais por cada 1.000.000 de habitantes  
 (2010 a 2018)



## O Big Push para a Sustentabilidade:

### Em síntese






## Renovar o papel estratégico das políticas industriais e de ciência, tecnologia e inovação


- Políticas de ciência, tecnologia e inovação são centrais para a política industrial
- Atuar de acordo com o papel estratégico da ciência, tecnologia e inovação na competitividade, inclusão e sustentabilidade (ecoinovação).
- As políticas de ciência e tecnologia e a alocação de recursos devem estar integradas à agenda governamental e levar em consideração as demandas da sociedade.
- Investir no desenvolvimento de capacidades em ciência, tecnologia e inovação é essencial para gerar empregos de qualidade.
- Fortalecimento de cadeias produtivas preferencialmente funcionais à integração regional e sub-regional.
- Priorizar o apoio à pesquisa e desenvolvimento experimental para resolução de desafios específicos, sem descuidar o desenvolvimento de capacidades científicas mais gerais.
- Articulação essencial de empresas, governo, academia e sociedade civil: arranjos institucionais para fortalecer a formulação, implementação e avaliação de políticas.

## Mais informações


Hacia la transformación del modelo de desarrollo en América Latina y el Caribe: producción, inclusión y sostenibilidad




O Big Push para a Sustentabilidade




Repositório de casos sobre o Big Push para a Sustentabilidade no Brasil



Investimentos transformadores para um estilo de desenvolvimento sustentável: Estudos de casos de grande impulso (Big Push) para a sustentabilidade no Brasil



Página do Escritório da CEPAL no Brasil para informações sobre projetos e estudos em áreas específicas (energia, mobilidade etc.)



# Obrigado

[www.cepal.org](http://www.cepal.org)



## 4 tipos de innovación verde



PRODUCTO



PROCESO



ORGANIZACIÓN



MARKETING

## ¿Cuál es el impacto?



El crecimiento del mercado impulsado por la innovación verde se estima en casi un 7% anual



En Europa, el valor agregado de la innovación verde es de aproximadamente el 2.2% del PIB



Los modelos de economía circular pueden proporcionar un valor de 4,5 billones de dólares de aquí al 2030

## ¿Cómo medir la innovación verde en ALC?



### FACTORES HABILITADORES

- Regulación ambiental
- Disponibilidad de tecnologías complementarias
- Clima innovador

### INSUMOS

- Capital humano
- Investigación
- Inversión y financiación

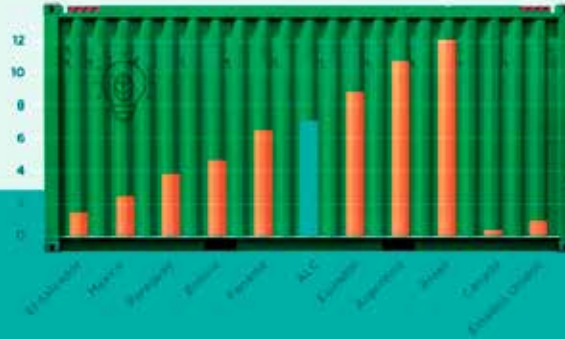
### ACTIVIDADES Y RESULTADOS

- Innovación empresarial
- Emprendimiento

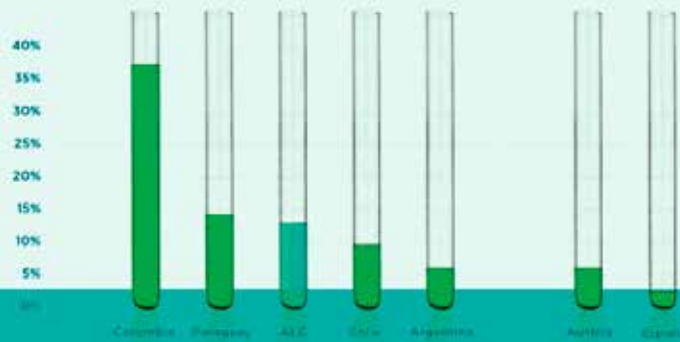
### IMPACTO SOCIO-ECONÓMICO

- Impacto económico
- Impacto ambiental

### Factores habilitadores: Aranceles a importaciones de bienes y servicios ambientales (% total de tarifas)



### Insumos para la innovación verde: I+D en temas ambientales (% total I+D)



### Resultados en innovación verde: Patentes en tecnologías ambientales como % del total de patentes



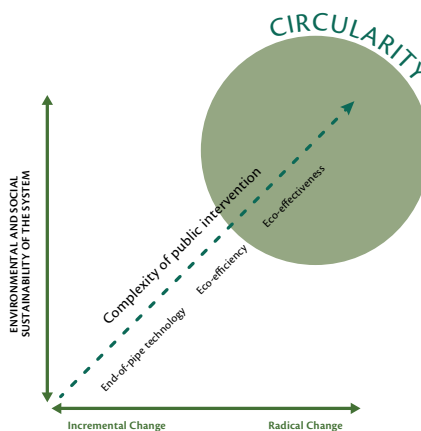


## Impactos socio-económicos: Desechos (en gramos por USD de PIB)



## De las tecnologías al final de tubería hacia la eco-eficacia

La complejidad de la intervención pública crece con la radicalidad del cambio del sistema



## Determinantes y barreras a la innovación verde



# Políticas públicas para la innovación verde



**DE OFERTA**



**DE DEMANDA**



**SISTÉMICOS**

## El BID y la innovación verde en ALC

- Conocimiento**
  - Medición
  - Investigación
- Capacitación y dialogo político**
  - Talleres para hacedores de política
  - Formación de emprendedores
  - Identificación de soluciones tecnológicas para los sectores creativos
- Políticas publicas**
  - Dialogo técnico con gobiernos
  - Diseño e implementación de programas
- Awareness**
  - Conferencias, talleres y eventos públicos
  - Blogs y materiales informativos



## ¡Muchas gracias!

Matteo Grazzi | [matteog@iadb.org](mailto:matteog@iadb.org)  
 División de competitividad, tecnología e innovación  
 Banco Interamericano de Desarrollo





### World Intellectual Property Organization (WIPO) and WIPO GREEN

- WIPO, UN agency for innovation, creativity and intellectual property (IP)
- Support a just global IP system through 23 international treaties
- WIPO GREEN - Green technology matchmaking platform
- Connects needs with green technologies and solutions for global challenges

The block contains a screenshot of the WIPO GREEN website on the left, which displays the platform's mission and a "What is green technology?" section. On the right is a photograph of the WIPO building, a modern glass structure with a curved facade, surrounded by flags.

### WIPO Green Technology Book 2022

#### Solutions for Climate Change Adaptation

This section features a large QR code for more information. To its right is a collage of images: a woman in a white dress sitting in a green field, a satellite in space, a city skyline, and a beach with waves. The WIPO logo is visible in the bottom right corner of the collage.

At the bottom left, there are logos for the Ministry of Scientific Research and Technology and CTCN (Climate Technology Centre and Network).

WIPO FOR OFFICIAL USE ONLY



“The human capacity to innovate will enable us to survive”



Jamaica Tourism Minister, BBC 8Nov2022



WIPO

### Problems – Solutions

- When you encounter a problem, you look for solutions
- Impacts from climate change are increasingly a problem
- We point to solutions
- Adaptation is complex and highly varied
- Technology can provide some of the solutions - and is available
- But uptake is too slow and we need adaptation action now



WIPO

### The Green Technology Book shows solutions - a digital first publication



WIPO



# 3 Technology areas: Agriculture & Forestry Water and Coastal Regions, Cities



## Chapter 3 Agriculture and forestry

Climate change is leading to multi-billion dollar losses in crop yields and affecting the health of forest ecosystems. Technology can help farmers and forest managers monitor crop and forest health, adjust their practices, use resources more efficiently and manage climate risk.



This chapter presents solutions within agriculture and forestry that respond to climate change impact on food security. It includes proven, frontier and horizon technologies ranging from local and indigenous techniques to urban farming, hydroponics and high-tech digital solutions. Sections look at a suite of technologies for climate-resilient plants, healthy soils, irrigation, livestock and forest protection. Because the right information at the right time can be vital, the chapter concludes with early warning systems and solutions for monitoring and forecasting climate change impact.

### Explore technologies



WIPO

# 16 Technology sections



WIPO

Home / Publications / Intellectual Property / Agriculture and Forestry

## Chapter 4: Agriculture and forestry Farming technologies

Since the Green Revolution of the 1960s, technologies change has played a key role in sustaining agricultural productivity and resilience. Faced by an increasingly complex climate landscape, innovations such as aerial farming and precision farming are attracting interest. The world is on the cusp of what is termed to be a fourth agricultural revolution.



Proven technologies

WIPO

# Examples and Proven, Frontier & Horizon groups



- 1. Proven
- 2. Frontier
- 3. Horizon



### Proven technologies



UV 84%  
1%  
15 MPH



### Frontier technologies

### Horizon technologies




WIPO

## Individual solutions

**WIPO**

2 | Free public, artificial intelligence (AI)-based technologies

**Smartphone control of alternative energy powered irrigation system**




The founder of the Tech Innovator company, Akshay Mishra, has developed a remote-controlled irrigation system adapted to the semi-arid conditions of Niger in West Africa. It introduces the concept of digital farms and tele-irrigation in support of agricultural development in the country. The company provides farmers with tools enabling them to move away from manual watering and reduce water waste. The system uses mobile devices to farmers can manage irrigation remotely and efficiently. It also integrates hydrologic and meteorological data to farmers can optimize water usage.

- Connecting type: For sale
- Technology level: Medium
- Country of origin: Niger
- Availability: Niger

**WIPO**

4 | Novel and novel | Patent | Hydro equipment | Remote management

**Artificial reefs**




Neptune's patented device for artificial reefs uses flexible composite. The soft rope matches the all levels of the ecosystems targeted and provides a good substrate for marine life, allowing it to grow naturally. The structure is equipped with a concrete structure to a floating design to ensure stability with increasing surface area for coral. A special attachment is also equipped with stones has been designed for the secure placement of the artificial reefs and sea life. In addition to soft reef installation, the flexible soft rope can be used for other reef installation, wave attenuation and erosion control. Structures can be designed to fit along the length of government, these artificial reefs attached to the sea bed. The aim is to keep the concrete part of the marine base and thereby retain the artificial reefs during extreme weather conditions. More than 50,000 reefs have been deployed along the US coast.

- Connecting type: For sale
- Technology level: Medium
- Country of origin: United States
- Availability: United States

**WIPO**

3 | Novel | Innovation and service | Process technology

**Decentralized water treatment and storage systems**



Availability of water self-infrastructure can be enhanced through decentralized water treatment and storage systems. Treating water at point of use can reduce water treatment costs (3-50 gallons) and reduce exposure to drinking water in a potable treatment. Also decentralized water storage can be used to store. Water management is important in an emergency situation. However, it is very costly. The problem is that decentralized water self-infrastructure requires solutions for remote locations. Water treatment systems are built into open shipping containers. To improve and also production of high and installation cost. The technology has been developed for use in remote and rural areas. But similar solution could potentially be used in emergency situations. For example, toilets and handwashes which contain water supplies may be damaged or contaminated.

- Connecting type: For sale
- Technology level: Medium
- Country of origin: United States
- Availability: United States

## Direct link to the WIPO GREEN Database



**Smartphone control of alternative energy powered irrigation system**

**WIPO GREEN Database**

**WIPO**

## WIPO GREEN Database a central tool

- Free UN-based public database
- Major repository of innovative green technologies and needs
- Automatic matchmaking
- AI-based search functions
- 127.000 articles
- 3000 user uploads
- Simple registration and upload

**Collections**

WIPO GREEN Database

WIPO GREEN Database

WIPO GREEN Database

**FEATURED ARTICLES**

14 Jun 2023

14 Jun 2023

14 Jun 2023

WIPO FOR OFFICIAL USE ONLY



## LAC Climate Smart Agriculture project

- Argentina, Chile, Brazil, Peru
- Identify needs and propose solutions
- Sustainable agriculture, forestry, soil-recarbonization, zero-till, wine sector
- Launched 2019, created strong network of partners
- More than 200 stakeholders contacted, 185 uploads to database, 70 needs and 115 technologies
- Third phase starts Nov. 2022



## Catalogues – widespread inspiration for others

### GREEN TECHNOLOGIES

Dealing with the negative effects of climate change in the Chilean wine industry

### Annex 1: Identified needs and seekers

**Technological 10:**

- 1. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.
- 2. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.
- 3. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.
- 4. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.
- 5. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.
- 6. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.
- 7. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.
- 8. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.
- 9. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.
- 10. Lack of water and increase in soil acidity:** Includes a section on 'Alternative Family Wines'.

## Acceleration Project Indonesia

- Technological Options for Treatment & Valorization of POME in Indonesia
- Methane capture, biogas, solid separation for fertilizer, biochar, biodiesel, biohydrogen etc.
- Launched early March 2021. Winrock International implementing partner
- 19 needs & 24 technologies
- Solutions oriented technology catalogue
- Funded by Australia FIT & WIPO GREEN

### TECHNOLOGICAL OPTIONS

For the Treatment and Valorization of Palm Oil Mill Effluent (POME) in Indonesia

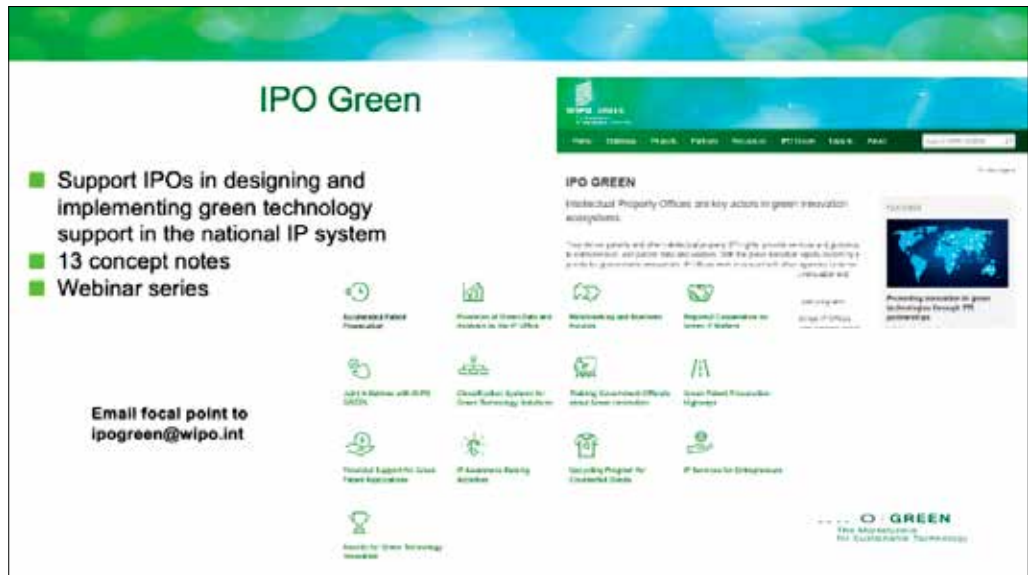
### BIOGAS SCRUBBERS

### Palm Oil Mill Effluent - POME

# IPO Green

- Support IPOs in designing and implementing green technology support in the national IP system
- 13 concept notes
- Webinar series

Email focal point to [ipogreen@wipo.int](mailto:ipogreen@wipo.int)



The screenshot shows the IPO Green website with a navigation menu (Home, Services, Policy, Forum, Resources, IT Tools, Links, News) and a search bar. The main content area features a grid of 13 concept notes, each with an icon and a brief description. The notes include: Accelerated Patent Prosecution, Provision of Intellectual Property Rights to the IP Office, Microfinance and Business Incubation, Regional Cooperative for Green IP Offices, IP in Business with the IP Office, Classification System for Green Technology Inventions, Making Government Officials More Green conscious, Green Patent Prosecution Agreements, Financial Support for Small Patent Applications, IP Assessment Rating System, Licensing Program for Unexamined Claims, and IP Services for Entrepreneurs. A 'Help us to Green' button is also present. The footer includes the WIPO logo and the text 'WIPO GREEN The International Network for Sustainable Technology'.

# WIPO Green Technology Book 2022

## Solutions for Climate Change Adaptation



Short Impact & Adaptation Survey:

WIPO FOR OFFICIAL USE ONLY

The graphic features a central QR code and a smaller one below it. To the right, there are three overlapping images: a woman in a white dress sitting in a green field, a satellite in space, and a city skyline with waves in the foreground. The WIPO logo is in the bottom right corner.

Júlia Hoppstock

Advisor to the National Direction of Multilateral Economic Negotiations – MRECIC

## “Diálogo de Patentes y Políticas Públicas en favor de la transición verde en el ámbito regional de América Latina y el Caribe”

### El Proyecto OMPI Green: La experiencia nacional de la Argentina



Julia Hoppstock  
Ministerio de Relaciones Exteriores, Comercio Internacional y Culto, Argentina

22 de noviembre de 2022



### La participación argentina en el Proyecto- POR QUÉ?



- Argentina participa en el Proyecto desde 2019, junto con Brasil y Chile, y más recientemente Perú, con el apoyo de la OMPI, con el objetivo de **movilizar tecnologías innovadoras** que puedan ayudar a enfrentar desafíos globales, como el cambio climático, la seguridad alimentaria y la degradación ambiental.
- El Proyecto refleja los **desafíos locales pertinentes**, incluida la importancia de promover la innovación tecnológica que contribuya al desarrollo sostenible, en línea con la Agenda 2030 de la ONU y sus ODS.
- Nuestro país apoya acciones relacionadas con la **difusión, desarrollo, transferencia y promoción de tecnologías innovadoras** y para establecer **vínculos entre demandantes y proveedores de tecnologías**.



Argentina considera fundamental **fortalecer la cooperación internacional para el desarrollo y la transferencia de tecnologías**, en particular con un foco en la seguridad alimentaria y el cambio climático, en consonancia con los compromisos internacionales de cada país socio.

1




## La participación argentina en el Proyecto -QUÉ?

- PROYECTO: 3 fases (actualmente en la tercera)
- El **enfoque estratégico general** de Argentina es **promover la agricultura sostenible**, incluyendo en temas como:
  - Intensificación rotación de cultivos; recarbonización de suelos; siembra directa; secuestro de carbono; y eficiencia uso del agua (adaptación cambio climático)
  - **Foco tercera etapa:** vitivinicultura, fruticultura, horticultura y desarrollo forestal

Objetivo: identificar necesidades y ofertas tecnológicas relacionadas con la **agricultura sostenible**, dado que:

- El sector agrícola contribuye a la prioridad fundamental de **la eliminación del hambre y la erradicación de la pobreza**.
- La agricultura es **particularmente vulnerable a los efectos del cambio climático** (Agenda 2030, CMNUCC, Acuerdo de París) y los agricultores eficientes sufren las consecuencias de subsidios y falta de acceso a mercados por parte de algunos PDs. Fuerte vínculo entre el cambio climático y la seguridad alimentaria: el desafío de satisfacer una mayor demanda de alimentos requiere aumentar la producción de alimentos en condiciones climáticas cambiantes. Necesidad de desplegar soluciones tecnológicas concretas.
- Informe FAO 2022: aumento hambre (828 mill. personas, aumento de 150 mill desde pandemia)- 2030: 670 mill. personas (8% pob. mundial=2015).

2



## La participación argentina en el Proyecto- CÓMO?

- **Primera fase (hasta abril de 2020):** Identificación de **necesidades y soluciones nacionales** con el apoyo de consultora y OMPI.
- **Segunda fase (2020-2021):** Ampliación **red de cooperación** entre demandantes y proveedores nacionales de tecnologías, en colaboración con OMPI, y consultora. Estudio sectorial (ag. sostenible) junto países socios
- **Tercera fase (2022- presente):** Objetivo de realizar un mapeo de proyectos y ofertas tecnológicas del Sistema Nacional de Ciencia, Tecnología, e Innovación (fuente importante de I+D), identificación de necesidades y ofertas, match-making, eventos, etc. Informe de barreras y oportunidades para transferencia y desarrollo de tecnologías en áreas de foco. Apoyo del gobierno de Japón.

Varias agencias nacionales competentes participantes con miras a:

- (i) Profundizar la información sobre **las necesidades tecnológicas e identificar posibles ofertas y soluciones tecnológicas**;
- (ii) Continuar la búsqueda de **nuevas ofertas tecnológicas**, por ejemplo, sistemas basados en satélites relacionados con la agricultura sostenible;
- (iii) Establecer **conexiones con otras redes relevantes** (por ej., con la Red de Centros de Apoyo a la Tecnología e Innovación -CATI / TISC-); e
- (iv) Intensificar la cooperación con la **base de datos WIPO GREEN**.



## Resultados alcanzados



### Informe de catálogo, con la identificación para la Argentina de:

- ✓ **Necesidades tecnológicas** (incluidas las relacionadas con cuestiones de satélites; agro-silvicultura; biotecnologías; riego; y gestión forestal; etc.)
- ✓ **Ofertas tecnológicas** (incluidas las relacionadas con el desarrollo de semillas; bosques; maquinarias agrícolas para siembra directa y otros sistemas de producción; vitivinicultura; biotecnologías; rastreo por satélite; y eficiencia del agua; etc.)
- ✓ **Potencial "vínculo" ("match-making")** entre necesidades y ofertas
- ✓ **Cartas de intención:** Asociación Forestal Argentina (AFOA) concluyó carta de intención con OMPI Green. Conversaciones para otras cartas
- ✓ Cargar en la **base de datos OMPI Green** las necesidades y desarrollos tecnológicos nacionales, dándoles visibilidad mundial

4



## Próximos pasos

- ✓ Argentina da la bienvenida a la **continuación del proyecto** con objetivo de **movilizar tecnologías innovadoras** para responder a los desafíos ambientales y de seguridad alimentaria, facilitando los vínculos entre demandantes y proveedores de tecnología, en particular en subsectores importantes para el desarrollo de economías regionales, como la vitivinicultura, la fruticultura, la horticultura, y la actividad forestal. Importancia para recuperación post-pandemia: promoción transferencia tecnologías al sistema productivo.
- ✓ El Proyecto es un proceso más que un evento único de "match-making".
- ✓ Se busca fomentar **cooperación entre socios regionales**, y la visión regional. Llegar a más partes interesadas, participación en eventos de "match-making", incluso regionales. Desarrollo estudios sectoriales.
- ✓ Apoyar acciones para aumentar la visibilidad de la **base de datos OMPI Green**, como canal de comunicación relevante.
- ✓ Aproximación a los **bancos regionales de desarrollo y organizaciones internacionales regionales** para ayudar a desarrollar, transferir y difundir tecnologías relacionadas con el Proyecto. **Apoyo a los desarrollos tecnológicos nacionales**.

¡ MUCHAS GRACIAS!

5

**MESA DE DIÁLOGOS**

**Patentes y Políticas Públicas en favor de la transición Verde en el ámbito Regional de América Latina y el Caribe**

Noviembre - 2022

**Paz Osorio Delgado**  
Coordinadora Unidad de Vigilancia Tecnológica  
Subdirección de Transferencia de Conocimiento  
Instituto Nacional de Propiedad Industrial – INAPI  
Chile

**El Instituto Nacional de Propiedad Industrial - INAPI** es el organismo encargado de la administración y atención de los servicios de la propiedad industrial en Chile. Le corresponde, asimismo, promover la protección que brinda la propiedad industrial y difundir el acervo tecnológico y la información de que dispone.

**INAPI** contribuye a la estrategia de innovación impulsada por el Gobierno de Chile, generando sistemas eficientes para el uso y protección de los derechos de propiedad industrial, promoviendo la innovación, el emprendimiento y la transferencia de conocimiento a la comunidad

**Proyecto WIPO Green de Aceleración de tecnologías en América Latina (2019)**

**ETAPAS**

- Consultora **ANACEA** (con cada país participante) y el consorcio **Wines of Chile**. (enfoque sector vitivinícola)
  - Catálogo de soluciones verdes (documentos de patentes)
  - Soluciones incorporadas al Marketplace de **WIPOGreen**
  - Etapa exitosa para Chile: cooperación con Wines of Chile y carta de intención de varias viñas.
- Consultora **IALE Tecnología** (solo Chile). Se mantiene vínculo con **Wines of Chile** y enfoque vitivinícola
  - Recopilación, actualización y profundización de la data existente (patentes) y levantamiento de necesidades tecnológicas y soluciones sustentables disponibles: 5 categorías y 26 soluciones identificadas.
  - Soluciones incorporadas al Marketplace de **WIPOGreen** y un catálogo de tecnologías verdes para el sector vitivinícola.
- En proceso de contratación consultora (tres postulantes, seleccionado **IALE Tecnología**).
  - Foco con impacto real en la industria chilena y las necesidades del país. Con apoyo de un comité inter-sectorial
  - Etapa más ambiciosa que considera detectar brochas y necesidades de la industria así como también los cimientos para la transferencia tecnológicas de las tecnologías seleccionadas (rondas de negocios, match oferta y demanda)





## Tecnologías Verdes en Chile y las Políticas Públicas

- Chile ha logrado importantes avances en acción climática durante los últimos años
- Gobierno actual ha dado prioridad la mitigación del cambio climático en muchas de sus acciones y políticas (ej. **Ley REP** y **Ley Marco de Cambio Climático**).
- **Nuevo Modelo de Desarrollo** (más equitativo, territorialmente equilibrado y sostenible).
- Ejes transversales: sustentabilidad, equidad de genero y desarrollo territorial.
- Esfuerzos en la creación de la Industria Nacional del Litio y el fomento del uso y producción del Hidrogeno Verde, como una oportunidad para pasar de una economía extractiva a una economía del conocimiento.



## INAPI, WIPO Green y su aporte en las Políticas Públicas

- WIPO Green y tecnologías verdes, prioridad para INAPI
- Profesionales Ministerio de Economía, se han sumado a las WIPO-Green LAC Multilateral Meeting, de manera periódica.
- INAPI invitado a ser un actor relevante en las políticas que se están implementando.
- Importancia de la información contenida en patentes para el diseño e implementación de políticas públicas.
- Programa Piloto (año 2023), para el uso de la información de patentes como insumo en el nuevo modelo de desarrollo Económico
- Aporte de INAPI para fortalecer las Patentes y Políticas Públicas en favor de la transición Verde en el ámbito Regional de América Latina y el Caribe.

Gracias !!!

**Paz Osorio Delgado**

[posorio@inapi.cl](mailto:posorio@inapi.cl)

Coordinadora Unidad de Vigilancia Tecnológica  
Subdirección de Transferencia de Conocimiento

**Instituto Nacional de Propiedad Industrial – INAPI  
Chile**




Patentes y Políticas Públicas en favor de la transición Verde en el ámbito Regional de América Latina y el Caribe



**MESA DE DIÁLOGOS**  
 Patents and Public Policies for Green Transition in the  
 Regional Environment of Latin America and the Caribbean


**Fernando Cassibi**  
 Industrial Property Researcher (INPI)



LAC Acceleration Project  
 Sector: Zero till

Table 1. Project outputs at 31th of march 2020

Outputs	Country	Accomplished
Technology Seekers	Argentina	5
	Brazil	5
	Chile	7
Identified Needs	Argentina	10
	Brazil	10
	Chile	11
Technologies	Argentina	23
	Brazil	21
	Chile	21



LAC Acceleration Project – PHASE 2  
 Sectors: Zero til + Solar Energy

Table 3. Upload In plataform - technologies and needs

Agriculture	Number
Number of Technologies	15
Number of Needs	4
Energy	
Number of Technologies	9
Number of Needs	6

+ 13 Business Rounds

# Sectorial Studies in Innovative and Green Technologies

General Coordination of Studies, Projects and Dissemination of Technological Information

Coordination of International Relations



## Main subjects:

Sustainable agriculture (sectorial study 1) and Waste management (Sectorial Study 2).

## Secondary Subjects:

The IP Offices decided on secondary themes of their own interest, established in subsections, Established in specific subsections of the studies.



### Priority Building

Training and Capacity Building

Dissemination

Expansion of Partnerships

Publication and Studies

Matchmaking and Business rounds

Partners:



cgee

## Green tech

### What is considered "Green Tech"?

**INPI Program Green Patents includes:**

cgee

## INPI For Business Programme (2020)

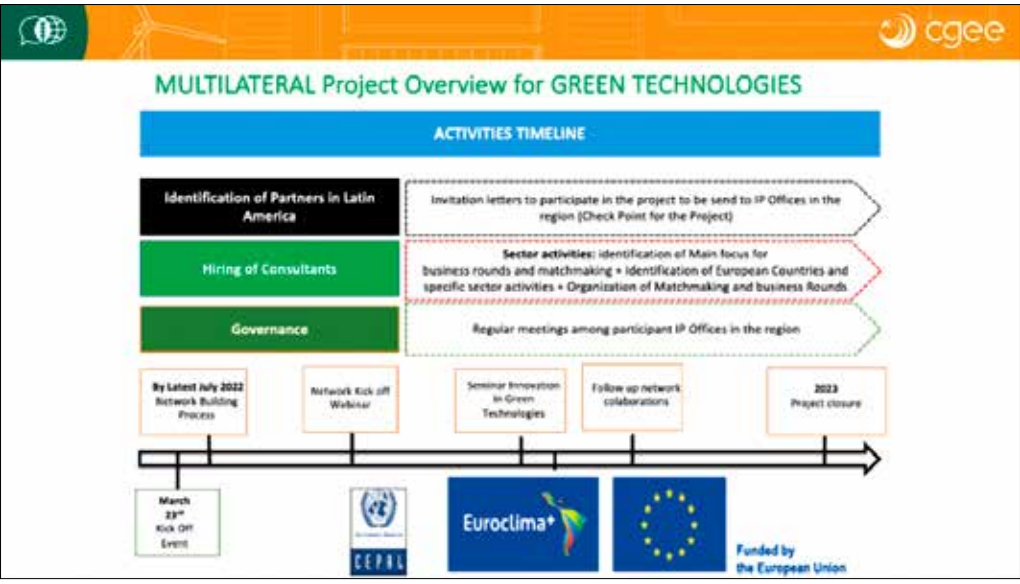
- 6 axes
- 22 initiatives - including the negotiation of memoranda of understanding destined to the establishment of innovation networks and organization of business rounds
- **Expected Results:** To increase the amount of patent applications in co-ownerships (between Brazilians and Foreigners) and/ or technology transfer contracts at the Green technology sectors, and to enhance the knowledge of the innovative capacity and its solutions.

What is next?

cgee

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Thank you! Gracias! Obrigado!

## List of acronyms and abbreviations presents in this publication

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<b>AIC</b>		Asociación Interamericana de Contabilidad
<b>Aneel</b>		Agência Nacional de Energia Elétrica
<b>ANII</b>		Agencia Nacional de Investigación e Innovación de Uruguay
<b>Apex-Brasil</b>		Agência Brasileira de Promoção de Exportações e Investimentos
<b>BB</b>		Banco do Brasil
<b>BICT</b>		Instituto Brasileiro de Informação em Ciência e Tecnologia
<b>BID</b>		Banco Interamericano de Desenvolvimento
<b>Cepal</b>		Comissão Econômica para a América Latina e o Caribe
<b>CGEE</b>		Centro de Gestão e Estudos Estratégicos
<b>CNPq</b>		Conselho Nacional de Desenvolvimento Científico e Tecnológico ( )
<b>Concytec</b>		Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica
<b>CT&amp;I</b>		ciência, tecnologia e inovação
<b>EPE</b>		Empresa de Pesquisa Energética
<b>FAO</b>		Organização das Nações Unidas para a Alimentação e a Agricultura, do inglês Food and Agriculture Organization of the United Nations
<b>Finep</b>		Financiadora de Estudos e Projetos
<b>Funtec</b>		Fundação de Desenvolvimento Tecnópolis
<b>IBICT</b>		Instituto Brasileiro de Informação em Ciência e Tecnologia
<b>IFSP</b>		Instituto Federal de Educação, Ciência e Tecnologia de São Paulo
<b>IFUSP</b>		Instituto de Física da Universidade de São Paulo
<b>Inapi</b>		Industrial da República do Chile, do espanhol Instituto Nacional de Propiedad Industrial
<b>Inatel</b>		Instituto Nacional de Telecomunicações
<b>Indecopi</b>		Instituto Nacional de Defensa da Concorrência e da Propriedade Intelectual do Peru
<b>INPI</b>		Instituto Nacional da Propriedade Industrial
<b>IPT</b>		Instituto de Pesquisas Tecnológicas
<b>Ise</b>		Inovações em Soluções Energéticas Sustentáveis
<b>LAC</b>		América Latina e Caribe, do inglês Latin American and Caribbean
<b>MCTI</b>		Ministério da Ciência, Tecnologia e Inovações (até 31/12/2022)
<b>MCTI</b>		Ministério da Ciência, Tecnologia e Inovação (a partir de 1º/01/2023)
<b>MEC</b>		Ministério da Educação
<b>MICM</b>		Ministerio de Industria, Comercio y Mipymes
<b>MRECIC</b>		Ministerio de Relaciones Exteriores, Comercio Internacional y Culto
<b>NIT-Unila</b>		Universidade Federal da Integração Latino-Americana – Unila
<b>OCDE</b>		Organização para a Cooperação e Desenvolvimento Econômico, do francês Organisation de Coopération et de Développement Économiques
<b>ONS</b>		Operador Nacional do Sistema Elétrico
<b>PI</b>		Propriedade Intelectual
<b>ReLAI</b>		Rede Latino-Americana de Agências de Inovação
<b>REP</b>		Lei de Responsabilidade Estendida do Produtor
<b>Sudam</b>		Superintendência do Desenvolvimento da Amazônia
<b>UdeC</b>		Universidad de Concepción

UFCSPA | Universidade Federal de Ciências da Saúde de Porto Alegre

Ufob | Universidade Federal do Oeste da Bahia

UFPE | Universidade Federal de Pernambuco

UFSM | Universidade Federal de Santa Maria

UnB | Universidade de Brasília

Unicamp | Universidade Estadual de Campinas

Unila | Universidade Federal da Integração Latino-Americana

USP | Universidade de São Paulo

USPTO | Escritório Americano de Marcas e Patentes, do inglês United States Patent and Trademark Office

WIPO | World Intellectual Property Organization







