International Workshop on Climate Change

EKLA-KAS, GVces

September 23^{rd} and 24^{th}, 2015

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Introduction

The international workshop on climate change took place in São Paulo, on September 23^{rd} and 24^{th}, 2015. It was organized by the *Regional Programme Energy Security and Climate Change in Latin America of the Konrad Adenauer Foundation* (EKLA-KAS) and by the *Center for Sustainability Studies* (GVces).

Its first day, named **International Workshop on Climate Change Economics and Finance**, was composed by four panels and twelve panelists, representing seven different nationalities. The second day, named **International Workshop on Carbon Markets**, was composed by three panels and eleven speakers, also representing seven nationalities.

This report aims to document the main messages and findings of the workshop, which happened in a very propitious time, about two months before the COP21, in Paris.

1 First Day: Climate Change: Economics and Finance

The event started with the coordinator of GVces, Mario Monzoni, talking about the importance of making ``green real investments". It is time to shift, Mr Monzoni said, from the world of ``green derivatives" to the world of ``green" infrastructure[1] He emphasized that we have the chance to change the path of human kind, into a sustainable one. However, we are running out of time: in 30 years, our whole generation will be judged by what we chose to do right now.

Following Mr Monzoni, Christian Hübner, the director of EKLA-KAS, presented the event and recalled that it's timing could not be better: in the upcoming $COP21$, in Paris, we must have solid ideas and propositions, and there is no better way to accomplish that than gathering some of the best minds on the field to discuss the subject open mindedly.

[1] And similar real investments.

1.1 First Panel: Climate Change and its Political, Social and Economic Impacts

⇒ SUMMARY BULLETS

- Climate change: ↑ temperature, ↑ thermal amplitude, ↓ rainfalls
- Poor people suffer the most
- For Chile, adaptation measures are as important as mitigation ones, for its geographical vulnerability
- Hopes and skepticism for COP21
- Sustainable energy investments as key for Germany's energetic independence

The first panelist of the event was Sérgio Margulis, Senior Associate Researcher at International Institute for Sustainability. His lecture was a wake up call on climate change, showing graphics evidencing the global warming process, and projections based on a wide variety of scenarios. In all scenarios our continent becomes warmer (ranging from 2^oC up to 8^oC), the thermal amplitude grows and there is a significant decrease in the volume of rainfalls. Mr Margulis recalled that for Brazil this last item is disastrous, because not only it heavily affects the agriculture, but also the volume of the rivers, causing a reduction hydroelectric energy generation.[2]

He remembered the audience that poor people are those who are going to suffer the most with global warming, as they have fewer resources to adapt to new conditions, and urged the policy makers to take some bold actions on climate change in the short run. Mr Margulis fears that the long international negotiations on climate change only postpone real actions, which are what is needed.

The second speaker of the day was Cristian Gutierrez, who is the Chief of Staff of the Chilean Minister of Environment. He said that, for Chile, the adaptation strategies to climate change are as important as the mitigation strategies, as the country is geographically vulnerable to many of the consequences of the phenomenon. Chile has designed nine different future scenarios, and bases its mitigation and adaptation proposals on these scenarios. Mr Gutierrez stated that all those proposals go to public consultation before being implemented, fact that gives legitimacy to the actions taken. Lastly, the panelist said that Chile has emissions-intensity reduction goals for every sector of the economy, but the forestall sector, and is committed to the environmental agenda.

Following Mr Gutierrez, Christian Hübner returned to the stand. He emphasized, based on INDCs submissions until the date of the event, that almost 60% of global GHG emissions were going to be represented in Paris, fact that showed international commitment to minimize global warming. However, he continued, the share of renewable energy consumption in

[2] Brazil's energy matrix is highly dependent on hydroelectric power.

total energy consumption is still less than a third of that of fossil energy sources. Therefore, the energy transition - from fossil fuels to renewable sources - is essential in the transition into a low carbon economy.

He then focused on Germany's case. Germany, he said, is an industrialized country with energy intensive industries, and its energy matrix is not particularly ` `green". He stated that energy efficiency projects are being conducted, as well as wind energy projects in the north and solar energy projects in the south. Energetic independence was cited as one of the main benefits of the energy transition to Germany.

Questions from the audience were then t aken. Concerns about how hard the economic crisis and political scandals are hitting Brazil's environmental agenda, the number of climate refugees that will result from climate change, and the insufficient level of ambition that will be taken to Paris were raised. About the first concern, Mr Margulis said that it should be a huge opportunity for Brazil to shift its economy - production and energy matrix - into a low carbon one. However, the president is not really committed to the environmental agenda. About the second concern, the panelists said that, to the best of their knowledge, there is no study estimating i t. Finally, about the last concern, Mr Margulis said that we will not get the necessary reductions in GHG emissions required to keep global warming in 2^oC from P aris. We should estimate an ultimate carbon budget and work on how to comply with it, he sa id. Mr Hübner said that governments are realizing that they should have begun the process of mitigation earlier, because now they face challenging problems. However, he believes that the environmental agenda is moving forward and that considerable progress will be made in the $COP21$.

1.2 Second Panel: Climate Change and Energy

The moderator, Munir Soares from GVces, opened the second panel listing the similarities between Brazil's, Chile's and Peru's energy matrices: all mostly based on hydro-power, complemented with thermal-power, and fossil fuel based transport sector.

$\Rightarrow$ SUMMARY BULLETS

- Brazil: start investing heavily in renewable energy and bio-fuels, instead of continuing investing in deep sea oil
- Peru: 31% GHG emissions reduction goal
- Carbon tax as an instrument for mitigation

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- $\underbrace{\text{Climate Change} \overset{Mat.Damages}{\rightarrow} \text{Economy} \overset{Demand}{\rightarrow} \text{Energy} \overset{MatrixCompo.}{\rightarrow} \text{Climate Change}}_{\textit{Disagreement } \Delta}$

The first panelist was Gilberto Câmara, Professor and Coordinator of the Research Program on Global Climate Change of FAPESP, who warned the audience that it is essential to quicken the rhythm at which the usage of fossil fuels for energy production is being reduced. Mr Câmara said that Brazil now faces a dilemma that will define its future: continue investing on deep sea oil or to start investing heavily on renewable energy sources. Who would we sell all that oil to? Can we compete with the Arabs?

He then focused on bio-fuels. He stated that Brazil is one of the global leaders in bio-fuels[3], but it still has a great unexplored growth potential. He emphasized the need of a carbon tax in order to redirect the consumption, from fossil fuels to bio-fuels, and said that, if we succeed in doing so, we might have zero net emissions by 2030.

Following Mr Câmara, Francisco Avedaño, representant of $A2G$ Climate Partners, talked about the Peruvian case. He said that hydro-power is still the major energetic source, despite the rise of natural gas. Peru's GHG emissions mitigation strategy involves a carbon tax associated with a goal of reducing GHG emissions by 31% relatively to the business as usual scenario. To do so, they are investing on wind, biomass and hydro power production. Financial mechanisms for renewable energy and energy efficiency financing are being developed in Peru. Mr Avedaño said that the estimated resources for financing such projects are about 4 to 7 billion USD by 2030.

The last panelist of the second panel was Jorge Carbonell, the Chief of Staff of the Undersecratary of Finance of the Chilean Ministry of Finance. Mr Carbonell started by showing what he called the disagreement triangle: economy, energy and climate change. He said that between those sectors there are many opposed objectives, but we can also find some synergies, and we will have to learn the best way to deal with them. He highlighted that the climate change affects the economy through material damages, the economy affects the energy through changes in demand, and the energy affects climate change through the energetic matrix's composition.

Mr Carbonell said that the cost of energy is one of the main problems of Chile's competitiveness: about 13% of the increase in production costs lately are due to energy cost increases. For him, it is essential to impose a carbon tax for the negative externalities of GHG emissions to be internalized by the producer, and to promote renewable energy sources, so that they become more competitive.

From the audience came questions about how Peru will reach its emission reduction goal, and how to finance and promote a smooth transition into a low carbon economy. Mr Avedaño

[3] Ethanol.

answered that they have not designed the role plan, but have identified more than 50 mitigation strategies, and that the 31% goal is actually a conservative goal. For the last question, Mr Carbonell said that coordinated public policies and a carbon tax will help Chile in its transition. Mr Câmara said that Brazil has now to decide if it is going to continue betting on deep sea oil and struggle in the future, or if it will move to a ``green" economy and be one of the future world's leader. If the last option is to be chosen, a carbon tax could boost the transition from fossil fuels to renewables and bio-fuels. Mr Avedaño said that it is essential to work on corporate governance to ensure that investors feel safe to go ``green". Once they feel safe, the market will support the transition.

1.3 Third Panel: Climate Change and the Agricultural Sector

⇒ SUMMARY BULLETS

- Agriculture is one of the main GHG emitting sectors in Brazil and Argentina
- Strategies identified for mitigation: pasture recovery and livestock-farming-forest integration
- Argentina lacks government's and citizens' engagement in the environmental agenda
- Not enough data to make an adaptation cost-benefit analysis ⇒ Only reactive adaptation projects (less efficient)

The first panelist was Angelo Gurgel, Coordinator of the Agribusiness Studies Center of FGV. He said that the agricultural sector is responsible for the highest share of Brazil's GHG emissions: 37%. However, the ABC (low carbon agriculture) plan has identified two main strategies that could lead to a reduction of 1.8 billion tons of CO_2e over ten years. The first one is pasture recovery. Degraded pastures emit more for two main reasons: cattle take longer to grow, so they live longer and emit more, and soil decomposition. Also, the productivity in degraded pastures is lower, so that the production per hectare is also lower. The second strategy is called livestock-farming-forest integration. This regime reduces the occurrence of plagues and also captures carbon in the soil.

However some troubles exist refraining the adoption of such methods: public financing requires regularization of properties, learning barriers, informational asymmetry and persistence of habits.

Following Mr Gurgel, Oscar Duarte, PhD in Earth Sciences and Environment, talked about the Argentinian case. As it is the case in Brazil, agriculture is one of the main emitter sectors in Argentina[4]. Some of the public policies implemented aim deforestation reduction and more

[4] Responsible for 44% of Argentina's total GHG emissions.

efficient use of energy. However, almost every mitigation project in Argentina is financed by international organizations, as Argentina has not got any mitigation financing strategies. Mr Duarte observed that Argentina lacks an integrated view: institutions dedicated to production and environmental sectors have antagonistic views. Also, there is not nearly enough engagement and participation by the population. To sum up, Argentina has a long walk ahead.

The last panelist of the third panel was Mr Christoph Jungfleisch, Senior Project Manager & Project Director at the Frankfurt School of Finance and Management. Mr Jungfleisch explained that adaptation projects have more perceived risks than mitigation projects and not enough data to assess the benefits from it. He said that, today, most of the adaptation measures taken are reactive, instead of anticipatory, while anticipatory adaptation measures should be much more efficient.

About the role of the government, Mr Jungfleisch stated that it should finance the big adaptation projects[5], as the infrastructure ones, work on providing data on adaptation costs and benefits, and help raising awareness.

The first question from the audience was directed to Mr Jungfleisch, about the possibility of micro-financing adaptation strategies in Brazil. Mr Jungfleisch answered that yes, it is implementable in Brazil: there is governmental support, and the private sector is opened to new opportunities.

Another question was made to Mr Gurgel. How to attract private investment to the ABC plan? He said that private investment would be totally welcome, but in order to attract it, we first need to define how to measure and reward environmental services, and we need to get consumers engaged in buying sustainable products. One we do that, the private sector will naturally get involved.

1.4 Fourth Panel: Climate Change and the Financial Sector

⇒ SUMMARY BULLETS

- A standard measure to compare the performance[6] of ``green" and normal assets is crucial to make the financial sector finance ``green" investments
- For the ``boom" of green bonds, the governments needs to give some insurance to the investors, so that they start investing big
- ``Green" bonds might play a big role in achieving the climate goals, as investors to buy credible ``green" bonds are pouring

[5] Small and medium scale adaptation projects could be financed through micro-finance or private institutions.
[6] Mainly the risk.

- Brazilian BNDES finances about 28 billion $R\$$ in ``green" projects, offering low taxes that enable certain projects to develop

The last panel of the day had Jakob Thomä, Project Manager of 2^o Investing Initiative, as its first speaker. The panelist spoke about the challenging task of achieving the climate goals while managing risks. The idea that going green is solving the risk problem is simply not true, said Mr Thomä. The lower risk companies, for example, are normally the ones with higher margins and those are heavy GHG emitters.

Mr Thomä continued stating that the elements to consider when measuring ``green" risk are numerous, but they all resume to one question: how to compare ``green" and normal assets? Among the comparability problems are: different time horizons[7], different risk sources and different return structures. So how can we get financial markets to finance investments towards a low carbon economy? Mr Thomä said that it is an open question, but the government must certainly be a part of it[8] and we need to make sure that risk models are more long-term driven.

The second panelist was Sean Kidney, CEO and Co-founder of Climate Bonds Initiative. Why use bond markets in the transition towards a ``green" economy? Because they are the largest market, said Mr Kidney. For the ``boom" of green bonds, he continued, the government needs to act: it needs to give some insurance to the investors, so that they start investing big - just as in big infrastructure projects -, and regulate the validation of ``green" bonds, for credibility. Once that is done, the market will gain liquidity and the uncertainty around ``green" investments will vanish.

Mr Kidney ended his lecture saying that this trail may be the difference in achieving the climate goals. Investors to buy credible ``green" bonds are pouring, he said, we just need to develop or identify good ``green" projects and products, and make it easy for the investors to choose.

The last panelist of the first day was José Guilherme Cardoso, Chief of the Environmental Department of the Brazilian Development Bank (BNDES). He mentioned that the company's environmental agenda started in 1976, and today finances about 28 billion $R\$$ in ``green" projects, offering low taxes that enable certain projects to develop. As the bank does not finance projects that it evaluates as ``bad", when financing a project it also attracts private investments to it, by a signaling mechanism.

The first question from the audience was about the impacts of the Brazilian crisis on BNDES' financing. Mr Cardoso said that the majority of the funding for BNDES' projects comes from clients payments, and the percentage of default is quite low. Thus, the impact should be minimal. Another couple of questions were made to Mr Thomä. To the first one, which

[7] Financial markets are used to working with short term assets, while investing in ``green" assets might involve long term commitment.

[8] For example, in France a new law states that financial companies must report their contributions to climate goals.

asked if green bonds should be treated like regular ones, Mr Thomä replied that the performance indicators for climate change are much different from those for financial performance. Thus, they should not be treated equally. The second asked about the regulation on financial institutions in France. Mr Thomä said that the regulation requires that the financial institutions report things like: how much renewable energy projects are you financing compared to fossil fuel projects? How much railways compared to roadways? He highlighted the fact that the society and companies were pressuring the government for the regulation, because the regulation creates standards, and these guide them in investment and behavior planning.

2 Second Day: Carbon Markets

The day started with Mariana Nicolletti, coordinator of the *businesses for the climate platform* from GVces, talking about the importance of carbon pricing for the transition to a low carbon economy. Pricing carbon, she said, makes the firms internalize the negative externalities of their emissions. For this reason, they start having to consider this new dimension on their decision making, such as investment and production planning, and innovation strategy. Therefore, enterprises will have an extra incentive to invest on ``green" technologies and the transition to a low carbon economy will be smoother and less ``painful".

Following Mariana, Christian Hübner , the director of EKLA-KAS, reminded us that we where going from a broader theme - climate change, its implications, and policies/instruments that could be used to mitigate and adapt to its effects - to a much more specific theme, focusing on carbon pricing mechanisms.

2.1 First Panel: Carbon Pricing Mechanisms and the GHG Emissions Reduction Gap

$\Rightarrow$ SUMMARY BULLETS

- Reduce GHG emissions now and make a smooth transition vs Delay it and face an abrupt transition later
- Short-run $\overset{InelasticMAC}{\rightarrow}$ Tax $\succ$ ETS vs Long-run $\overset{ElasticMAC}{\rightarrow}$ ETS $\succ$ Tax
- Carbon pricing initiatives are spreading quickly. In Paris they might cover 60% of GHG global emissions
- EU ETS: Emission Reduction✓ Flexibility to the firms✓ Useful learning process✓
- Brazil is working to build the institutions needed for carbon pricing

The first panelist of the panel was Inaiê Santos, who is an economist from GVces. She presented a theoretical economic approach to the question in hand. She begun with an interesting analysis: given the carbon budget required in order to keep the global warming in the 2^oC range, we have to choose how we are going to keep our emissions inside that constraint. Or we start to decrease our emissions right now and make the transition to a low carbon economy smoother, or we delay the reduction and have to deal with a much more abrupt reduction later.

She then analyzed a graphic in which the amount of emissions reduction was divided in three groups: the first, in which the net cost of reducing emissions was negative[9] (win-win case) , is a puzzle to economists: if you can reduce your emissions and profit from it, why firms

[9] From implementing projects of energy efficiency, for example.

are not doing it? Informational asymmetry was cited as the main reason. To the second group, the neoclassical theory applies sharply: now relative prices matter, and firms will look at their *marginal abatement costs* (MAC) and the market prices in order to choose how to comply with its reduction goal. The third group is characterized by high MAC, because as we have reached the technological frontier, innovation is now required in order to reduce emissions[10]. Also in this context, a temporal discussion emerged: in the short run, as a result of the few technological options, the MAC is highly inelastic, and so a carbon tax would be more desirable than an ETS. In the long run, however, the technological options grow, making the MAC more elastic, and favoring the ETS over a carbon tax.

After Mrs Santos, Alexandre Kossoy, senior financial specialist in climate & carbon finance of the World Bank, provided us with an overview of the existing and upcoming carbon pricing initiatives worldwide. He showed how the number of initiatives is quickly growing, having almost doubled in less than three years. These initiatives already cover about 12% of world's total GHG emissions, and after COP21, this percentage might increase to 60%.

Mr. Kossoy also made an assessment of the advantages of international cooperation in carbon markets: the carbon leakage[11] would disappear, and the cost-effectiveness would be enhanced, as countries may have heterogeneous MACs and would be able to trade credits. He also mentioned that the cooperation between countries may generate a market worth 400 billion USD by 2030 and 2.2 trillion USD by 2050.

Following Mr Kossoy, Sarah Deblock, EU policy director at the *international emissions trading association* (IETA), told us about the world's largest carbon market, the EU ETS. Despite the fact that the EU ETS has been criticized for working poorly, Mrs Deblock advocated for the system, saying that not only it has achieved the emission reduction goals at a low cost while giving the flexibility required to the private sector, but also, having gone through a very fruitful learning process, it has turned into a reference to many other ETSs worldwide. As a result of this learning process, upcoming carbon markets have clear principles for designing their ETSs:

i) Scarcity of emission allowances

ii) Long term clarity and predictability

iii) Adequate compliance periods

iv) Cost-containment provisions

v) Auctioning as the main tool for distributing allowances and benchmark approach for the distribution of free allowances

vi) Innovation fund, which receives the revenue from auctioning, and use it to finance low carbon projects

[10] Innovation is highly intensive in R&D, so the costs rise steeply.

[11] Refers to the phenomenon of non-regulated countries increasing their emissions in response to the reduction in regulated countries' emissions due to carbon pricing.

When comparing ETS to other carbon pricing systems, as carbon taxes and command and control regulation, Sarah highlighted the facts that the ETS is more flexible, cost effective and ensures the reduction in emissions desired.

The last speaker of the first panel was Aloisio Melo, who is a general coordinator at the Brazilian ministry of finance. Aloisio stressed the fact that, in order to be really cost effective, the carbon markets must be integrated. A market with only one country and two sectors won't be as cost effective as a market with multiple countries and sectors, because in this last one there will be much more heterogeneous MAC, giving more opportunities for the members to trade and reduce the cost of complying with the emissions reduction goal. Not surprisingly, sub-national ETSs are merging, in order to expand the market.

He then focused in the Brazilian case. He said that Brazil is working to build the institutions needed for carbon pricing. For example: Brazil needs agent level emission data, which it still does not have, but is working on. While building those institutions, Brazil is evaluating the different carbon pricing designs worldwide, so that when that process is completed, the country is able to implement the carbon pricing design that fits it the best.

After the presentations, questions from the audience where taken. Concerns about the ways of meeting the overall carbon budget, and about the percentage of real emissions that go unreported were raised. Sarah and Aloisio responded saying that carbon pricing mechanisms can be ways of meeting the overall carbon budget, it only depends on how ambitious the design of the program is. One could even combine more than one carbon pricing mechanism, as they may coexist. About the unreported emissions, which were concerning the audience because of the recent Volkswagen scandal, Sarah and Alexandre said that the MRV process for emissions is quite restrict, but there can exist isolate cases. What should be done is to improve MRV even more, so that the percentage of GHG emissions that go unreported gets close to zero.

2.2 Second Panel: Carbon Pricing in Latin America

⇒ SUMMARY BULLETS

- The lack of common ``green" finance definitions and methodologies diffcults the comparability between ``green" and ``normal" portfolios, which is essential for the complete adoption of sustainable elements in financial market's operations
- In Chile, the carbon tax system will generate the institutions required to the implementation of an ETS
- Mexico has recently been through two hurricanes, and the adaptation measures helped saving dozens of lives
- Brazil's ETS simulation has been an intense learning process for the firms

The first panelist of the second panel was Maria Netto, who is lead specialist in capital markets and financial institutions of the *Inter-American Development Bank* (IDB). Her lecture was about the role of financial institutions in the transition to a low carbon economy. She said that the lack of common definitions and methodologies in the field of sustainable (or ``green'') finance causes a high level of uncertainty and informational asymmetry, that difficults the comparability between ``green'' and ``normal'' portfolios. This comparability is a key ingredient for the complete adoption of sustainable elements in financial market's operations. The carbon footprint of financial institutions, for example, is very different from that of other kinds of institutions, and there is no consensus on how to measure it.

Mrs Netto observed that carbon pricing is one of the factors that might help ``demystify'' the sector: it can give more tangibility to such an uncertain scenario. But the engagement of financial institutions and the government are essential. There are, according to her, three main roles that must be played by financial institutions:

i) Monetize: develop common methodologies for risk management, carbon footprint calculation, portfolio ratings, shadow pricing

ii) Promote: insurance devices, new ``green'' assets, financing mechanisms

iii) Report: portfolio monitoring, financial and investment management, certification systems

The government's role is to provide clear signals of commitment to the sustainable causes, so that the market is confident enough to ``go green''. An example of good governmental practice comes from Mexico, where the carbon pricing came with sectoral policies on renewables and the climate change policy, giving a clear signal to the market.

Following Mrs Netto, Juan-Pablo Montero, professor of the Pontifical Catholic University of Chile, told us about the Chilean case. Chilean GHG emissions, he said, are one of the fastest growing in the planet, only behind China and India. However, the professor stresses that bold measures are being taken: emission mitigation proposals, promotion of renewable energy sources and introduction of a carbon tax. The carbon tax, he said, is the only readily implementable carbon pricing scheme for Chile. The institutions required to the adoption of an ETS, such as monitoring and population's engagement, are still missing in Chile. So, besides helping the GHG emissions reduction right away, the carbon tax system will generate those institutions, so that, in the future, Chile can join some international ETS.

Mr Montero also cited the driving restrictions in Santiago, as an example of effective GHG emissions reduction device. Using an econometric model, he showed that the Santiago's driving restriction, which exempts clean cars, has led to a cleaner fleet.

The third panelist was José Mario García, who is the Director General of policy on climate change of the Mexican Ministry of Environment and Natural Resources. He showed a time-line of Mexico's main environmental accomplishments, in which he highlighted that in 2013 Mexico has defined a 40 year strategy to fight climate change. As a part of it, there are several adap-

tation features, as well as a carbon tax and a special tax on fossil fuels. The carbon tax aims to reduce Mexico's GHG emissions by 20% by 2020 and 50% by 2050.

At the end, he remembered the audience that Mexico has recently been through two hurricanes, and the adaptation measures helped saving dozens of lives.

The last panelist of the second panel was Mariana Nicolletti, coordinator of the *businesses for the climate platform* from GVces. Her lecture was about the Brazilian carbon pricing simulation. A cap-and-trade ETS was chosen, as there was less resistance from the private sector to this kind of mechanism. The rules and parameters were defined with the participating firms, based on international experiences. Twenty three large firms, from a wide variety of sectors, have joined the simulation, which uses the firms' real emissions combined with a fictitious currency in the market. For 2015, the goal is to reduce GHG emissions in 12% compared to the base-year.[12]

Mrs Nicolletti stated that the simulation has been an intense learning process for the firms, especially when it comes to compliance, and emission permits and offsets trading. Moreover, the program is achieving the objective of engaging the private sector in the sustainable agenda.

The audience asked the panelists how the financial institutions where evaluating the carbon pricing projects in Latin America. Mrs Netto said that these institutions used not to get involved on ``green" markets for the high level of uncertainty involved. She cited Mexico's case as a role model for other governments: it showed serious commitment to the environmental agenda, giving the necessary security for the financial institutions to get involved.

2.3 Third Panel: Carbon Pricing and the Private Sector

⇒ SUMMARY BULLETS

- Braskem, the world's biggest bio-polymers producer, has developed a carbon capturing ``green" plastic, and has adopted carbon shadow pricing
- More than 1000 companies are pricing their GHG emissions or intending to shortly
- Biofilica is involved in forestall conservation projects that cover 1.8m ha of the Amazon forest and has been exploring market based mechanisms to foster forest conservation

The first panelist of the last panel was Mario Pino, Sustainable Development Corporate Manager at Braskem. Braskem is the world's biggest bio-polymers producer, and its goal is to be a global leader in low carbon production and in the usage of renewable resources. It has already invested 100 million $R\$$ in energy efficiency projects, resulting in a 10% reduction of the energy consumed. Also, Braskem recycles plastics and invest heavily in ``green" innovations: it has

[12] 2013.

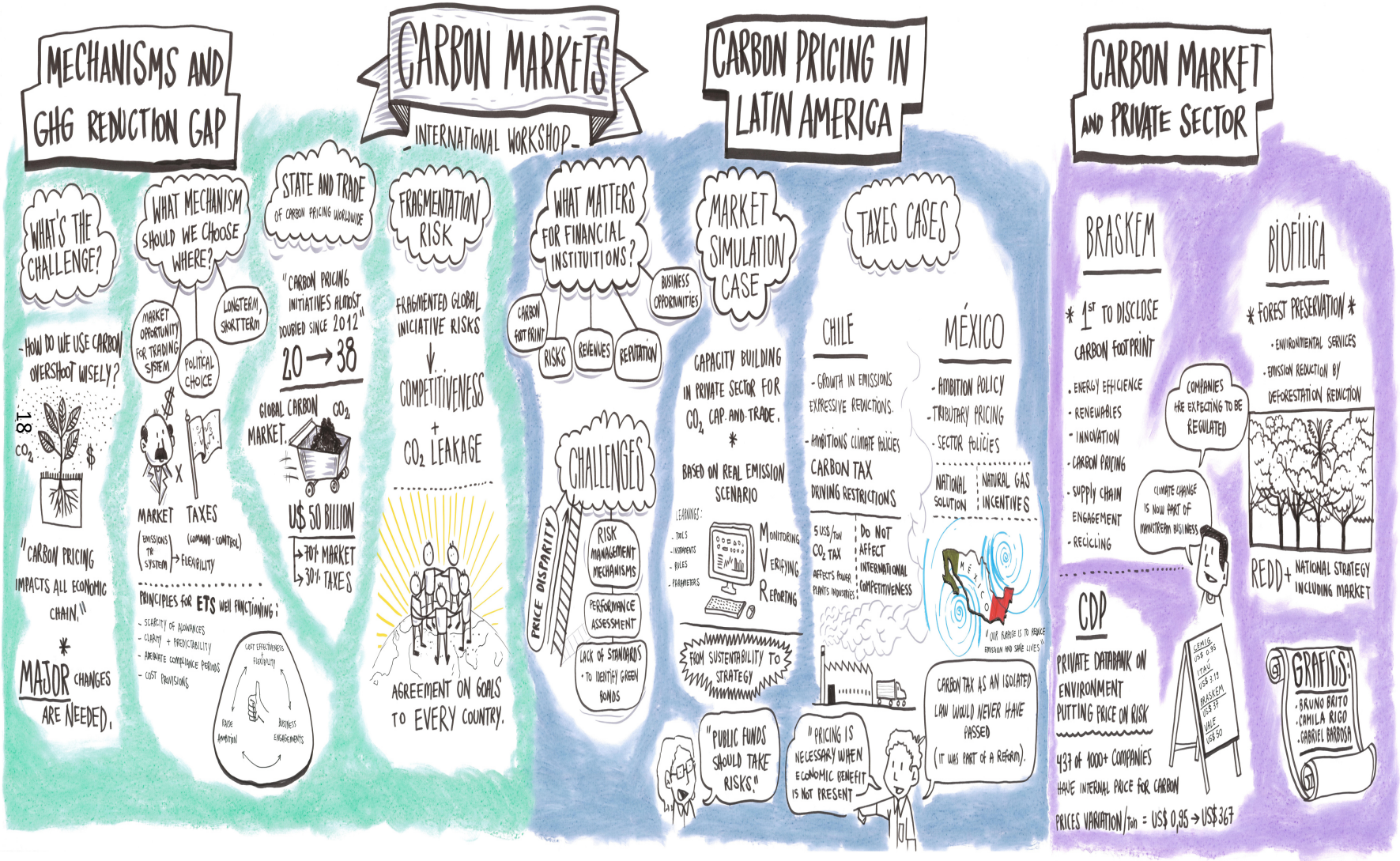
recently developed a ``green" plastic, made from ethanol, whose production actually captures carbon, that is, its net emissions are negative. Furthermore, Braskem has adopted internal carbon pricing as a new parameter for its decision making. Lastly, Mr Pino reinforced that Braskem has a tradition of engaging its suppliers in the sustainability agenda.

The next panelist was Nina Braun, who works as Relationship Manager at CDP Latin America. CDP runs the world's biggest database on environmental data. She said that the number of companies adopting carbon pricing internally is growing quickly, with the greatest increase coming from Asia and Africa. Today, more than 1000 companies are pricing their carbon emissions or intending to shortly, and carbon prices varies greatly across companies. The internal pricing helps firms to identify its best mitigation alternatives.

The last panelist of the day was Mr Plinio Ribeiro, the Executive Director of Biofilica Environmental Investments. Biofilica has been classified as the world's best forestall projects developer and is involved in projects that cover 1.8 million hectares of the Amazon forest. Its goal is to get forestall conservation to be an economically attractive and relevant activity. They try to achieve this goal by taking the carbon credits generated by their conservation projects to the market. In this sense, they could use a national emission reduction market to finance their projects, creating a ``green" financing cycle. For that to happen, Mr Ribeiro said, we need a greater integration of the public policies on forest and climate.

The first question from the audience asked when did the panelists decide to work with climate change and emission reduction. ``*We are the Saudi Arabia of tropical forests*" said Mr Ribeiro. The challenge of saving Brazilian forests with innovative strategies, while dealing with so many career opportunities is stimulating. Mr Pino also highlighted that low carbon markets offer great opportunities.

The concern about the reaction of local people to the ``financialization" of nature was also raised. Mr Ribeiro recalled us that, historically, the relationship between financial markets and forests is terrible (some examples in Brazil are mining, loggers and rubber), so market's resources are viewed with a natural suspicion by the locals. Some of them understand and accept us after a thorough explanation, but some of them just do not trust our words, specially the Indians. That is why Biofilica has a policy of not working in Indigenous areas.



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