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REGIONAL PROGRAMME ENERGY SECURITY AND CLIMATE CHANGE IN LATIN AMERICA (EKLA-KAS)

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CLIMATE CHANGE ADAPTABILITY WORKSHOP

Challenges and opportunities for agriculture in Latin America

"...education for an essentially ethical behavior that understands individual liberty as a liberty responsible with the natural and social entourage"

Michelsen y Rieckmann, 2008.

Impact and challenges of climate change; adaptability, resiliency, and risk management methods; public policies to replicate or implement, so as articulation, challenges, and opportunities in trade as part of climate change adaptation were the core issues at the **workshop Climate Change Adaptability for Agriculture in Latin America**.



Welcome speech by Dr. Christian Hübner

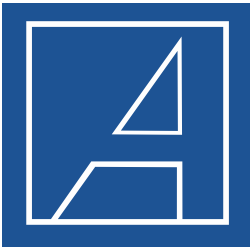
After a warm welcome, a statement opened the meeting: "incertitude for climate change effects in agriculture are still present and, in a way, they are still an epistemological problem, as provisions for future climate are based on estimations for different scenarios until 2100 based on numerous hypotheses". With this statement, Gobernabilidad Perú Chairman Eduardo Calderon de la Barca evidenced an ambivalent condition: the continuous human effort to know and predict nature and the current limitations to succeed in this task. This leads to question its consequences and the different interpretations that may arise. Thus, some consider we are before an "unusual advantage" as this is an opportunity for the human race to keep growing and developing, while others see this situation as one with "terrible consequences"

In order to address these issues, diverse Latin American experts gathered for two days to present their

experiences and perspectives regarding the **Challenges and opportunities for agriculture in Latin America**.

This workshop, organized by the Konrad Adenauer's Regional Programme Energy Security and Climate Change in Latin America along with Gobernabilidad Perú aimed to promote debate and create a space to exchange knowledge and information regarding a subject that Héctor Hanashiro, Development and Projects Manager at CARITAS DEL PERU, defined as of "global interest but of local challenge". The cause-effect circular dynamic between agriculture and climate change arose throughout the presentations: agriculture, as the main primary activity around the world and responsible for the regional food security, is greatly exposed and affected by recent climate changes like temperature increase, changes in precipitation and water availability regimes, and extreme weather situations increase

¹ Epistemology is the study of how science knowledge is generated and validated. In this context "epistemological problem" refers to the need to verify how accurate the means through which knowledge about this topic is generated and therefore the conclusions that can be drawn.



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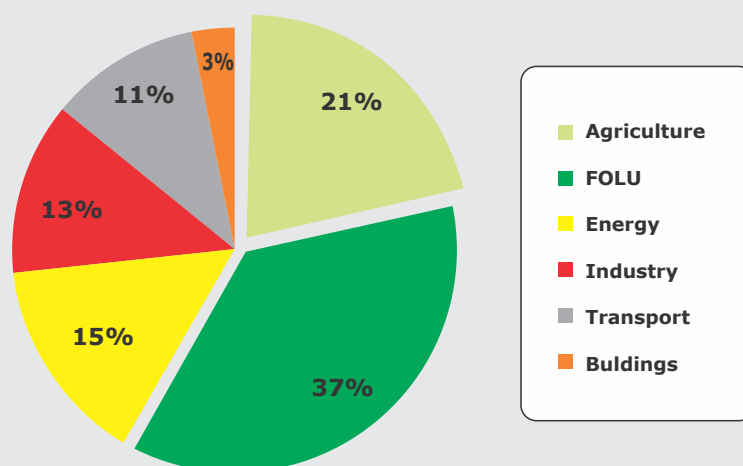
(extreme precipitations, droughts, storms, hurricanes, heat and cold waves, etc.). But at the same time, agriculture and livestock –along with deforestation, forest degradation, and changes in land usage– greatly contribute to regional greenhouse gas emissions, which means that agriculture is one of the causes for climate change.

Based on the report of the Intergovernmental Panel on Climate Change (IPCC), international consultant Laura Meza concluded that this phenomenon impacts in food availability and access, due to output changes and its effect in food security and poverty in the Latin America and Caribbean region (LAC).

Climate change causes alterations in the crops' output and quality and modifies growing seasons; it affects land physical conditions and water availability for irrigation along with the displacement of suitable farming zones (Latitude/altitude), changes in diseases and plagues incidence, in rural/property infrastructure, in ecosystemic service supply and in agricultural ecosystem health, among other alterations that suppose systemic risks to food production. In the future, a temperature rise in Latin America may result in a better performance for agricultural production, as it has occurred in other southern countries (with corn and soja).

The doubt then arises: are international agreements efficient? If seen from the perspective that these alliances allow to determine investment priorities and provide a major preparation space for teams studying these issues, international agreements do contribute. The problem is that not all countries have the same compromise to incorporate these policies in their agendas, as stated by Adrián Rodríguez (CEPAL), who also pointed out the concern about the minimal inclusion of climate change issues in Agriculture Ministries' agendas, so as agricultural issues in climate change agendas.

From another perspective but in the same global glance, Luis De Stefano (INIA-Perú) stated that agriculture has several restrictive elements besides climate change, as sustained population growth, less cultivable area per capita, land degradation, increased purchasing power which allows a higher demand, inter alia. This diversity of element demands the knowledge and understanding required to address the issue and maintain the balance. Therefore "to train producers directly is an essential strategy". This development of activities must be targeted to obtain funding that allows to generate resources, taking into account that there are countries that emphasize adaptation, while other have mitigation actions, like Brazil, Colombia





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Experts Panel: Carla Toledo, Carlos Frickmann Young, Adrian Rodriguez y Laura Meza

and Uruguay, but there are also countries with proposals to complement mitigation and adaptation actions.

From a study perspective, Julio Postigo (FAO-Peru) presented local information based on three analysis methods (French, Canadian and German) which showed how the previously mentioned issues on climate change are present in Peruvian agriculture, in the Tumbes, Piura, and Arequipa regions and in regards of rice, potato, starch maize, and coffee. Results indicate that minimum and maximum temperature will continuously increase and these ongoing rise will eventually affect the production output, but not in a negative way for all areas: while in some there is a significant output decrease, there is a positive increase in others.

In the workshop Proyecto Ayninakuy was also presented, to show the sustainability and resiliency experience through adapted technology currently developed in Apurimac. This region, as pointed out by Carla Toledo (IFC-Peru), has one of the highest poverty and child malnutrition rates. This project is sponsored by the Canadian government and it coordinates efforts with regional and local authorities, national government agencies, and the private sector. Ayninakuy, based on the Haku Winay project experience, works based on the subsistence agriculture with small producers and

aims to blend new and traditional technologies, adapting them in a simple way in order to improve productivity and allow territorial development in the mid-term. At the same time, it is also expected to improve the nutrition and food security conditions for these families and generate surplus so they can enter the market. The project gives technical assistance, permanently monitors the process, and provides training to communities. Toledo also highlighted that the strategy that allowed them to move forward in their goals is to rely on the communities' technological leaders or Yanachachiq, since "they are recognized and ratified by the community".

The participants also got a detailed vision of local activities and tools currently implemented in Bolivia due to the climate change crisis in high vulnerability zones. Verónica Ibarregaray (FAN-Bolivia), in accordance with previous experiences, concluded that the climate change impact on the agricultural sector depends on socioeconomic, technological, geographical, and climate conditions. Ibarregaray focused essentially on the menace that constitute forest fires in such areas, and which have a great impact in production, since almost 32 million hectares were affected. Due to this situation, the response at a political level was to enact a new risk management law (2014) which proposes that risk is considered a cross subject. Currently, there are some measures like scheduled and planned fires at a community level, with an early alert system for fire risk and community brigades for first response, so that fire is never out of control.



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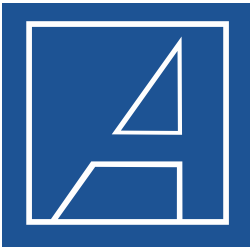
According to Hector Hanashiro (CARITAS-Peru), the experience in risk reduction and adaptation developed in Peru is in rural highland communities (territories above the 3,500 meters), plain basins with low relief at a high altitude and which mostly have disperse communities dedicated to livestock activities, which increases their vulnerability, poverty and exclusion. The work focused on addressing the low temperatures, as they are particularly affected by cold weathers (which can reach -20°C) due to the altitude, especially in the central and southern Peruvian highland. The project aimed at improving the use, availability, and access to food security in a sustained way, and in order to achieve so, they defined health and nutrition prevention and attention, rural housing to make it more hermetic and thermic, develop family orchards and livestock production adaptation based on semi-barned breeding and reproduction with family barns, so as local risk management.

On this subject, Pedro Ferradas (Soluciones Prácticas-Peru) insists that risk conditions are linked to development issues and that risk management must be conducted taking into account its three dimensions: the prospective, which means not generating new risk conditions, that is, prevention; the corrective, to reduce existing risks; and the reactive, to respond when a disaster happens. In Brazil, climate change is manifested with heavy rains and an increase in land displacement. For this country, the Niño phenomenon effect has been particularly hard, especially in the south, where natural phenomena even paralyzed Sao Paulo. An alarming issue related to agriculture is deforestation, as it expands the agricultural production border, which makes this sector more vulnerable.

According to Carlos Eduardo Young (INCT-Brazil), the biggest issues are extreme changes and not regular changes, since the former ones particularly affect poor population, that is why this is considered a process inequity, as the population with more adaptability are the ones with more resources (and viceversa), for it is suggested that there is a compensation policy, especially in preventive measures, as there is a high cost in the lack of decision making "as unsolved problems will have a great cost in the future", he concluded.

During the sessions, one of the common points to identify difficulties in the climate change adaptation process was the social and political approach, which considers the "lack of institutional organization in some countries in the region" as the biggest problem when adequately responding to climate change issues. This means that neither the designed policies nor the economic forces reach all sectors and, although sometimes these policies reach local institutions or authorities, they are not at hand for the people who need it the most, as most of governments fail to recognize the population's vulnerability. This change requires the involvement of political heads and civil society, this is why it is appropriate that policies are elaborated with all involved actors.

The lack of effective and efficient public policies creates autonomous adaptation as opposed to the policy-oriented adaptation, understood as the creation of a more informed adaptation opportunity from the producers' side, based on investigations. In Latin America, this "autonomous adaptation style" can be observed rather frequently, for example, in many places as early warnings, which are fundamental to properly respond to the current climate change effects.



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Workshop development – Day 1

In this regard, the need to produce information that contributes to the agricultural producers is an issue that generated consensus among the attendees, who also highlighted the need for further dialog between the technical and political levels, between researchers and the population. This means that the scientific information must nourish from the producers' practical information, since they are the ones who live these changes. To sum up, it is about being able to explain what these changes mean.



1. Adaptation based on the community, reverting tendencies that increase vulnerability.
2. Adaptation based on ecosystems, increasing flexibility in vulnerable systems
3. Adaptation based on basins, promoting the adaptability of natural vulnerable systems)
4. Adaptation based on sectors, influencing in development planning and public investment)
Spatial planning – Biodiversity conservation – integrated management of hydric resources – Disasters risk management
Decrease vulnerability before CC -> sustained development

There are four adaptation approaches: based on the community, based on the ecosystem, based on basins and based on sectors. Currently, the last one (based on sectors) is more emphasized, and the first two are still very weak. (Elaborated based on Pedro Ferradas presentation)

Later, Fernando Vilella (UBA-Argentina) pointed out that there is a series of elements that affect food supply, such as population growth, upward mobility, diet changes, urbanization, average age rise, lack of self-sufficiency and productive resources (water, soil, knowledge) or its loss due to misuse, climate change and its effect on temperature and precipitation so as "non-home-cooked" meal consumption.

"Only 10% of global population lives in a country with food surplus" stated Vilella. In this context, evidencing that only four of the twenty most powerful countries have enough inland production to meet their own demand is a great opportunity for the region. Although it is true that there is a greater purchasing power, there is not enough inland market, so they must look into external markets and



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Four dimensions of food security

1. **Availability:** internal production, import, stock, food aid. Agricultural production.
2. **Access:** purchase, exchange, loans => available income, food prices (agricultural production)
3. **Use:** food conservation and preparation.
4. **Stability:** (agricultural production).

Food Security:

"when all people have, at all times, material, social and economic access to enough, innocuous and nourishing food that satisfy their food energy needs and preferences in order to have a healthy active life"

Food security is a multidimensional concept and it is measured in four dimensions: availability, access, use and stability (Elaborated by Eduardo Bianchi)

and countries with production surplus will have an important advantage. In order to better benefit from these advantages, regional associations are required. The food security concept has evolved in time and currently it is understood as the right to an adequate diet, and many countries have included these rights in their national legislation, stressed out Eduardo Bianchi (LATN/FLACSCO-Argentina)

With remarks and contributions from participants, it was pointed out that is likely that the main problem in Latin America is not focused on monetary or production aspects but on the hypothesis that poverty in the region will be due to diseases and disasters. This is why it is important to promote resiliency in Food Security, since while Latin America has a good food production, it is not the most important in the world and in order to improve food production it is necessary to strengthen local markets, but not through increasing areas for agriculture but through developing technologies to optimize production, stated René Gómez García (CAF-Peru)

In that sense, it is important to keep in mind that these processes should also aim to increase added value to agricultural activities so that it is reflected in better life and economic

conditions for farmers. As it is known, basic agriculture is an economic activity of essentially decreasing returns which, in the long-term, maintains farmers in poverty situations. Thus, agroindustry is a way to create a virtuous value circles, as it can be corroborated from the experience with cooperatives and communities in Porcón, Cajamarca, as Alfredo Novoa (Pronaturaleza-Perú) pointed out.

At some point in the presentations, eéctor jaletta (UP-Peru) stated that we should not overlook the criteria used to evaluate these scenarios, as they can generate biased interpretations. From a more positive perspective, his analysis focuses on human evolution and mentions that current production is increasing, as it has been during human history, and that this continuously referred negative situation is based on current production and not in the growth projection that the whole agricultural system will have. For the researcher, the human being has experienced changes in different history moments and to this day has managed to solve its survival issues.

Replies from panelists focused on explaining that the information presented is the result of evaluations related to a decrease in family output and that currently the aim is to have



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systematic information to show these changes with more precision, as there is no base in past information that proves these progression. Regardless of this, it is considered that climate change effects and changes are real and will not stop, that is why they are focused on redirecting efforts, so these changes are not sudden and quickly, since this would complicate the response towards the adaptation process, where the most vulnerable will be the most affected.

Finally, towards the final presentations, the participants set out their concerns regarding the existence and coherence of national and international agreements related to protect products with nourishing quality and to control products proven to be harmful for humans. Panelists pointed out that there are efforts in this matter but economic interests do not allow an effective control. The workshop ended with the shared idea that there is a lot of work to do and the words of gratitude by the Konrad Adenauer's regional program director, Christian Hübner, and the compromise to keep promoting spaces to exchange knowledge and experiences in the complex field of Climate Change Adaptation in Latin America.

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