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II Coffee Rust Summit

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Introduction

The crisis generated by coffee rust has had a special virulence in Central America since 2013. According to estimations made by PROMECAFE, the global coffee production has decreased by 20%; this added to a price crisis, has created losses of over US \$500 million, which has caused a loss of day labor equivalent to over 400 thousand jobs. In 2013 the First Coffee Rust Summit was held in order to create a coordinated response to this crisis (see annex “A retrospective look to the first Coffee Rust Summit”).

Over two years have passed during which government institutions, research centers, trading companies and especially growers (small and big), have faced this crisis. In this context a new summit is held, oriented to gathering the opinions of stakeholders and sizing up the state of situation regarding the different aspects of the rust crisis.

This document summarizes the information collected during the Second Coffee Rust Summit, held on February 24, 25 and 26, 2016 in the headquarters of the National Coffee Association in Guatemala City (ANACAFE). This information has been organized, compiling the most important issues discussed in the four working sessions that took place and focused on identifying the relevant elements for the future of coffee in the region.

The four working groups focused on four issues: innovation and research for rust management, the impact of rust in the coffee value chain / tasks and achieved results, effective mechanisms for the care of vulnerable populations, and the applicable financial mechanisms for regional coffee growing / options and the presentation of a study on production costs.

The following pages will outline information that could be included in the agendas of the different stakeholders involved in the coffee sector that gathered together in this event.

The summit began on the morning of February 24th in ANACAFE, where Miguel Medina, President of ANACAFE, highlighted the importance of addressing the situation created by coffee rust, the decrease in prices and the reduction of jobs that has affected thousands of families. He also emphasized the relevance of having financial options that allow for the renovation of the coffee park, strengthen research, and compensating producers, stating on several occasions the importance of the State's support in all the countries of the region (as has been seen in the Honduran example).

Additionally, Jorge Ulloa, President of the Cooperative Program for the Protection and Modernization of Coffee Growing in Central America, Panama, the Dominican Republic and Jamaica (PROMECAFE), Victor Villalobos, General Director of the Inter American

Cooperation Institute for Agriculture (IICA) and Iván Romero, President of the International Coffee Organization (OIC), mentioned the need to improve on social, environmental and economic aspects (as well as what concerns market access, quality and research), of facing challenges in order to reach better productivity, sustainability and sensibility (this last one especially in governments) and in creating new strategies like the ones that might arise from, for example, the results obtained in the study made by the OIC at Honduras' request, in order to understand the nature of, and consequently act upon, the low coffee prices, searching for more effective actions.

During the session, representatives from the German Embassy in Guatemala (Business *Attaché* Arthur Brunner), the United States Embassy in Guatemala (Ambassador Todd Robinson) and the European Union (Ambassador Kenny Bell) also intervened.

Finally the representative of the Inter-American Development Bank (IDB), Fernando Quevedo, stated that coffee is one of the tools for the region's development and observed that the summit addressed broader topics than technical aspects. He also highlighted the project led by the IDB which is oriented to the innovation of productive business models in credit, risk assessment and market access.

After the inaugural ceremony, the forums were introduced by Enrique Abril who began by presenting an overview of coffee rust in the region. Afterwards, the presentations of each forum began.

Chapter I

Innovation and Research for Coffee Rust Management

Context

During the forum that took place on February 24th, called “Innovation and research for coffee rust management”, seven presentations were made and moderated by Juan Francisco Barrera, representative from ECOSUR.

The forum “Innovation and research for coffee rust management” was the starting point for all the presentations in the second coffee rust summit. Presentations were made on research and methodologies that have been applied in different regions in order to address coffee rust. This will be briefly addressed in the following section.

Presentations

1. Jacques Avelino from CATIE/CIRAD was the first presenter and focused on the effects of shade over coffee rust, and the controversies that have arisen over it. According to this presentation, the effect might vary depending on different environmental conditions. Thus he detailed the potential effects of shade on rust’s life cycle.

Presentation ["Effects of shade over coffee rust"](#)

2. María do Ceu da Silva from the University of Lisbon presented the most important scientific advances on coffee rust. She began by presenting how the Coffee Rust Research Center (CIFC for its name in Portuguese) was created with the support of Portugal and the United States in 1995, because of the importance of rust as a threat to the world’s coffee production. Among the research findings presented were new rust breeds, 50 of which have already been distinguished. The presentation concluded by emphasizing that new resistant sources must be identified and categorized in a near future, combining research findings with studies on coffee resistance mechanisms and the characterization of pathogenic effectors and genetic variability.

Presentation ["Major advances on coffee rust research"](#)

3. David Laughlin representative of the World Coffee Research (WCR) began by presenting the mission of the WCR and the financial resources available for the research they develop. Additionally he presented the projects that focus on coffee rust, including: the effect of agronomic management and shade on coffee rust,

characterization of tolerance to rust and fruitful charge and the impact on beverage quality, a study on coffee's microbiome in order to identify biocontrol agents that can work against rust, an agronomical best practices manual for rust management and the introduction of rust resistant coffee hybrids in affected communities in Guatemala. He emphasized that the projects are diverse and dynamic and there is no easy and quick solution for disease control. The presentation concluded by stating that an integrated management is essential and this must include chemical, cultural and genetic controls.

Presentation ["Strategies to fight Rust"](#)

4. John Vandermeer from the University of Michigan spoke on "Informing intuition with theoretical ecology", and emphasized the survival of spores and its transmission through wind, the effect of shade on germination and transmission and how this affects the hysteresis pattern. He concluded by highlighting that the management style and especially the landscape can minimize rust through autonomous transmission and biological control.

Presentation ["Coffee rust: informing intuition with theoretical ecology"](#)

5. Fernando Hinnah from the *Escola Superior de Agricultura "Luiz de Queiroz"* (ESALQ) presented the prediction systems used for rust in Brazil. He first explained a general overview of coffee and coffee rust in Brazil. Afterwards he highlighted the prediction systems stating that there must be simple, trustworthy, inexpensive and applicable in all conditions, additionally they require minimal climate information. The Rust Prediction System has become a management tool and it allows for programming the application of fungicides. Finally he presented the field tests of the experiments that have been performed.

Presentation ["Forecast system for coffee rust rational management in Brazil"](#)

6. Carlos Urías, representative of the International Regional Agricultural and Livestock Health Organization (OIRSA) presented a "Phytosanitary campaign for the management of rust and other coffee plagues". He began by talking about OIRSA's mission and then presented the campaign's elements, considering the diagnostic, the result and the perspectives of each component. He stated that the integrated coffee monitoring system must have updated information that serves to make specific recommendations. He also emphasized the mobilization of genetic material among countries, and said that the requirements for the entry of different varieties into each country must be known because there is a relationship between coffee diseases and crops.

Presentation ["Phytosanitary campaign for coffee plagues"](#)

7. To conclude this forum, the moderator, Juan Francisco Barrera, from ECOSUR presented the holistic index for coffee rust risks and the application of this

methodology in order to determine the importance of coffee certification as an adaptation strategy before the global changes, which has been done with rust by producers of Mexico, Guatemala, Honduras and Costa Rica. Studies were developed in 42 farms (21 were certificated and 21 were not) located in the aforementioned countries. He concluded that through this holistic risk index, they observed that certified coffee farms have a better reaction capacity toward rust.

Presentation ["Holistic risk index for coffee rust management: farms in four Mesoamerican countries"](#)

These presentations were the framework for the discussion held within the working groups.

Working Group: Innovation and research for rust management

The following day, February 25th, the working group gathered and was moderated by Jacques Avelino, representative from CATIE/CIRAD and IICA PROMECAFE. As well as the presenters during the forum, the working group was composed of Leonardo Lombardini from the World Coffee Research and Enrique Abril, regional coordinator of the Rust Plan, who gave a brief introduction to guide the discussion in the group, and presented the projects developed with USAID.

Additionally technical and research personnel from the coffee institutes of the different countries, agriculture ministry representatives from the region and academics from the Guatemalan state University, the San Carlos University, participated in the working group.

The working group began with a brief presentation to establish the methodology to be used. Additionally time was given in order to solve any questions over the presentations made on the previous day. The participants also commented on their experiences in order to enrich the answers given by the presenters.

Following this interaction, the moderator invited and motivated the participants to share the projects they are currently developing. The participants commented on the programs they are working on with the support of international organizations, local authorities and think tanks.

Representatives from the World Coffee Research and ECOSUR also shared information about their projects.

Some of the programs that were mentioned included the Central American Program for Integral Coffee Rust Management (PROCAGICA), Agroforestry Modeling to support stakeholders in the adaptation to global change (MACACC), Adaptation based on

Ecosystems for Small Producers in Central America (CASCADA), Binational programs like “Harvesting more Coffee” that are being implemented in Nicaragua and El Salvador by Technoserve with resources from USAID. Representatives from Costa Rica, El Salvador, Honduras, México and Dominican Republic also presented their respective projects. Additionally, the research centers shared information on the research being made in the region; Dr. Vandermeer presented the project that the University of Michigan is implementing in Chiapas, while Dr. Edín Orozco from the San Carlos University presented the projects being made on the matter.

Considering the presentations made during the forum “Innovation and Research for Coffee Rust Management” and the existing programs in the region, the participants moderated by Jacques Avelino, discussed what they considered to be the main research subjects to address.

Due to the large amount of objectives proposed, they were grouped in order to be ranked by importance later.

The participants in the objective grouping process were:

- Jacques Avelino - CATIE/CIRAD
- David Laughlin - WCR
- Leonardo Lombardini - WCR
- Edín Orozco - San Carlos University in Guatemala
- Juan Francisco Barrera - ECOSUR

Research subjects grouping:

A. Study on the epidemiology of Rust and the relationship with the proprietor and pathogen

- Validation of models for weather forecasting.
- Evaluating positive and negative effects in the years with climate anomalies (Niño or Niña phenomenon) over the development of epidemics.
- Sampling and movement of spores and the flow of genotypes.
- Characterizing pathogen breeds in the region.
- Diversification of breeds, searching for models on how they evolve and deducting a strategy in order to maintain the durability of the resistance.
- Impact on harvest (severity and incidence levels).
- Dynamic of the disease
- Integrating modeling information, more mechanistic models (show where the research on rust lags behind the most).
- Determining incidence and severity of Coffee Rust (different technology), for investigators and producers.

- Study and understand the mechanisms for horizontal resistance – pathogen aggressiveness.

B. Post-harvest

- Determining the cup quality of the coffee varieties and their interaction with the environment.
- Analyzing the Rust impact on the coffee quality after the outbreak.
- Determining agrochemical residuals in the coffee grain.

C. Management factors that affect rust development

- Study phytosanitary issues in shadow trees
- Study the relation between nutrition, soil and plant health in relation to the weather.
- Look for alternatives for rust management: biological, chemical and cultural
- Evaluate the productive life of improved materials under different management methods.
- Effect of landscape over rust.
- Study the physiological damage caused by rust, and deduces practices that can improve and restore plant health.
- Evaluate the environmental impact of the control methods used for rust management.

D. Social integration

- Measure the impact of rust over the home of growers and workers and over the coffee value chain.
- Look for methods to propose appropriate answers to solve production issues and their relation with the homes of coffee growers.
- Communicate effectively so that producers can use research results.
- Systematize and analyze best practices in rust management.

The innovation and research working group identified an objective to be developed broadly in consensus with the participants. Thus they decided to study the relation between nutrition, soil and plant health, in relation to weather. This issue was grouped under the category “management factors that impact rust development”.

Methodology

As will be made evident in further chapters, where the work done in the other issues in the Second Rust Summit (Rust impact on the coffee value chain / work and achieved results, Effective mechanisms to care for vulnerable populations and Applicable financial mechanisms in regional coffee growing / Alternatives and the presentation of a study on production costs) is described, the approach to the innovation and research topic was decided by consensus in the working group, after revising the larger themes that had been identified.

Thus, and understanding the nature of the topic, the group agreed to change the names of the categories used in the methodology: the obstacles are presented as research questions, the strategy was presented as methodology and those responsible of following up were changed to a list of participants whose role will consist on supporting those responsible for the creation of the proposals.

Research questions

- **¿Does the absence of humidity affect plant health and rust?**

Methodology:

- ✓ Establish field tests with irrigation systems.
- ✓ Study the reaction of the nursery plants to rust in soils with different levels of humidity (water stress treatment).
- ✓ Create a plant health index.

- **¿How will ground coverage and mulching affect ground humidity?**

Methodology:

- ✓ Experiment with different plants that offer ground coverage and measure the humidity in the soil with TDRs through time
- ✓ Water and light control (precipitation and radiation).
- ✓ Treatment with undergrowth and without undergrowth.

- **Lack of basic information on ground (soil) biology**

Methodology:

- ✓ Sampling in different management systems.
- ✓ Relation between soil biological quality and plant health, and reaction to rust in a nursery with soils coming from different management systems.
- ✓ Inoculate soils or plants with soil parasites and measure the reaction of rust in a nursery.
- ✓ Look for financial resources for research.

- **Analyze the effect of bio- fertilizers and mineral broths over rust, action mechanism**

Methodology:

- ✓ Work on adult nursery plants and make inoculations
- ✓ Validate on field conditions

- **¿What is the effect of the texture, of the nitrogen and other elements on the progress of the disease and the physiological resistance?**

Methodology:

- ✓ Fertilization programs and correction in nursery and through inoculations in order to characterize physiological resistance.
- ✓ Different soils (texture, pH, calcium, etc.) in nursery and inoculate plants.

- **Cellular, morphological and biochemical characterization of leaves with different fertilization plants in different soils.**

Methodology:

- ✓ Expression of physiological resistance genes.
- ✓ Rehearsals that evaluate nitrogen and potassium levels on the progress of the epidemic: analyze the physiological resistance through laboratory inoculations.

Technical Conclusion – Innovation and research working group

The coffee rust epidemics that have occurred after 2012 have exposed the weaknesses of Central American coffee growing, just as this disease did 36 years ago, when it was first reported in the region.

Back then, the reaction was to create PROMECAFE in order to generate and transfer technology that would allow coffee growers to increase their performance and manage the disease control costs. Rust became more of an opportunity than a problem.

During the Second Coffee Rust Summit, the need for greater research on rust throughout the region was exposed, as well as the need for regional actions that can allow for united efforts, avoid duplicity, attract collaborations, decrease research costs and become more efficient.

After several years during which the region stopped researching, rust points out the need to reconsider this field of action. In the same way that was done 38 years ago, rust must be seen today as an opportunity rather than a problem.

The different working objectives identified by the working group differ greatly from the objectives stated 38 years ago, which shows technical maturity and the potential of all the participants in the group. We must not re do what has already been done, but take a step further. Undoubtedly, this step will help prepare the region in order to face the global changes that are threatening it. The Rust outbreak warned that we must be stronger in order to be able to resist, and there is no doubt that this working group addressed the threat seriously.

Information collected during the working session

Research question	Methodology	Participants	Entities responsible of follow up
¿Does the absence of humidity affect plant health and rust?	Establish field rests with irrigation systems.	Jacques Avelino CATIE	Ángel Trejos IHCAFE
	Study the reaction of the nursery plants to rust in soils with different levels of humidity (water stress treatment).	Juan López IHCAFE	
	Create a plant health index.	Juan Pablo Peñalo CODOCAFÉ	
¿How will ground coverage and mulching affect ground humidity?	Experiment with different plants that offer ground coverage and measure the humidity in the soil with TDRs through time	Mario Chocooj ANACAFE	Pablo Ruiz Neuman Foundation
	Water and light control (precipitation and radiation).		
	Treatment with undergrowth and without undergrowth.		
Lack of basic information on ground biology	Sampling in different management systems.		Andrés Ortiz IHCAFE
	Relation between soil biological quality and plant health, and reaction to rust in a nursery with soils coming from different management systems.	Mario Chocooj ANACAFE	
	Inoculate soils or plants with soil parasites and measure the reaction of rust in a nursery.		
	Look for financial resources for research.		

Research question	Methodology	Participants	Entities responsible of follow up
Analyze the effect of bio- fertilizers and mineral broths over rust, action mechanism	Work on adult nursery plants and make inoculations	Freddy González GIZ	Adán Hernández Agriculture Ministry from El Salvador
	Validate on field conditions	Eddy Salgado Root Capital	
¿What is the effect of the texture, of the nitrogen and other elements on the progress of the disease and the physiological resistance?	Fertilization programs and correction in nursery and through inoculations in order to characterize physiological resistance.		Jacques Avelino CATIE/CIRAD
	Different soils (texture, pH, calcium, etc.) in nursery and inoculate plants.	David Laughlin/ Leonardo Lombardini WCR	
	Cellular, morphological and biochemical characterization of leaves with different fertilization plants in different soils.	Juan López/ Andrés Ortiz IHCAFE	
	Expression of physiologic resistance genes.	María do Ceu da Silva Lisbon University	
	Trials that evaluate nitrogen and potassium levels on the progress of the epidemic: analyze the physiological resistance through laboratory inoculations.		

Chapter II

Impact of Rust over the coffee value chain

Work and achieved results

Context

The second forum of the Second Coffee Rust Summit, called “Impact of Rust over the coffee value chain / Work and achieved results” was held on February 24th.

This forum was moderated by Alejandro Keller, Vice President of ANACAFE’s board of directors.

The forum had five presentations made by key stakeholders in the coffee value chain. The speakers were Leonel Paiz from Nestlé, Orlando Mora from Starbucks, Darrin Daniel from Allegro Coffee, Renaud Cuchet from EFICO and Kim Elena Ionescu from the Specialty Coffee Association of America (SCAA). In the next section you will find a brief summary of each one.

Presentations

1. Leonel Paiz from Nestlé gave the first presentation. During his speech he presented the objectives of the Nescafe Plan and the initiatives it promotes in Central America. This plan has two main objectives: the first of them is to help the coffee supply chain, and the second is to optimize the chain, including an increase in direct purchases and technical assistance to coffee producers. Specially the Necafe Plan in Central America includes four initiatives: the propagation and distribution of rust resistant plants (11 million plants for four countries); development of new planting material by the R&D unit in NESTLÉ, currently being field tested with the support of local institutions; research to improve the resistance to rust with the help for CIRAD; and the implementation of technical assistance projects and aid to coffee growers by opening the NESTLÉ Excellence Center.

Presentation ["Nescafé Plan – Beyond the cup"](#)

2. Orlando Mora from Starbucks Coffee Agronomy Company began his presentation stating that climate change in the last few years has favored an increase in rust incidence and virulence. He emphasized that this has affected the profitability of regional coffee growing, reducing economic, productive and competitive sustainability in the region. Four levels of rust impact were identified: social,

economic, institutional and agronomical; after which the importance of a renewal process and the adequate plantation management was highlighted. Additionally, he commented on the agronomical support made by Starbucks through: direct technical assistance; technical support to the coffee sectors and regional and local programs like “We all grow coffee” in Mexico, “One Tree One Bag” in United States stores and support to involve entities through coffee credit projects. The presentation concluded by stating the importance of working on the adaptability of plants in each country and highlighting that Starbucks has 15 materials with outstanding characteristics, of which 5 will be shared with the coffee sector.

Presentation [“Impact of Rust over the coffee value chain”](#)

3. Darrin Daniel from Allegro Coffee focused his presentation on the views held by coffee roasters on rust. He stated that the rust epidemic has entailed great efforts from roasters to ensure the entry of certified organic coffee from the most affected areas like Honduras, El Salvador, Nicaragua, México, Costa Rica and Guatemala. During the presentation he highlighted the quality issues in non-vulnerable areas and stated that the cup quality in the most affected areas has suffered a negative impact in its bouquet, which can be attributed to the effects caused by rust. He mentioned that roasters wonder if they can work by pruning, classification and managing shade as a quicker way for producers to manage rust, without recurring to the use of fungicides. He added that roasters consider the immediate results more important than long term research to develop resistant varieties. The rust crisis has not been commented widely in the United States, and the speaker believed that more communication is needed there, additionally Europe is asking for an organic management of rust. He emphasized that the *Felicidad* farm in Antigua Guatemala has an interesting rust management program. To conclude, the speaker stated that rust represents a battle that can last between 10 and 12 years, emphasizing that they have lost opportunities to commercialize organic coffee, which has been very affected, but the main issue is to find a solution where all the involved in the coffee value chain are involved.

Presentation [“Rust: a roaster’s perspective”](#)

4. Renaud Cuchet from EFICO presented a brief summary of the damages caused by rust in Latin America, after which he presented the results of a study made with European clients in order to determine their knowledge and understanding of the rust issue in Central America. He also commented that in Mexico, 80% of the lands that grow coffee were affected by rust and that organic farms were devastated. He also pointed out that the differentials have increased and Mexico has lost access to markets which has affected Guatemala as well, since middle men are looking to buy Guatemalan coffee, creating a distortion in prices and losses to Guatemalan exporters. He also mentioned that the most affected areas in Peru were the central and southern areas of the country, since they were old

plantations. Additionally organic production decreased drastically. Bolivia's production was reduced by half and is presenting defects. He also commented that there are no more coffee for exports in Dominican Republic, and it is not even enough for internal demands. El Salvador has found itself in a crisis where production has fallen drastically, contracts have been defaulted on, growers are having financial issues and are not being able to renew plantations and exporters are firing employees. The speaker commented that Guatemala's production is slowly recuperating but many growers do not have the financial capacity to react rapidly which is why a comeback is expected to be slow and that the future of coffee growing will depend on New York's Stock Exchange prices.

Regarding Costa Rica, the speaker commented that growers have been able to control damages but that production has been slowly falling due to other factors. Nicaragua, he stated, has had lesser damages since they have newer plantations with rust resistant varieties, but organic farms have been affected. According to Cuchet, Honduras has been the great winner of the region, since they were prepared with Catimor varieties. He also highlighted that massive certifications and best agricultural practices have helped prevent a larger rust attack. Production in Honduras has increased and a good future is foreseen for coffee growing in this country.

In the second part of his presentation, Mr. Cuchet focused on the study made on European clients where he tried to identify the perception they have on coffee and the rust crisis. The first question in the study was how rust affects coffee buyers. Among the conclusions, he found that buyers see rust as a crisis for growers and not roasters. However, roasters do wonder what will happen to cup quality when rust resistant varieties are put in place. They also highlighted that micro roasters depend on a certain origin and have no flexibility, and roasters believe that the higher prices of organic coffees are an after effect of the rust crisis. Additionally, roasters worry about the use of fungicides and are asking for traceability.

The second question in the study was: Are buyers changing the way they buy coffee? They stated that they prefer to buy sustainable coffee and emphasized that they support the sustainable management of rust. They also added that roasters are changing origins due to a frustration in the increase of coffee prices. The third question was focused on whether the rust crisis in Latin America is a threat for coffee buyers. Most of those interviewed commented that it is not a threat but it is a great concern and a challenge for the coffee industry. The fourth and final question consulted whether buyers or roasters were participating in any program to combat rust. They stated that the European Coffee Federation is supporting a climate change project and that they consider that the best way of supporting is to participate in climate change initiatives. To conclude his

presentation, Mr. Cuchet explained that it is important to create awareness among roasters and growers about the effects of rust and the risk it represents for raw materials.

Presentation ["Rust impact on the coffee value chain"](#)

5. Kim Elena Ionescu from the Specialty Coffee Association of America (SCAA) began his presentation stating that the objective of the SCAA is to distinguish quality coffee from commercial coffee, but that the sustainability of both is connected. She stated that more growers want to participate in SCAA and that is a good sign since the future of coffee growing demands that all be connected. According to the speaker the solutions to combat rust must involve all the stakeholders in the coffee value chain, and all future must be shared. She presented the example of the Rust Recovery Project, highlighting that it is unusual that United States companies get involved in these types of initiatives, which included the participation of several companies linked to the coffee value chain. She also referred to the Root Capital project, which allowed for several people to work together to give financial resources to coffee growers affected by rust, and stated that this project included people that had never worked together before. She stated that rust is a symptom of various factors, for example climate change and lack of workforce, adding that sustainable management is needed. Additionally, she mentioned the Sustainable Coffee Program and the Project Vision 2020, stating that all are needed to ensure the future of special and commercial coffee. All of these projects share the fact that they don't include a grower's perspective, since they are all led by consumer countries. To conclude the speaker mentioned that the fact that the Second Coffee Rust Summit is being organized by producing countries is a positive thing.

Presentation ["Causes for collaboration"](#)

At the end of the forum there were two questions:

- **Can H1 be a good gourmet coffee?**

Leonel Paiz from Nestlé commented that the hybrid H1 has been evaluated in El Salvador and compared with Catimors and Sarchimors, with the benefit that it is rust resistant. It has some defined cup profile, and he added that any coffee is defined by its microclimate, the cultural practices and the variety.

Orlando Mora from Starbucks commented that they have tried Sarchimors, which is why they have used studies and multi local projects that they want to share.

- **What else can roasters or importers do to help producers and what portion of the certification costs can roasters take on?**

Renaud Couchet from EFICO commented that the Efico Foundation has alliances with clients that have funds for aid. He stated that there are no programs to cover the costs of certifications and he mentioned pilot projects that can motivate others, for example the certified chain 4C in Colombia. He added that the certification program can improve the standard of living and productivity of the communities.

Additionally, Darrin Daniel from Allegro Coffees commented that they have worked with growers to promote the Rain Forest Alliance certification, and that certain awards are given for those certifications.

Kim Ionescu from SCAA stated that the issue of who receives the greatest benefits from the certifications must be verified, since if the roasters benefit more than the growers, then the price the roaster is paying and why it is not attractive for the growers must be revised.

Working Group: Impact of Rust on the coffee value chain / Work and achieved results
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The following day, on February 25th, the working group gathered and among them were most of the presenters of the forum, except for Darrin Daniel from Allegro Coffees. Additionally members of coffee value chain from Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica participated in the group. The conversation was moderated by Alejandro Keller, Vice President of the ANACAFE Board of Directors.

The methodology of the groups allowed for the identification of obstacles, strategies, key stakeholders and those responsible of follow up.

It is important to mention that before the Second Coffee Rust Summit began, the moderator and some of the participants defined the objective of the session as the following: How to set the bases for an operational coffee value chain for the next 20 to 30 years facing a rust crisis and climate change? (shared future).

In the following paragraphs the strategies based on the obstacles and those responsible for follow up, identified by the working group will be identified:

A. Renewal and Research

One of the identified obstacles was the need to renew the coffee park, after which a question arose: How will the renewals of coffee plants will take place? It was proposed to continue with the research of new hybrids. As responsible for follow up to these

initiatives, the following names were mentioned: PROMECAFE, WCR, Coffee Institutes, Research Centers, Universities and the OIC.

B. Varieties

Another identified obstacle was that the origin of rust resistant seeds in use is not always known and this can create future production problems, like new diseases. This is why certification of seeds by local and regional entities was proposed. Those named as responsible for the follow up of this matter were: Coffee Institutes, PROMECAFE, governments and agricultural and livestock sanitary institutes belonging to the Agriculture Ministries of each country.

C. Communication

A lack on interaction between the members of the coffee value chain was identified, because of which it was proposed to create awareness about the effect of Rust in international roasters and buyers. Among the issues to be communicated are: high production costs, climate factors, and low prices in the stock exchange. It was suggested that high relevance media like the New York Times and other similar media be used as vehicles, for which journalists could be invited to visit the Central American region. Kim Ionescu from the SCAA recommended that we highlight current events, as well as the actions being made locally and regionally, and afterwards ask how they can contribute with the Central American region. Those named as responsible for follow up on this matter were: institutes or local councils, PROMECAFE and SCAA (to distribute information), though the need for the cooperation of all involved was highlighted. Additionally, the need to have a third party study that can describe the whole chain arose, and a possible organization named to develop it was INCAE.

D. Climate change and costs

Other identified obstacles were climate change and the small profitability for growers. These were named as a threat to the sector. The promotion of sustainability in all of the coffee value chain was suggested. Named as responsible for follow up in this matter were: Coffee Institutes, PROMECAFE, certifiers, the OIC and coffee organizations.

E. Paradigms on resistant varieties

An obstacle that demands greater attention is that paradigms on resistant varieties must be broken among roasters and buyers. A suggested strategy was to present, inform and hold tastings for the new varieties with roasters and buyers, doing this in forums, private organizations and international fairs, inviting key stakeholders like SCAA and the OIC. Another comment that arose, was the initiative made in Honduras to classify and label the

resistant varieties, which add value to the coffee attributes not the origin. The responsible entities identified were: PROMECAFE, local and regional institutes, key opinion leaders within the industry, associations like the SCAA and the media.

F. Technology packages

Another identified obstacle was that there are no complete technology packages to renew the coffee plants in the current adverse conditions, like shade, distance to plant, organic crops, fertilization, soil analysis and fertility analysis. The group proposed to review the technology package for renewal so that it can include best agricultural practices as well as searching for available funds for coffee growers. The responsible entities identified were PROMECAFE and coffee institutes.

G. Seed management

The lack of a policy for seed management was another identified obstacle. The identified strategy was to develop a catalogue per country with the support of PROMECAFE in order to create a Regional Seed Policy, in order to control the entry to the other countries. The World Coffee Research is doing something similar. The responsible entities identified were PROMECAFE, coffee institutes, governments, OIRSA and agricultural and livestock sanity institutes depending on the agricultural ministries in each country.

H. Sanitation

An obstacle that arose in all the countries in the region is that new plagues like *borca* and mealy bug (cochinilla), and other diseases provoked by climate change. The need to make a climatic analysis and the use of early warning systems was identified. Additionally, the importance of evaluating and divulging success stories was mentioned. Finally a yearly PROMECAFE meeting was suggested in order to present success stories and transfer knowledge. In this topic the Honduras case was commented amply, referring especially to the plant renewal they made before the rust epidemic outbreak, to the support they have received from the government and to the work they have done in rust affected areas, which were the ones where the replacements had not been done. Thus, it is important to highlight the evidence needed to promote meetings at a technical level. These meetings should take place with the participation of all technical personnel of the region and a PROMECAFE team. The responsible entities identified were PROMECAFE, coffee institutes, and OIRSA.

I. Agricultural Insurance

Another of the identified obstacles was the absence of an agricultural insurance. A proposed strategy was to evaluate the implementation of an insurance of this nature

promoting an outreach strategy with the government and other key stakeholders. The responsible entities identified were PROMECAFE, coffee institutes, governments and international financial institutes.

J. State Policies

Another issue is that not all countries have a national coffee plan. A suggested strategy was the development of national coffee plants and the development of policies to support the coffee sector at a national and regional level (coffee policy and agenda). The responsible entities identified were the governments, local coffee institutes and PROMECAFE.

The group also analyzed the following points of interest for the coffee value chain:

K. Zoning

An obstacle to address is the definition of the adequate areas to grow each coffee variety by a competent organism.

L. Diversification

An evaluation of certain areas must also be done in order to determine if the coffee crop is adequate as a unique alternative, or if this crop can be combined with other crops that can be profitable when combined. Maybe coffee is not the only answer to the growers' needs.

M. Information

Thus, the need to inform and train the growers better was mentioned, as well as promoting an appropriate information flow as well as networking schemes.

Additionally, as a part of the methodology the following stakeholders were identified within the coffee value chain: financial entities and banks, maritime shipping and transportation companies, supplies distributors, universities, local and national governments (health and environment), international and private organizations, cooperation agencies, retailers, certifiers, international and local media (traditional, specialized and digital), insurance companies and reinsurers, the private sector, NGOs, coffee associations, PROMECAFE, WCR, coffee institutes (ANACAFE, IHCAFE), OIRSA, OIC, roaster associations, barista associations, FAO, FEWSNET, meteorological services, Regional Committee of Water Resources, Earth Institutes, CIAT,

Technical conclusions – working group

This forum had the important participation of Leonel Paiz from Nestlé, Orlando Mora from Starbucks, Darrin Daniel from Allegro Coffee, Renaud Cuchet from Efico and Kim Elena Ionescu from SCAA among others. It was a platform to present important initiatives designed to optimize the coffee supply chain, including an increase of direct acquisitions and technical assistance programs for growers. The initiatives contemplate climate change, the renewal of coffee plants, state policies, technological passages, profitability and economic, productive and competitive sustainability of the region, an agricultural insurance and resistant varieties, highlighting the need to improve communication, especially on the damages caused by rust in regional coffee growing, production costs and technical zoning of the crop.

The Honduran case was commented as a success story, as well as the need to distinguish between quality and commercial coffee, even though the sustainability is the same.

There are great challenges, among them other activities roasters and importers can undertake to aid the growers or the amount of the certification costs the roasters can assume, knowing the production costs in order to make coffee an economically, socially and environmentally sustainable product. These are issues that we must consider and that need regional answers in order to advance.

The Second Coffee Rust Summit was, undoubtedly, an ideal forum to present sensitive issues, but it is not enough and now stakeholders must gather in working groups that can really address the problems and propose strategies, in order to propose solutions and answers to these important issues. PROMECAFE's role is essential in order to support the associations and coffee institutes of the region, to develop a strategy and to address challenges.

Information collected during the working session

Theme	Obstacles	Strategy	Entities responsible of follow up
Renewal and research	Coffee plants must be renewed. Which is why the following question arose: How will the renewal of coffee plants take place?	Continue with research on new hybrids	PROMECAFE, WCR, coffee institutes, research centers, Universities and the OIC
Varieties	The origin of resistant seeds that are being planted is not always known and this can cause issues in future productions like new diseases.	Certification of resistant seeds by local and regional entities.	Coffee institutes, PROMECAFE, governments, sanitation institutes that depend on agricultural ministries
Communication	There is a lack of interaction between the members of the coffee value chain.	As a region, present the effects of rust to roasters and buyers at an international level. As well as presenting the combination of factors that are affecting the producers, among which are: high production costs, climate factors, and low prices in the stock exchange. It was suggested that high relevance media like the New York Times and other similar media be used as vehicles, for which journalists could be invited to visit the Central American region. Kim Ionescu from the SCAA recommended that we highlight current events, as well as the actions being made locally and regionally, and afterwards ask how they can contribute with the Central American region.	Institutes or local councils, PROMECAFE and SCAA (to distribute information), though the need for the cooperation of all involved was highlighted. Additionally, the need to have a third party study that can describe the whole chain arose, and a possible organization named to develop it was INCAE.
Climate change and costs	Climate change and low profitability for growers were mentioned as a threat to the sector.	Promoting sustainability in all of the coffee value chain.	Coffee Institutes, PROMECAFE, certifiers, OIC and coffee organizations

Theme	Obstacles	Strategy	Entities responsible of follow up
Paradigms on resistant varieties	Paradigms on resistant varieties must be broken among roasters and buyers	Present, inform and hold tastings for the new varieties with roasters and buyers, doing this in forums, private organizations and international fairs, inviting key stakeholders like SCAA and the OIC. Another comment that arose, was the initiative made in Honduras to classify and label the resistant varieties, which add value to the coffee attributes not the origin.	PROMECAFE, local and regional institutes, key opinion leaders within the industry, associations like the SCAA and the media.
Technology packages	There are no complete technology packages to renew the coffee plants in the current adverse conditions, like shade, distance to plant, organic crops, fertilization, soil analysis and fertility analysis.	Review the technology package for renewal so that it can include best agricultural practices as well as searching for available funds for coffee growers.	PROMECAFE and coffee institutes.
Seed management	The lack of a policy for seed management	Develop a catalogue per country with the support of PROMECAFE in order to create a Regional Seed Policies, in order to control the entry to the other countries. The World Coffee Research is doing something similar.	PROMECAFE, coffee institutes, governments, OIRSA and agricultural and livestock sanity institutes depending on the agricultural ministries in each country.
Sanitation	An obstacle that arose in all the countries in the region is that new plagues like borca and mealy bug (cochinilla), and other diseases provoked by climate change	The need to make a climatic analysis and the use of early warning systems was identified. Additionally, the importance of evaluating and divulging success stories was mentioned. Finally a yearly PROMECAFE meeting was suggested in order to present success stories and transfer knowledge. In this topic the Honduras case was commented amply, referring especially to the plant renewal they made before the rust epidemic outbreak, to the support they have received from the government and to the work they have done in rust affected areas, which were the ones where the replacements had not been done. Thus, it is important to highlight the evidence needed to promote meetings at a technical level. These meetings should take place with the participation of all technical personnel of the region and a PROMECAFE team.	PROMECAFE, coffee institutes, and OIRSA.

Theme	Obstacles	Strategy	Entities responsible of follow up
Agricultural Insurance	the absence of an agricultural insurance	Evaluate the implementation of an insurance of this nature promoting an outreach strategy with the government and other key stakeholders.	PROMECAFE, coffee institutes, governments and international financial institutes.
State Policies	not all countries have a national coffee plan	Development of national coffee plants and the development of policies to support the coffee sector at a national and regional level (coffee policy and agenda).	Governments, local coffee institutes and PROMECAFE.

Chapter III

Effective mechanisms to care for vulnerable populations

Context

During the forum, that took place on February 24th, called “Effective mechanisms to care for vulnerable populations”, five presentations were made with the moderation of Lorena Aguilar from FEEWS Net.

The presentations were made under the framework of sustainability and especially the relationship between the vulnerability of the populations and the coffee crisis, as well as the importance of coffee growing in the regional population (over 2 million people in Central America depend on the coffee crop). The impact that the crop and other factors like climate change and international prices have on food security in related populations was also discussed.

Presentations

1. Allan Hruska from the Food and Agriculture Organization (FAO) was the first speaker and focused especially on describing the programs of his organization based on two of the sustainable development goals: end poverty in all its forms everywhere and end hunger, achieve food security and improved nutrition and promote sustainable agriculture. With this framework he presented FAO’s programs that support the fight against rust, especially the implementation of an early warning system called SATCAFE that serves to detect the incidence of the disease. This system has been implemented in six countries: Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama and Dominican Republic. It has mainly been implemented by local agriculture ministries, except for Dominican Republic where it is being implemented by the Dominican Coffee Council.

Presentation [“Coffee rust management: support for family coffee growers”](#)

2. Heloisa Schneider, representative of the Latin American Economic Commission for Latin America, focused her presentation on the actions taken to mitigate climate change effects in the region. She specifically mentioned the relation between the spread of rust and other diseases and climate change, as well as some financial resources available for programs focused on this issue.

Presentation [“Climate funds: opportunities for coffee”](#)

3. Jorge Oliveros, in charge of the Rural Value Chains Program (PCVR) financed by USAID gave a summary of the actions undertaken in this program, emphasizing the importance of addressing vulnerable populations in an integrated manner, coordinating cooperation programs and technical assistance. This project is being implemented in the occidental highlands in Guatemala and addresses food security, the environment, agriculture, health and education as well as democracy and governance. The goals of this program include sustainable growth of the communities, improving competitiveness and agricultural productivity, improving market access and the participation in chains.

Presentation ["Rural value chains"](#)

4. Additionally, Glenda de Paiz, representative of USAID emphasized that the program promoted by her organization is the integration of efforts in order to care for populations in different areas that complement each other. The integration of all support allows for an increase in support activities and expands its reach. One of the main challenges presented was the amount of time and resources invested in the coordination among institutions, this being an essential effort to the success of the initiative. Another important challenge is to design success indicators that respond to local characteristics but that can be adapted elsewhere.

Presentation ["Guatemala – Occidental Highlands Integrated Program"](#)

5. Carles Puigmarti, representative of the Spanish cooperation agency (AECID), focused its presentation in a program for climate change that the agency supports in Latin America. He also emphasized the support of the AECID in coffee growing since 2003. Specifically, this program has focused on actions to increase coffee's added value, strengthening the grower's capacity to produce more sustainably and with better quality, promoting technical and entrepreneurial training to small growers, ease the introduction of alternate or complementary crops, food security actions and strengthening institutions.

Presentation ["AECID's experience in the café of the most vulnerable population of coffee growers in Central America"](#)

6. Finally Patricia Palma, representative of the Regional Program of Nutritional and Food Security for Central America (PRESANCA II), focused on the characteristics of the vulnerable populations and the importance of nutritional and food security in their care. During her presentation she defined vulnerable populations as growers with less than 1.7 acres of land, workers without land and small growers that do not hire workers. She specifically emphasized the importance of considering the human resource within the coffee value chain, especially considering that a large amount of people depend on the crop and the high amount of chronic malnutrition in coffee communities.

Presentation [Food and Nutritional Security \(SAN\) in Rust times in Central America](#)

During this forum, one of the most important issues discussed was the absence of updated information on these populations, which complicates the determination of indicators that can measure the results of the implemented programs. Additionally the speakers recognized the importance of including this topic in the discussion, since it is an essential part of the coffee value chain.

These presentations established the framework for the discussion that took place within the working group.

Working Group: Effective Mechanisms to care for vulnerable populations

The following day, February 25th, the working group gathered and was moderated by Patricia Palma, representative from the PRESANCA II program. Additionally she was supported by Enrique Abril, who began the session with a brief introduction in order to focus the discussion of the group.

The working group began with an introduction of all the participants and a brief presentation to explain the methodology and some basic guidelines for the interventions of each participant.

It is important to mention that before the Second Coffee Rust Summit, a meeting was held with the moderator Patricia Palma and Lorena Aguilar. During this meeting the specific objectives to discuss during the working session were defined as follows:

- Identify the challenges and the indicators over which an impact is desired.
- Establish new strategies and focuses to care for vulnerable populations in an integral manner.
- Develop ways in which aid efforts from different organizations can be integrated.

To reach these objectives a methodology was defined which included defining the obstacles for each goal, as well as strategies, stakeholder and entities responsible for follow up.

As well as the speakers of the forum, the working group included representatives from the international community like Spanish Cooperation, FAO and Root Capital, as well as representatives of non-profits like the Hanns R. Neumann Stiftung (HRNS) foundation, Technoserve and Funcafe, coffee institutes from different countries, individual growers and representatives from the ministries and other private sector organizations.

Identified obstacles

The working group identified several obstacles that can be grouped in the following sections:

A. Differences / limitations in information and methodology

It was determined that the lack of information on the characteristics of vulnerable populations is a great limitation for the projects or initiatives designed for their care. The characteristics specified related to demographic and geographic aspects defined through census, as well as specific qualities such as quality of life, access to basic services, income, migration, resilience, etc. This complicates the integration of statistical data by regional institutions that want to develop regional indicators. The lack of information also complicates effective and opportune decision making.

On the other hand, most results and indicators are measured in different ways by different institutions. This is probably due to the fact that there are several approaches to vulnerability, which means that different institutions and organizations consider different aspects and conditions in order to define vulnerability, which makes for a large target audience.

However for this discussion the group chose to focus on two of the sustainable development goals pointed out by FAO: end poverty in all its forms everywhere and end hunger, achieve food security and improved nutrition and promote sustainable agriculture.

B. Limits in the coordination capacity between the different organizations in the coffee sector

A weakness was identified in the coordination of the different organizations involved in the coffee sector that have incidence in coffee activities. This complicates the effective and integral implementation of programs, since there are no common goals or coordinated actions that allow for an integral approach. Additionally, the risk of duplicating or even triplicating cooperation efforts exists, making the execution of funds less efficient.

The lack of coordination also complicates the comprehension of the needs of the sector, especially since some government institutions still don't understand the importance of the sector in local and national economies. This situation also accounts for the lack of coffee oriented policies in some countries in the region (like Guatemala and El Salvador), where the sector is not prioritized as an element that can reduce poverty.

There were specific weaknesses identified in:

- Coordination among cooperation entities and institutions, especially in the definition of common goals.
- Coordination between stakeholders in the coffee value chain and public institutions. This limits the support in terms of effective legislation that can support the sector, specially incentives, cooperation, etc.
- Coordination among the stakeholders of the coffee value chain.

These weaknesses immediately reflect upon an absence of leadership, especially by local stakeholders, which complicates the implementation of any initiative or program.

C. Financial instability of vulnerable groups

This is a common characteristic of all groups that are considered vulnerable. This financial instability is fed by many external factors like international coffee prices and the prices of agricultural supplies. However it is also fed by internal factors like the profitability obtained by growers, the lack of permanent income of vulnerable groups and the lack of training and technical assistance.

The internal factors that affect the financial stability can be divided in two: access to funds and quality of training and technical assistance.

The access to funds is a constant challenge for both vulnerable populations and other stakeholders of the coffee value chain, especially considering the little financial capacity of local and national governments of each country. This is even more complex for vulnerable populations since they don't have constant income their vulnerability varies and can easily worsen. Small growers additionally have difficulty determining the profitability of their crops, especially for lack of basic management education.

The quality and availability of technical assistance is also an important factor, since there are places where training and technical support is quite low (for example in Nicaragua less than 20% of growers have technical assistance). It is important to highlight that in some cases technical support is not focused on the needs of the communities which makes it less relevant or hard to understand. Most of the programs focus on facilitating funds for production and dismiss the importance of entrepreneurship, the management of resources and sustainability.

D. Lack of representation of vulnerable groups

The last topic to be addressed was the representation of vulnerable groups and the absence of organizations that represent them, or under which they can organize. In this topic the group also mentioned the lack of enforcement of labor legislation in some areas and the way this influences in the vulnerability of the groups.

Strategies

Based on the obstacles defined in the previous section, the group established strategies to address each one.

A. To address the differences / limitations in information and methodology the following strategies were established:

- Develop a census of small growers that include the geographical locations of the groups, demographic, social and epidemiological profiles, with coordinated efforts that involve cooperation projects, public institutions and coffee related institutions.
- Unite methodologies and develop specific standardized and monitored indicators (that respond to specific qualities of every target audience) with a commitment of the programs and national and regional entities.
- Based on the information gathered, define specific populations, recognizing the need to care for communities in their places of origin (where the workers come from) as well as the destination communities (where they end up working) related to the coffee sector. This way care strategies can be developed without the origin of the groups being important.

B. To address the limits in the coordination capacity between the different organizations in the coffee sector

- Articulate an institutionalized response between the organizations, so that the vision of the institutions can be aligned with those of the cooperation organizations in order to make for more effective projects.
- Reactivate the Coffee Policy Council (or its equivalent in each country) so that a constructive dialogue can take place between the productive sector and the government.
- Develop a communication and working strategy between the different stakeholders in the coffee value chain and the public sector.
- Generate a national coffee policy and involve the institutions that can make it operational.

- Create a platform that can open a way for big buyers to support sustainable coffee growing and strengthen its value chain.
- Monitor and create knowledge through the current experiences that can that can be replicated in other countries or scales.

C. To address the financial instability of vulnerable groups, the following strategies were suggested:

- Create an integral training and technical assistance platform, applicable in a regional manner that can be adaptable to the different characteristics of the identified groups. This platform should focus on the following topics:
 - ✓ Crop diversification
 - ✓ Financial access (credits)
 - ✓ Competitiveness
 - ✓ Sustainability
 - ✓ Access to markets
 - ✓ Technological alternatives
 - ✓ Entrepreneurship and management
 - ✓ Diversification of agricultural and non-agricultural income
 - ✓ Profitability of a productive farm
- Promoting access to financial mechanisms like trusts, soft loans, access to credit, coffee insurance, etc.
- Promoting the creation of cooperatives to increase competitiveness
- Local and regional links to promote an exchange of goods and services.
- Strengthen a model of integral agricultural extension.

D. To address the lack of representatives in vulnerable groups, the following strategies were suggested:

- Create law that can protect workers
- Reinforce current legislation and strengthen the reaction capacity of governments, especially labor ministries.
- Reinforce initiatives for family and health education.
- Create joint mechanisms to promote an improvement in the conditions of the coffee value chain.
- Promote voluntary certifications with labor components.

Key stakeholders

Once the strategies were established, key stakeholders that had to be involved in each one were defined.

A. To address the differences / limitations in information and methodology the following stakeholders were identified:

- Central governments through work and health ministries and the statistic institutions
- Coffee associations in each of the countries in the region
- Cooperation programs related to the care of vulnerable populations
- Local governments in areas associated to the coffee sector

B. To address the limits in the coordination capacity between the different organizations in the coffee sector:

- International cooperation
- Coffee Institutions
- Central governments, through their ministries of agriculture, work and economy
- Local governments
- Health and social protection entities
- Exporters
- Roasters

C. To address the financial instability of vulnerable groups, the following strategies were suggested:

- Central governments
- Banking sector
- Cooperatives
- Organized private sector
- Technical NGO teams

D. To address the lack of representatives in vulnerable groups, the following strategies were suggested:

- Work Ministries
- Coffee institutes
- Cooperatives
- Education Ministries
- Peasant organizations
- NGOs

Responsible entities

For all of the established strategies, it was defined that coffee institutions should be the ones promoting them with the support of PROMECAFE.

Additionally the group emphasized the role the government should play through its different ministries in the implementation and institutionalization of these strategies, since they have little viability without its support.

Finally, the group highlighted the role of international cooperation in helping to close the gap between different programs and objectives, as well as in supporting the improvement the coordination between different entities.

Technical conclusion – working group

The current Coffee Rust crisis has evidenced the need to coordinate and harmonize strategies and activities between government institutions (Agriculture, Environment and other Ministries), the private sector and institutions that support vulnerable populations, in order to achieve an integral approach in a quick and opportune manner.

It is necessary to have one sole and clear definition of what is considered a “Vulnerable Population” among the different stakeholders. Once these concepts are clear, a regional map of the population is needed; this will facilitate the interventions made by each organization. Currently there is no updated information that allows for a territorial approach for the care of this population.

It is important that PROMECAFE work with the Coffee Institutes, on proposals with a rural territorial development focused, linked with coffee production that can integrate organizations that work with vulnerable populations like PMA, FAO and PRESANCA II. With this approach an income diversification model can be designed, that can help these populations to have short term income, which the coffee crop cannot offer since it is an annual harvest.

Information collected during the working session

Obstacles	Strategies	Key Stakeholders	Responsible Entities
Lack of available information at different levels, which complicates effective and opportune decision making as well as the integration of statistical data used by regional institutions.	Make a census of small producers, entailing coordinated efforts.	Governments, labor ministries, statistical institutes, coffee associations, international cooperation programs	PROMECAFE, coffee institutions in each country, international cooperation programs
	Develop local, specific and standardized indicators and monitor them together with national and regional entities.		
Heterogeneity in the result measurements and indicators of the interventions. Different vulnerability approaches.	Unify methodologies and define indicators that respond to the needs of specific target populations.	Coffee associations, cooperation programs	PROMECAFE, coffee associations
Definition of the target populations (workers without land, small producers who do not hire workers). There are several stakeholders with different characteristics / vulnerability nuances.	Recommendation: specifically define the populations and strategies for each one.	Coffee associations, cooperation agencies	PROMECAFE
	Recognize the need to care for original communities as well as destination communities linked with the coffee sector.		
	Regional strategy to care for populations without regard to its origin.		
	Know the epidemiologic profile of these populations in order to develop specific actions in health care.		
Lack of coordination between cooperation agencies and public institutions	Articulate an institutionalized response – align the vision of institutions and cooperation agencies.	Cooperation agencies and organizations	PROMECAFE
	Coordinate efforts / synergy among different stakeholders / harmonize efforts among technical and financial cooperation (avoid doubling efforts)		

Obstacles	Strategies	Key Stakeholders	Responsible Entities
Lack of coordination between the stakeholders of the coffee value chain and public institutions that limits the existence of laws that benefit the sector (incentives, cooperation, etc.)	Reactivate the Coffee Policy Council (or its equivalent in each country) so that a dialogue can take place between the productive and the government sector.	Governments and coffee institutions, health and social security organizations, banking sector, exporters and roasters	Coffee Institutions, Agriculture Ministries, FAO, PROMECAFE
	Joint communication strategy between the different stakeholders of the value chain and the public sector.		
	Create national coffee policies and involve public institutions that can accompany and implement these policies.		
	Create a platform so that buyers can support sustainable coffee growing and strengthen its value chain. .		
	Monitor and compile information through current experiences that can be replicated at a larger scale. Need to address the issues from a regional point of view. Catalogue successful experiences from other situations that can be replicated.		
Financial instability in vulnerable populations (affected by international coffee prices, agricultural supplies, profitability, lack of permanent income and stability)	A training and technical assistance program that is coherent to the particularities of vulnerable groups focused on: - Crops diversification - Access to financial resources - Competitiveness - Sustainability - Market access - Technological alternatives - Diversification of agricultural and nonagricultural incomes - Profitability of a productive farm	Governments, banking sector, cooperatives, private sector, technical NGO teams	Coffee institutes, agricultural and commerce ministries, coffee institutes, stakeholders of the local coffee stakeholders, exporters, middlemen
	Access to financial mechanisms (trusts, soft loans, access to credit, insurances).		
	Promote the creation of cooperatives to improve competitiveness.		
	Local and regional partnerships: goods and services exchanges.		
	Strengthen an integral agricultural extension model.		

Obstacles	Strategies	Key Stakeholders	Responsible entities
Absence of work protection policies	<p>Strengthen work legislation, to improve workers conditions.</p> <p>Strengthen the reaction capacity of governments / revise state policies.</p> <p>Strengthen educational family and health initiatives</p> <p>Joint mechanisms to promote an improvement in the conditions of the coffee value chain.</p> <p>Promote voluntary certificates that promote improvements.</p> <p>Educational campaigns on worker's rights and obligations.</p>	State, work ministries, health ministries	State, work ministries
	<p>Create conscience among the coffee sector on the need for better income to producers.</p> <p>Strengthen the capacities of the work ministries.</p>		

Chapter IV

Applicable financial mechanisms in regional coffee growing, Alternatives and the presentation of a production costs study

Context

As we have mentioned in this report, the aspects linked to the need to adapt financial systems and / or finding new mechanisms, were present since the inaugural event of the Second Coffee Rust Summit on February 24th.

The same was true in the presentations that were made during the rest of the forums including “Research and innovation in rust management”, “Impact of coffee rust on the coffee value chain / work and achieved results” and “Effective mechanisms to care for vulnerable populations”, during which the speakers emphasized, in different manners, the importance of adapting the financial systems and / or finding new mechanisms to obtain resources.

This created great interest in the forum “Applicable financial mechanisms in regional coffee growing / Alternatives and the presentation of a production costs study” which opened on the afternoon of February 24th. During the following paragraphs, we will explain the most relevant aspects of each of the presentations moderated by Luis Alejandro Mejía (BID/FOMIN) and which served as framework for the working session that took place on February 25th and 26th.

Presentations

1. Salvador Fernández from PROCAGICA/UE/IICA emphasized the need to innovate within the institutions, processes and methodologies, and of understanding the structural problems derived from the aging of the coffee plants, the diseases that have been attacking them, the lack of generational renewal, the lack of information and the barriers to obtain agricultural credits in reasonable conditions. During his intervention he highlighted facts like the economic and social impact of the loss of 2.7 million sacks of coffee in Central America and the Dominican Republic because of rust (which represented around 20% of the production), between 2012 and 2013. Additionally he stated that the creation of the Central American Program for integral management of coffee rust with the participation of Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama and the Dominican Republic, with an estimate cost of over 16 million euros. This program was approved on January 27th of 2016, and its execution is proposed to take place

during 60 months. This program will include the Inter American Agricultural Cooperation Institute (IICA). Finally, the speaker states that “three centuries of history, culture and economic development of coffee in America entails new challenges.

Presentation: [“Central American Program for Integral Management of Coffee Rust”](#)

2. Serena Thompson, from the Financial Alliance for Sustainable Commerce (FAST) said that the characteristics of this program aim to “close the gap between the financing with social orientation and the producers that look for credits from 20 thousand dollars to 5 million dollars” and increasing the amount of small and medium sized producers that need to find funds. The programs next step is the creation of an on line platform that can connect supply and demand (the pilot project will be developed between March and April of 2016, and the launch is programmed for the month of June of that same year). Thompson also presented the characteristics of the services offered (training, analysis and alliances), and stated that the model they are developing is “replicable around the world through FAST ONLINE FINANCIAL ACCESS PLATFORM” through which they can find online information, like updated investments portfolio, investment evaluations, financial and impact reports, such as training on financial tools.

Presentation: [“Financial Alliance for Sustainable Commerce \(FAST\)”](#)

3. Alexandra Tuinstra, from Root Capital, duly explained the model of the institution, emphasizing the investment they make in resilience (through loans, training, and strengthening commercial contacts) and the following aspects: they are giving long term credit to renew crops, responding holistically (financing, technical assistance and research, that they later share as knowledge so that other stakeholders can be involved), combining capital credit with the creation of capabilities, channeling funds from the private and public sectors, to support coffee producing communities. Additionally she mentioned that in Root Capital’s website (www.rootcapital.org), those interested can find a document that includes lessons such as the importance of support mixed financing (not only commercial, and with different return rates and risks), identifying distribution channels that can be amplified through local financial institutions, expanding risk management solutions, early warning systems, harvest insurance, quality recognition, joining credit and technical assistance and strengthening a facilitating, informative and coordinated environment.

Presentation: [“Investing in Resilience. Root Capital model”](#)

4. Nelson Omar Fúnez, representative from IHCAFE, presented a detailed explanation of the support model that has been implemented in Honduras, highlighting in his conclusions that the trust (that guarantees the source of payment and minimizes risks) has been fundamental and that adapting is the key, not strength. He also

addressed the vulnerability characteristics of smaller producers, indebted producers and not bankable producers; as well as IHCAFE's work areas focused on a strategic long term vision (production and productivity, quality, promotion, diversification and financing), the enormous need to locate funds to care for issues like rust and the alternatives that are available in Honduras (programming support for small producers, searching for allies to support producers, the role of the state bank, establishing an alliance with a private bank and making projects more flexible). He also explained the main characteristics of the Honduran model: made to measure financial products, promote a payment culture, definition of indebtedness according to payment capacity and fundamental technical support and research.

Presentation: ["Financial strategies during the execution process in Honduras to renew the coffee plants and mitigating the impact of rust"](#)

5. Edgardo Alpízar (ECOM), in representation of the participants of the coffee market, spoke about the relevant of the impact of long term credit in the renewal of the coffee plants, of the sowing of more resistant species and of the good moment for the banking systems and companies that are involved in processes like this stating that "if we don't help our producers, our operation will get smaller". During his speech he exposed charts with information on the relation between susceptible and rust resistant varieties in harvested coffee in the ECOM – Nicaragua supply chain and about the relation between resistant and susceptible varieties in development in that chain. Issues like climate change, coffee plants renewal programs and the results obtained in the 2015-2016 harvest, were also part of his intervention.

Presentation: ["Impact of the long term credit program for coffee plant renewal in the ECOM – Nicaragua coffee supply chain"](#)

6. Marco Tulio Duarte from ANACAFE made the last presentation, highlighting that "all are responsible of the wellbeing of the coffee chain", and stated that when productivity decreases, costs increase, that the main cost is work force used during harvest and that other factors that influence are wages, fertilizers, regional climate conditions, importance of continual improvement of processes, training of personnel and productivity. All this considering that "we have been facing rust for a decade". Duarte reviewed the information on total export levels per PROMECAFE member country (which have been decreasing since 2012), the factors that affect production costs (productivity levels, regional climate conditions, importance of continual improvement of processes and training of personnel) and highlighted the challenges this crop has in increasing productivity (technology, creating coffee growing companies that can maintain stable levels in the workforce, labor relations and the quality of working conditions).

Presentation: ["Production costs in PROMECAFE member countries"](#)

To conclude the forum, Luis Alejandro Mejía (BID/FOMIN) highlighted the following aspects:

- The producer is thinking about going to the bank and/or other institutions in order to obtain credits (Marco Tulio Duarte / ANACAFE)
- Companies play the roles of banks, in the long term, and it is necessary to provide or look for technical assistance for those who give credits and for those who must comply with payments (Edgardo Alpízar / ECOM)
- Importance of support from traders, establishing contracts with exporters and long term relationships to back up credits. (Alexandra Tuinstra / Root Capital)
- Among the critical factors that must be addressed is how to integrate the distinct stakeholders, beginning with the articulation between strategies and regional policies in SICA, the need to complement actions between international cooperation agencies, the importance of coordinating stakeholders and capacities, and the creation of mechanisms to generate stimulus and promoting conditions (Salvador Fernández / PROCAGICA / UE / IICA)
- To escalate efforts, the support of organizations (local partners) that are working with producers, identifying possible beneficiaries (Serena Thompson / Fast International)
- The challenge is to give scale. The barrier is in finding other ten banks like Banrural. They set the bases and now documenting and systematizing efforts is important, when each country's institutions can be part of the process of understanding, proposal and the search for solutions (and implementation). All this considering the necessary identification of spaces where all have something to give and where the banks must be creative (for example giving credits in kind and not money). (Nelson Omar Fúnez / IHCAFE).

Working group: Applicable financial mechanisms in regional coffee growing / Alternatives and the presentation of a production costs study
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Alexandra Tuinstra was in charge of moderating the working session that took place on February 25th and the dynamics allowed for the participation of the assistants in the methodology (without the need of a main table). Among the institutions and projects present at the session were BID, BCIE, ASOCAMP, Borlang Institute, BASF, IHCAFE, MAG-Costa Rica, ICAFE, USAID, Salvadorean Coffee Council, Trifinio plan, TECHNOSERVE, CONACAFE, MAG-El Salvador, ANACAFE, PROMECAFE, SCAA, AECID-Spanish Cooperation and CRS (the list is attached to the end of the document).

The working session began by presenting the following:

A. Which are the contextual aspects that are important when analyzing applicable financial mechanisms for regional coffee growing?

- Coffee prices are set internationally
- Coffee today is perceived as a vulnerable crop (exhausted soils, climate change / draught, Rust).
- There is a concern about the lack of solidity (guarantee), lack of local banking offers (Banks don't know the users, users don't get close to banks) and high financial costs

B. What are, in this context, the objectives around which the working table must work?

- Maintaining producers in the sector
- Universalizing the access to resources
- Renovate coffee plants

These three aspects are fundamental to increase productivity.

C. What questions should provide the framework for the working session about the applicable financial mechanisms for regional coffee growing?

- What are the main obstacles that producers face in order to access resources, and those faced by financial services and government entities to provide these resources?
- How can we take existing or unidentified resources to those who need it?
- What is the role of national and regional organizations?
- What is the role of each stakeholder in facilitating financial resources for the sector (international NGOs and / or multilateral international organizations and financial institutions)?
- Which are the lessons learned and the best practices that can be identified and seized in order to face the challenge of lacking financial resources in the sector?

Identified Obstacles

Several obstacles were identified during the development of the working session that can be grouped the following way: from the grower's perspective, from the perspective of banking institutions (or the various financial sources) and from the State's perspective.

Before listing the obstacles from the different perspectives, it's important to highlight that the needs to create more alliances, have more teams and establish new cooperation mechanisms between different stakeholders were identified.

Another element that was briefly addressed is the importance of the alignment of the efforts of multilateral organizations with the countries' policies; and that this alignment is perceived by all involved.

A. From growers' perspective to obtain financing (especially of small producers):

- Little access to information about financial mechanisms.
- Banking entities bureaucracy delay the procedures and the time needed for small growers to apply for credit, the banking system is perceived as "demanding" regarding the amount of documents needed.
- Fear because of the guarantees needed to obtain financial resources
 - ✓ Sometimes there is no certainty on land ownership
 - ✓ Forecasting coffee prices for 10 years (long term) is expensive and that complicates committing future sales to guarantee minimum prices.
 - ✓ There are no mechanisms that allow sharing risks with the government
- The current profitability of the crop is not enough to cover costs.
 - ✓ There is a gap between the loads taken on by growers compared with the rest of the stakeholders in the chain. The coffee market is complex and is not only based on demand and local offer.

B. From the banking perspective, the main obstacles are the following:

- The risk the Banks can take on is "much regulated" by organisms like the Banks Superintendence and that regulation is not always (rarely even) applicable to agriculture. This way, risk indexes increase and this is reflected in the market interest rates.
- Local financial institutions don't have flexible guarantee mechanisms that can adapt to the sector's situation; they are tied to traditional guarantees.
- There are resources in the banking systems but costs and guarantees prevent growers' access. In this context implementing mechanisms that allow the financial sector to share the risks with producers is necessary.
- The fact that financial intermediation rises the costs of credits for final users is an important challenge for organisms that make second-tier loans through banking. Additionally, there is a perception that certain organizations "hoard" the resources borrowed by organisms, and the guarantee mechanisms (guarantee funds) are under used. Finally management costs increase because of the credit monitoring (which is not adequate), especially if there are several intervention stages.

C. From the State's perspective, the main obstacles to be addressed are as follows:

- There are no public policies that promote the access to financial and other services like special technical assistance. This is a general situation in most of the current law in different countries, which does not motivate the banking system to get close to the agricultural sector; in fact it makes credit more expensive.
- Recognizing that the agricultural and livestock sectors are different from the others is important, thus they need differentiated policies.
- In Guatemala, coffee growers perceive indifference, and lack of understanding from the government on coffee's reality, which affects resources (for example, the coffee trust being used for other topics). It is necessary for the government to have a policy and apply it. Current policies represent obstacles.

As well as these obstacles found at a state's level, there are other obstacles that that weaken the work of coffee institutes, like the little availability of technical personnel for the amount of growers (there are no resources to pay for more technicians, to train them or to work beyond the challenges that imply gender issues when hiring), the lack of transparency is perceived in the whole coffee value chain (costs and competitiveness), fertilizers and workforce and the "divorce" between the financial resources and technical assistance.

Strategies

During the working session, three main strategies were identified, all of which are based on the importance of creating spaces for cooperation and support between different stakeholders:

The **first strategy** requires **revising, comparing and harmonizing local, national and regional criteria which could ease the creation of a law, through which the requirements to acquire loans can be updated**. At the end, the objective is that these tools are developed within a state's policy that must strengthen the coffee sector.

To conclude this first topic, the importance of lobbying from the coffee growers was mentioned as an important electoral factor, and the opportunity created by having representatives from the sector holding important decision making offices.

A second topic, that depends greatly on the first one, is oriented toward **developing mechanisms that allow risk sharing, for which strategies must be developed according to the needs of each type of grower**, looking for the participation of the more flexible sectors (for which a map of financial options available in all countries, establishing contracts, and creating a directory for all stakeholders are necessary) and propose a

model that can promote, invite, and gather the private banking sector and the new stakeholders, putting in place new guarantees in which the state can participate, promote and guarantee. This should ease the value given to other trust factors (like personality) instead of only the traditional ones, because what is important is to promote the stratifying of growers with existing limitations (in several cases, the owner of the land isn't there because he migrated, but women can be considered as the owners because they are the ones who stay behind and manage).

In that context, the participants of the working session, mentioned examples like the Coffee Emergency Fund (emphasizing that the “rescue” mechanisms must be separated from the “incentive, accompaniment, and strengthening” ones), promotion banking specialized in soft loans (land acquisition, infrastructure, working capital) and the possibility of creating and aid (subsidy to interest rates) for growers, so that the State or another institution can cover part of the interests, or create a trust fund for the assets needed by the companies, through tools like leasing or creating an agricultural insurance (but adequate to the characteristics of coffee growing) as a mechanism to reduce risks, that is not use and that could be useful as it is generalized (the challenge is to reduce insurance policy prices).

Additionally, the possibility of creating other guarantees was also addressed, beginning by a certification that can endorse associations, that must be strengthened for this, or by future harvests that are not being used and that can be evaluated as a part of the mixed guarantees to cover risks, among all involved.

During the session, the participants also mentioned the importance of developing plans that include factors like technical assistance that growers can afford. For several of the participants, technical assistance is the key to sustainability in coffee growing. Every time, coffee farms are more fragmented and its productivity decreases. The challenge is how to generate more resources to obtain profits (looking for alternatives to increase family income, for example, or using part of the income in the farms to promote savings, or seizing high prices to promote savings through rural banks) and have access to technical assistance with group methodologies.

It is essential that this technical assistance is tied to financing, to support maximizing return on investment as well as insuring the use of the resources for productive end and avoid deviations (that growers use them to pay other debts, for example). There could have been a conflict of interests between technical assistance and giving financial resources; to minimize this, one of the proposed ideas was that technical assistance and funding must be managed by different people.

Finally, the working group emphasized that technical assistance needs audience segmentation, defining technology (especially that which can, for example, reduce

monitoring costs, involve young people, make production costs in companies more transparent versus its sale prices and/or invest in marketing), to provide complementarity from the state and others, guarantee that it is opportune and has quality, to be adoptable, and to be supervised; and thus aligning the strategies of the institute's technicians is essential.

A triangulation scheme where responsibility is shared between growers and buyers can also be proposed together with technical assistance.

Additionally, the group highlighted the importance of seizing the funds available to create mechanisms where Banks can administer resources rigorously and whose processes include other stakeholders; meaning experts from Banks must work together with other experts, like those who provide technical assistance. Considering the limitations (not only financial) that exist especially because of the amount of people that provide technical assistance, it is important to make an "inventory" of technicians in order to add, create teams and not duplicate efforts.

Finally, the biggest challenge seems to be the importance of an improved coordination to better funnel the funds that exist in international organizations and in the State.

A **third strategy**, derived from the two previous ones, focuses on **bringing growers closer to financial resources and getting them closer to growers**. To do this it is essential to avoid condemning those who were not able to fulfill their loan commitments for life (giving them credit reviews that will always affect them, or through other mechanisms), training growers in issues like credit analysis and having facilitators that can connect supply and demand.

The banking sector must design services, be creative, and create teams to accompany smaller growers, considering that alignment is important to reach a common goal: renewing coffee plants, revising costs, long term contracts as a payment source. Coffee institutes must focus their efforts in taking resources to those who need them and ensure that the resources reach their correct destination.

In other words, this third strategy wants to create conditions to establish alliances, cooperation schemes and even a technological platform, where people can see what other countries are doing, where organizations can list their projects and even include what governments are doing through policy. This platform would be useful for investors to decide where they can invest and so services can be re designed. This would be the result of a mapping effort that includes stakeholders and actions and can be provided to all stakeholders (it would also solve the obstacle faced when there is no basic record that allow people to know where to invest).

Again, the importance to cooperation, collaboration and support among the various stakeholders is essential to achieve any of the strategies stated above. The closeness and complementarity of resources and expertise areas of the stakeholders is indispensable.

Key stakeholders and responsible entities

This last issue made the credibility of certain organizations evident, especially that of PROMECAFE, when establishing key stakeholders and to a lesser degree the entities responsible of follow up.

The dynamic of the working session, the complexity of the sector and the amount of proposals around the strategies to follow, allowed the definition of key stakeholders in the following actions (even though in the grand majority of cases, the entity identified as responsible for follow up was generally PROMECAFE, with the collaboration, cooperation and support of several stakeholders, to maximize the success of what was proposed):

1. **Strategy / Tactic / Activity:** Create a subsidy to cover the cost of financial intermediation, through direct subsidies and guarantee funds, in order to prevent high interest rents that restrain the final consumer. The bank is paid through a fund created in each country to subsidize costs and create guarantees. Funds from international organizations and from the State can be used for this purpose.
Stakeholders: Finance ministries, agriculture ministries and banking sectors.
2. **Strategy / Tactic / Activity:** Create a trust fund for the assets that the companies require through leasing.
Stakeholders: Companies / Cooperatives that can receive leasing / organized workers. Governments (to create a fund to cover guarantees)
3. **Strategy / Tactic / Activity:** Define the zones to renew coffee plants.
Stakeholders: Governments (who must create the policy)
4. **Strategy / Tactic / Activity:** Alliance and collaboration through a technological platform, where people can see what is being done in other countries, and where organizations list their projects, and which includes what is being done by governments through public policies.
Stakeholders: The coffee associations would be responsible for the data bases, ensuring the quality of the information and help to make it available to other stakeholders within the sector that could benefit from the alliances that can be created from its use. During the working session the existence of funds to create this mechanisms and platforms was mentioned (especially in the international cooperation). PROMECAFE is the institution that should lead the data base, but it must be interactive, useful and useable. Finally, a platform like this, allows people

to know where funds are being funneled and how they have been used, in order for associations to make decisions.

5. **Strategy / Tactic / Activity:** Develop a map of the existing financial options in all countries and publish them on line.
Stakeholders: PROMECAFE / IICA / PROCAGICA
6. **Strategy / Tactic / Activity:** Give value to coffee. The OIC is the entity responsible of creating conscience in the industry in order to give coffee value (with the objective of improving the prices paid to growers) and the responsibility of rescuing prices in all of the value chain and the industry, including coffee institutes and national governments.
Stakeholders: Buyers and roasters should be involved (and some already are). The certifiers are present, but the process is weak and sometimes inexistent, the recognition of the certifications in the price paid to producers. The result is that production and commercialization costs increase. A higher participation of buyers and roasters is proposed. There are exporters that guarantee product to roasters and assume part of the certification costs and technical assistance, meaning each stakeholder must take on a part: growers, roasters and exporters.
Entities responsible of follow up: Coffee institutes and governments, the World Bank, the BCIE and baking systems.
7. **Strategy / Tactic / Activity:** Strengthen guarantee funds. The banking sector invests, cooperation organizations invest and sectors invest. What is important is to make guarantees available. When economic resources exist, it's important to funnel them adequately, through more efficient and transparent institutions.
Stakeholders: Governments, banking sector, cooperation entities
8. **Strategy / Tactic / Activity:** Establish / maintain an agricultural insurance as a mechanism to reduce risks, which is not used and which could be valuable when generalized.
Stakeholders: Private sector, growers, governments in an initial stage, academia (that create knowledge, to manage good information that can be used by insurance companies – those who have more information on climate change are the insurance companies-). We must be brave to negotiate as countries, so the policy can be bought by the state.
9. **Strategy / Tactic / Activity:** Create price insurance: to project a future we must be better educated.
Stakeholders: PROMECAFE could speak with insurance companies / speak regionally to obtain better costs.

10. **Strategy / Tactic / Activity:** Training in credit analysis and share experiences for the personnel of the institutes.

Stakeholders: PROMECAFE

11. **Strategy / Tactic / Activity:** Technical assistance with group methods. Growers must know where to go to train. It is too difficult to reach everyone.

Stakeholders: The State must assure technical assistance for small farmers as well. Coffee institutes try, but can't reach everyone. The State must promote and make the necessary alliances with technical assistance suppliers, to ensure access to all stakeholders, from the smallest. This depends on the organized structure of the coffee sector in each country and its legal framework.

Technical Conclusion – Working group

After establishing what was presented by the speakers of the “Applicable financial resources in regional coffee growing / Alternatives and the Presentation of a study on production costs”, moderated by Luis Alejandro Mejía (BID / FOMIN), the greatest questions that framed the working table led by Alexandra Tuinstra (Root Capital) around which the dynamics should be developed and **the three main proposed strategies** (first to revise, compare and harmonize local, national and regional criteria, in order to ease the creation of laws through which requirements to obtain loans can be updated; second, develop the mechanisms that permit risk sharing for which the segmentation of strategies according to the needs of the different types of producers is necessary; thirdly bring the grower closer to financial resources and vice versa), it is essential to point out what was mentioned by Tuinstra, during the conclusions: **the strategies that can be developed require that each stakeholder in the sector assume the responsibility of looking for and promoting alliances with other stakeholders, as to achieve a better use of resources and expertise.**

This should increase the knowledge held among the different stakeholders and develop mechanisms for small growers, attending the spaces that are promoted by large growers.

Information gathered from the working session

Obstacles	Strategies	Key Stakeholders
Interventions from the organisms aren't always oriented to the strategies established by countries.	Update the requirements to ask for loans according to the needs of the growers.	
Little access to information about mechanisms	It's important to have facilitators to connect supply and demand.	
Risk: the grower is scared because of the guarantees they must place.	Give three years free of payment (working capital that can be recovered).	
Land ownership: there is no certainty in order to place them as guarantees.	Reform national legislation (in several countries).	
Cash flows: it's hard to forecast coffee prices for 10 years (long term).	Identify unregulated entities. Look for more flexible stakeholders.	
Future sales commitments to guarantee minimum prices.	Segmentation of credit strategies according to specific characteristics.	
Banking sector: the risks are too regulated by the Superintendence. High risks are reflected in interest rates (market rates). There are resources in the Banks but the costs and guarantees impede the growers' access. How to share the risks.	We should develop plans that consider other factors: technical assistance to promote payment.	
Profitability does not allow for covering costs.	Credit monitoring increases management costs, especially if there are several intervention stages. Solution: use technology to decrease monitoring costs. Involve young people with technology.	
Organisms present through Banks; management costs make financial intermediation more expensive.	Importance of local, national and regional harmonization.	
Resource hoarding from certain entities. Experiences: the same stakeholders were subject to credits. Eligibility.	Inventory of technical personal that can add, build teams and not duplicate efforts. It's not only financial, its collaboration, alliances!	
El Salvador: current debt of coffee growers. Around US \$ 250 million are owed to the banking sector. 8 years. Do saving efforts is one thing, and a whole other is to give financial credit. It is important to separate both.		

Obstacles	Strategies	Key Stakeholders
Legal status: procedures to aim for loans delay. Bureaucracy delays organized producers.	Rating of the credit subject. Don't demonize payment delays. We must promote a stratification of producers with existing limitations. New modality: women who are not owners remain in charge. Recovery through coffee is an option.	
Absence of mechanisms to share risks with the State.	Lack of basic and opportune registry so that people know where to invest.	
Sub used guarantee mechanisms (guarantee funds).	Production costs of companies versus sale prices.	
The banking sector is very demanding with the documents they demand and that are not held by small growers. Regulation is not applicable to agriculture. Monitoring system is not adequate. Banks Superintendence regulation.	The guarantee model is traditional and must be changed. How to migrate to another model. There are discussions that are too basic to promote, inviting private banks with new guarantees; that the state is present, promotes and guarantees.	
Lack of public policy that promote access to financial services and others like specialized technical assistance (financial services).	Innovation in guarantees: methodology to value clients risks, without using traditional initiatives (personality for example). Recovering assets is not convenient for the banks.	
Guatemala: indifference, lack of conscience, lack of comprehension of the government about coffee's reality, affects resources. Trust fund is used for other things. It is essential that the State has a policy and applies it. Policies that impede.	Coffee Emergency Fund / El Salvador: can be a model, instrument	
Accessibility to services and the design of services according to the needs that exists. Create inclusive services.	Specialized promotion banking with soft loans (land acquisition, infrastructure). State policy must strengthen the coffee sector.	

Obstacles	Strategies	Key Stakeholders
Credit monitoring increases management costs, especially if there are several stages of intervention	<p>Create an aid mechanism (subsidy to interest rates) for growers so that the State or other institutions can cover part of the interests. The bank is paid through a fund created in each country to subsidize interests and create guarantees. Use funds from international organizations and the State.</p> <p>Attention: Subsidies are a risk. Not working on subsidies for credit to working capital, community irrigation systems (medium and long term).</p>	Finance ministries, agricultural ministries for subsidies. The banking sector is an important stakeholder.
Design services, be creative. Make a team and accompany smaller growers. Alignment is important to achieve a common goal: renew coffee plants, revise costs, long term contracts as a payment source. Design services.	Create a trust fund for the assets required by the companies, through leasing.	Companies / Cooperative receive leasing. Organized workers. / The government can be another stakeholder: create a fund to cover guarantees.
Attention to mechanisms to take resources to those who need them, monitor so that they reach those who need them.	Defining land and zones is important to renew.	Government creates policy
Lack of alliances, team, cooperation.	Alliance and collaboration through a technological platform, where people can see what is being done in different countries and where the organizations can list their projects. Include what governments are doing through public policy. This way investors can decide where to invest and can redesign services. Map of key stakeholders and actions, for which the data base can be used.	Coffee associations will "own" the data base. Where funds go and how they are used in order for the associations to make decisions. The association shares the information with whom they determine. There are funds to create mechanisms / platforms (international cooperation). PROMECAFE is the one called to lead the data base, but it must be interactive and useful.

Obstacles	Strategies	Key Stakeholders
Existing laws in most of the countries don't motivate the banks, and moves them away from agriculture, which makes loans more expensive. Costs increase. We must recognize that agriculture is very different from other sectors.	To achieve political will: lobby from growers as an important electoral factor. Take our representatives to election posts.	
Risks to those who give long term credits to the bidders. Marriage. Know each other very well. Mechanisms that get stakeholders nearer are unknown. The risk is for both.	Map of financial options that exist in every country. Define which contacts to address. Accessible directory to all stakeholders.	PROMECAFE, IICA, PROCAGICA
Gap in prices: load of the growers compared to other stakeholders in the coffee value chain. The coffee market is complex; it is not only supply and demand.	Give coffee value / OIC must make the coffee value chain aware of the coffee value / Value and responsibility of all the industry (subsidies are not valuable on its own). More value is needed for financial agents. RESCUE prices.	Buyers and roasters could be involved (and some already are). Certifiers, but the problem is that growers pay. We don't need something that makes the process more expensive. A third party is needed. For example, ECOM, guarantees products to buyers. The same chain assumes the cost. Each one assumes a part: growers, roasters, exporters. USAID. Where does the money stay?
USAID: we have been extremely careful in advancing hand in hand with national efforts.	Strengthen guarantee funds. Banking sector invests. Cooperation organizations invest. Sectors invest. New and slower schemes. The important part is to invest.	Government, Banks, cooperation agencies
How to take planes to smaller growers and consider the large growers, and not leave anyone behind.		

Obstacles	Strategies	Key Stakeholders
We have a small amount of technicians for the amount of growers. There are not enough resources to pay for more technicians. Obstacles to train and act: ¿Gender?		
There is no transparency in all the chain (competitiveness and costs) / fertilizers and work force. It is hard to pay those who cut.	Revise our production costs. Make things more transparent. Too much investment in marketing?	
	Use funds to create mechanisms: alliances between a fiduciary bank / IHCAFE and the Canadians. The Bank administers the resources, rigorous but more flexible because all stakeholders participate. Not only bankers, but other experts also make decisions. Accompany with technical assistance. Guarantee future harvests that have not been previously used. Look for mixed guarantees to cover risks among all.	
	Agricultural insurance: A mechanism to reduce risks, that is not used and that could be valuable when generalized. The problem is that insurance policies are too expensive. Design a service for crops like coffee, must be adequate for coffee. (Insurances are aimed to reduce risks).	Private sector, growers, governments in an initial stage, academia (which creates knowledge, to handle good information used by insurance companies). The ones with more information on climate change are the insurance companies. We must be brave in order to negotiate as countries, so that the state can cover the insurance policy.
	Other guarantees / internal certification / association that must be strengthened	Group entity that can endorse others
	Price insurances: to forecast / we must be better educated.	PROMECAFE could speak with insurance companies / speak regionally to achieve better costs.
	Training in credit analysis and share experiences with the institutes.	PROMECAFE, as it has done before, can share knowledge.

Obstacles	Strategies	Key Stakeholders
	Technical assistance is essential to sustainability. Farms get ever more fragmented, and their productivity is minimized. How to generate more resources to gain and to have access to technical assistance. Alternatives to family incomes. Use part of the earning in the farms (promote savings). Use price peaks to promote savings / rural banks. Technical assistance with group methodologies.	Technical assistance for small farms must be provided by the State. Coffee institutes try but can't reach everyone. Official technical assistance is provided for small growers. Growers must know where to go in search for training. It is difficult to reach everyone.
Divorce between financial and technical assistance. When they are supervised they don't want technical assistance.	Technical assistance must be tied to financing, because when the grower receives money he pays debts. There could be a clash between technical and financial assistance. It should be addressed by different people. Assistance includes: segmentation of clientele, technology, complementarity by the state and others, must have quality and be opportune, adoptable and supervised. Align technicians from institutes that already have a strategy and others.	Financial entities and coffee institutes allied together.
	Triangulation mechanisms: responsibility among growers and buyers but with technical assistance.	
	Social compensation	PROCAGICA
	Infrastructure as factories, should they be developed internally?	
	The more certifications available, the better, they are necessary to sell.	

Program of the II Coffee Rust Summit

Wednesday, February 24th.			Activities	Expositor
07:30-8:00	Participant Registration			
08:00-9:00	Opening Ceremony			
	Regional status report on rust management			Enrique Abril - Coordinator Integrated Regional Plan Coffee Rust MODERATOR: Juan Francisco Barrera - ECOSUR Jacques Avelino - CATIE/CIRAD Maria do Ceu da Silva - UNIVERSITY OF LISBON David Laughlin - WCR John Vandemeer - UNIVERSITY OF MICHIGAN Fernando Hinnah - EMBRAPA Carlos Urias - OIRSA
09:00-11:00	Forum 1: Investigation and Innovation for rust treatment and mitigation.			
11:00-11:30	COFFEE BREAK			
11:30-13:00	Forum 2: Impact of coffee rust on the supply and commercial chains / pending tasks and achieved results.			MODERATOR: Alejandro Keller - ANACAFÉ Ricardo Rivera - NESTLÉ Orlando Mora Alfaro - STARBUCKS Darrin Daniel - ALLEGRO COFFEE Renaud Cuchet - EFICO Kim Elena Ionescu - SCAA
13:00-14:00	LUNCH			
14:00-15:30	Forum 3: Applicable financial mechanisms for the region / alternatives and presentation of production costs.			MODERATOR: Luis Alejandro Mejía - BID/FOMIN Salvador Fernández - PROCAGICAUE/IIICA Serena Thomson - FAST INTERNATIONAL Alexandra Tuinstra - ROOT CAPITAL Omar Funes - IHCAFE Edgardo Alpizar - ECOM Marco Tulio Duarte - ANACAFÉ/PROMECAFÉ
15:30-16:00	COFFEE BREAK			
16:00-17:30	Forum 4: Effective intervention programs for the aid of vulnerable population.			MODERATOR: Lorena Aguilar - FEWS NET Allan Hruska - FAO Heloisa Schneider - CEPAL Glenda de Paiz - USAID Carlos Pulgarin - AECID Patricia Palma - PRESANCA II Jorge Oliveros - USAID/PCVR
17:30-18:00	Plenary session - Instructions for 2nd day activities			
18:00-19:00	CENTRAL AMERICAN RUST CONTROL PROGRAM LAUNCH (Main Atrium, 1st Floor)	Cocktail sponsored by EU		
Thursday, February 25th.			Activities	Lead
	GROUP WORK TABLES - MORNING SESSION			
08:00-12:30	Investigation and Innovation			Group Leader: Jacques Avelino - CATIE/CIRAD
	Effective intervention programs for the aid of vulnerable population			Group Leader: Patricia Palma - PRESANCA II
	Impact of coffee rust on the supply and commercial chains			Group Leader: Alejandro Keller - ANACAFÉ
	Available financial mechanisms for the region			Group Leader: Alexandra Tuinstra - ROOT CAPITAL
10:00-10:30	COFFEE BREAK			
12:30-14:00	LUNCH			
	GROUP WORK TABLES - AFTERNOON SESSION			
14:00-16:00	Investigation and Innovation			Group Leader: Jacques Avelino - CATIE/CIRAD
	Effective intervention programs for the aid of vulnerable population			Group Leader: Patricia Palma - PRESANCA II
	Impact of coffee rust on the supply and commercial chains			Group Leader: Alejandro Keller - ANACAFÉ
	Available financial mechanisms for the region			Group Leader: Alexandra Tuinstra - ROOT CAPITAL
16:00-16:30	COFFEE BREAK			
16:30-17:30	Plenary session - Deductions of the group work tables and potential cooperation agreement lineup			
17:30-18:30	Cultural event - Guatemalan National Tourism Institute folkloric ballet			
18:30-20:00	CLOSING COCKTAIL sponsored by GRUPO TECÚN and PROMECAFÉ			

Friday, February 26th.

AT ANACAFÉ	
8:30 - 09:00	Keynote presentation - GIZ/German Cooperation
9:00 - 09:30	Keynote presentation RUTA
09:30-10:00	Keynote presentation UE-IIICA
10:00-10:30	COFFEE BREAK
10:30-12:30	Keynote presentations on financial mechanisms focused on small and medium coffee growers.
12:30-13:00	Plenary Session - Final Remarks
13:00-14:30	FAREWELL LUNCH

ROOT CAPITAL
BCIE
FAST
BID-FOMIN

OUTSIDE ANACAFÉ
Optional Field Trip:
Day visit to farms and experiences exchange with coffee growers in Antigua and Alotenango
(Price of \$75 per participant. Includes transportation and lunch)

Speech by Miguel Medina ANACAFE's President

Jimmy Morales, Constitutional President of the Guatemalan Republic; Ministers of the States of Guatemala, El Salvador and Honduras; members of the International Community that honor us with your presence; representatives from international organizations that are visiting us; journalists and special guests:

- Welcome to the National Coffee Association –ANACAFE–, the home of the Guatemalan coffee growers. It is an honor to receive you and to host the Second Coffee Rust Summit, three years after having the first encounter.
- After almost four years of making our best efforts in order to mitigate the effects of Rust at a regional level, **we find ourselves in a situation that truly requires our attention and best efforts, but especially requires unity, from the growers, the academia, sellers and the financial sector in order to move forward and achieve the social, environmental and economic sustainability of the sector.** This is essential so that the industry can keep having its most important input, coffee, and that our countries can continue to create permanent and temporal jobs, with better income and rural development, considering that coffee represents the largest employer in the agricultural industry in the region.
- The coffee crop is the largest job creator at a national level, but especially in rural areas, which makes it one of the more important tools to achieve the development of many Guatemalans.
- It is no surprise, for us concerned about Rust, that with the presence of Rust in the region and the dramatic decrease of international coffee prices, it looks like we might lose it all. But more specifically, coffee will no longer be able to sustain millions of workers in our countries. These workers and their families depend on coffee; they are losing income and often turn to migration and crime as the only alternative to their issues.
- Rust continues with incidence levels of over 70% in the region, climate change is a challenge, which has increased production costs for the integral management of plagues and other diseases.
- It is important to point out that without financial resources and without State policies that support the sector, the productive capacity of growers cannot be

improved. Let's remember that another problem we face is the need to renew our coffee plants, with the large investment this entails.

- We deeply believe that research work must be strengthened, and we must work in an integrated and regional manner in the search for solutions. Additionally we must integrate the coffee value chain, it is important to work hand in hand with growers, communicate the advances, and ease access to soft loans, promote direct contacts with buyers that pay a just price for their product and accompany the international fairs supporting the visibility and promotion of our coffees.
- However, international prices do not contribute the economic, social and environmental sustainability, which is why we need to look for alternatives and mechanisms that compensate and motivate growers to continue producing. Otherwise coffee production will be significantly decreased.
- This is why, during these two days and a half, together with PROMECAFE, USAID and the kind sponsorship of the entities who support this Second Summit, we have assembled the stakeholders that affect coffee policies in the region, specialists in research areas, representatives of the commercialization chains, entities in charge of financial support and those who care for vulnerable populations, with the objective of addressing these important issues, but, especially, reach real agreements, tangible and agile, that allow all stakeholders in the regional coffee chain to grow, harvest and sell the grain in a socially, environmentally and economically sustainable manner.

Speech by Jorge Ulloa PROMECAFE's President

Mister Darwin Ramírez Pereira, Vice Minister of Agricultural and Live Stock Sanitation and Regulations in Guatemala; Dr. Víctor Villalobos, Agriculture Vice Minister from El Salvador, General Director of IICA; Members of the International Community and its Cooperation Organisms; representatives from international organizations; representatives from coffee institutions; Presidents from Producers' Associations; special Guests; ladies and gentlemen.

The coffee world has evolved in an impressive manner during the last 25 years. Only two decades ago, there was little differentiation between quality and markets; coffee was coffee. Rust, just like other plagues and diseases, are causing havoc in production and the socio economic condition of the region.

The Regional Cooperative Program for the Technological Development and Modernization of Coffee growing (PROMECAFE), is a research and cooperation network, formed by the coffee institutions of Guatemala, El Salvador, Honduras, Costa Rica, Panama, Dominican Republic, Jamaica, Nicaragua and Peru, as well as IICA and CATIE. With 38 years of history, it has contributed to improve and modernize coffee growing in member countries, uniting efforts at a regional level to face diseases like rust and *broca*, among other plagues and diseases that have affected the coffee crop in the area.

In these 38 years PROMECAFE has led successful actions and projects like:

- The training of human resource (PHD and masters levels) in related topics, have been created thanks to PROMECAFE.
- Research topics related to crop management and the development of resistant varieties.
- Coordinate an effective cooperation between the countries in the region.
- Management of resources and the development of projects with international cooperation.

PROMECAFE works with contributions from IICA, member countries, specialized cooperation from CATIE and CIRAD from France, and with contributions from international financial organisms to specific projects.

PROMECAFE has obtained important results, and has been an effective research and collaboration platform between the countries of the region; it has not only proposed solutions to sanitary problems but has also transcended to other coffee production areas.

In these moments and considering the near future, we have to face great challenges, like climate change and its aftermath, the aggressiveness of plagues and diseases, low international coffee prices vs high production costs, which place the sustainability of the activity at risk, affecting the growers and their families as well as all of the value chain when there are no grains.

In order to face and search for solutions for these challenges, we must implement joint actions between the countries.

The focus of the first Summit emphasized the technical rust issues.

In this second Summit, as well as addressing the technical aspects of rusts, the focus must be broader, and we must adjust in order to be in tune with current reality, we must consider social, environmental, economic, quality and market elements.

The expectations of the Second Summit must be to establish a route for all stakeholders in the coffee value chain (industry, cooperation institutes, producers, academia, sellers), with the objective of addressing the issue in an integral manner, so that this results in a profitable activity for growers and their families, which are the base of this important category in our region.

The agreements and conclusions reached at this Second Summit will be considered by PROMECAFE in order to focus their actions and projects.

We want to congratulate our host, ANACAFE, their president, board, team and other members for their efforts, which have made this Second Summit possible in this beautiful and vigorous country. And all other participants for the work that will be developed for the benefit of the coffee activity.

Conclusion Speech of the Second Rust Summit

Speech by Alejandro Keller

ANACAFE's Vice President

To conclude this document, that gathers the presentations made during this first day of the Second Coffee Rust Summit, that took place on February 24th, as well as the information gathered during the working session, it is important to include the closing statement by Alejandro Keller, Vice President of ANACAFE's board of directors.

After two days of work, where over 250 people participated, representing 24 countries, and where all focused on sharing experiences, having access to relevant information and strengthening the relationship between all the stakeholders, Alejandro Keller gave the following closing remarks:

Dear Friends of coffee growing in the region; colleagues from PROMECAFE, USAID and the entities whose names back this Second Summit up; together with our sponsors from OIRSA, German cooperation GIZ, Italian Cooperation, Spanish Cooperation AECID, Tecun group and Analytics solutions; journalists and special guests:

- Today this Second Summit ends. It has been an honor, in the name of the Board of Directors of ANACAFE, to receive you and host this great international encounter, three years after holding the first encounter.
- As Manuel Medina, ANACAFE's President, mentioned in his inaugural statement, we face **a situation that truly requires our attention and best efforts, but especially requires unity, from the growers, the academia, sellers and the financial sector in order to move forward and achieve the social, environmental and economic sustainability of the sector.**
- Through these four valuable forums, to strengthen coffee growing in the region and to continue creating permanent and temporary jobs in our countries, greater income and rural development, **we need to work together in the issues we have pointed out and to which we have committed in the working sessions.**
- It is necessary to have the institutional support of our governments in order to give support to the plans we have designed, so that technical information and certified and optimal genetic material can flow.

- Additionally, we need to strengthen the coffee institutions of the region and continue developing a regional communication with **the industrial side, the consumers, so that we can all have a better comprehension and dimension of what is required for this chain to be sustainable in the medium and long term.**
- Let's remember that we are all vulnerable and it's important to analyze and define what makes us vulnerable. In this case I want to highlight the small growers, who need tangible short term solutions to come out of this crisis.
- I ask that you multiply the message that we have received in this Summit, which is a sign for us to unite with the correct purpose.
- Especially today that we have seen economic presentations; we see that **without financial resources and without State's policies, we cannot improve the productive capacity of producing countries. Let's remember that another problem we face is the need to renew our coffee plants, with the considerable investment this implies.**
- Thus, I just have to thank you for your contribution to this Summit. I hope that this experience in Guatemala has been pleasant and we wish you a happy return to your homes.
- Enjoy your lunch and I will see you in the Third Summit!

A retrospective look to the First Coffee Rust Summit

The following paragraphs present a summary of the main conclusions and recommendations proposed in the First Coffee Rust Summit, which took place focusing on the crisis caused by the outbreak that affected Central America, and during which the need for a Second Summit was identified.

Emergency short term interventions:

- **Subsidy to Producers.** PROMECAFE estimates that the global coffee production diminished in 20%. The impact of the production losses over income increased with the low coffee prices in the market: coffee growers lost an estimate of US \$548 million in coffee income compared with 2011/2. Only a 23 percent of coffee growers have access to financial resources additional to coffee, which is what makes them highly vulnerable. Additionally, there was a decrease of around 15 to 20 percent in income for growers dedicated to the coffee crop and approximately 441,000 jobs were lost. However, it wasn't expected that hunger increased dramatically this year, a longer "scarcity season" is expected for Guatemala and could extend to coffee communities in other countries in the following years. Food production will have an increased importance for coffee growers that face severe income restrictions. Recommendation: In order to avoid a situation where Coffee Rust provokes a humanitarian crisis in Central America, growers need short and medium term financial and technical support. Financial support options must be analyzed so that coffee growers can keep their families in the farm without being hungry i.e. money –for- work, food –for- work, direct cash subsidies and food distribution.
- **Training and educating growers on the use and application of fungicides.** In the near future, the most important weapon that a grower can have in order to combat Coffee Rust is to treat the plants with fungicides. The coffee industry is working with financial and credit institutions that help growers to obtain fungicides. This process already begun since the rainy season, thus Rust, has already begun. The cost to treat a hectare of coffee with a fungicide for a year is US\$ 250. Treating 50% of the coffee area of Central America will cost producers around US\$ 125M. This investment can produce profits for US\$ 250M or more if it is applied correctly. If it isn't applied correctly, the fungicide can become ineffective which would cause the grower to lose its investment in the fungicide and the increase that should have happened. 1. Training and education programs for growers on the use and application of fungicides must be a priority that will

require significant financial support in the short term for each of the Central American countries through government and non-government organizations. 2. By recognizing that organic agriculture in several parts of Central America reflects a profound cultural commitment with ecologic sustainability and in other parts it is a source of important market advantages, more research is needed on organic methods to control rust and support organic methods that have given effective results. Meanwhile, organic growers must consider the use of sulfate based fungicides that are currently approved by USDA (United States Department of Agriculture) and begin a progressive program to replace varieties using a diverse mix of resistant materials and cultural practices that avoid Rust development.

- **Organization and coordinated monitoring of coffee data collection in the region.** There are little available data on coffee production in Central America. As a result, government programs, NGOs and the private industry had incomplete and imprecise information on the Rust epidemic of 2012, which made a reaction difficult. Recommendation: Establish an Information unit within the office of the Coordinator of Emergency Rust answers in PROMECAFE, which will analyze the available data from the national institutes and would organize the collection and a study of other basic data through specific field studies with national, regional and international associated institutions. The information unit will be in charge of the recollection, analysis and reports of socio economic data.

Mid-term interventions:

- **Production of resistant sowing material and plant renewal.** A small but significant percentage of Central American plantations were completely devastated by Coffee Rust last year. The amount reaches about 5%. As well as the devastated plantations, approximately 40% of the total area is planted with rust susceptible varieties and approximately 70% of trees have over 20 years of age. This data highlights the need of an immediate action to renew plants with new resistant varieties which require an important initiative for the production of seedlings since the current sources are inadequate. Even though some coffee institutes can get seeds of some of the pure resistant varieties, the supply is inadequate and the availability of resistant hybrid F-1 seedlings is extremely low or null. The amount of sowing material needed is enormous; for example 125 million plants are needed to replace only 5% of the plantations that were totally devastated. Considering the current capacity of the region for the production of F-1 coffee plants is only 1.5 million per year, we can see the actual dimensions of the problem. Recommendations: 1. An important initiative in order to increase the supply of sowing material for 2014/15 must be established. 1a Re equip and train the labs that cultivate tissues and are working in other harvests could be part of this initiative. These labs can add the production of coffee plants. 1b Other operations

of coffee sowing material which use less technical methods, must receive support from TA and training in different technologies from micro cuts/grafts, business development, marketing. These operations could eventually transform in a true commercial sectors for coffee seeds in Central America. 2. It is highly advisable to create a special research project to mitigate restrictions associated to increase the production scale of F-1 seedlings so that all growers can obtain F-1 resistant hybrids. 3. Considering that recommendations 1 and 2 are already in place, a complete analysis of the available data of resistant varieties must take place to give growers the best tools to make decisions before investing. Key data should include all performance information on multi location, resistance / susceptibility to other plagues and an evaluation of the cup quality based on scientific data.

- **Special aid to growers in order to fill a gap in income from 3-5 years.** While the renovation takes place, several years will pass for the re planted coffee to create significant income. The growers that decide to rehabilitate or renew their farms will need financial and technical help to face the gap in the income of three to five years. Recommendation: Technical aid is needed in order to help growers to: Manage coffee plagues and early warning systems. The final cost of the Rust Outbreak in 2012 has been esteemed at over a billion dollars (costs of plantation renewal + fungicides) and a loss of over 400,000 jobs. Recommendation: 1. In order to prevent costly disasters in the future, an early prevention system must be put in place in order to monitor and analyze scientific data related to the prediction of plague threats for coffee production. The system must send warning signals to growers over the evolution of plagues and program necessary interventions. 2. An urgent concomitant precursor study is needed to have all the available meteorological data to try to define precisely what the climate conditions were before and during the 2012 epidemic, in order to have macro-predictive capacity.

Long term interventions:

Developing more rust resistant varieties: All rust resistant varieties have the same genetic source for coffee rust resistance. Thus, a new type of coffee rust could devastate the production of Arabic coffee in Central America like it happened in Sri Lanka in 1875. Additionally most rust resistant varieties were not selected for having high cup quality, and even if they are acceptable, many have negative reputations in the specialty coffee industry. The need to develop higher quality coffee varieties that are stronger and more resistant is essential to prevent catastrophes in the future. Recommendation: The regional program for the development of the Central American regional variety coordinated by PROMECAFE with the support of CATIE, CIRAD and WCR must be strengthened in order to give the region a constant supply of varieties for direct use or material to begin the

crop, for an emergent coffee seed industry. The program must have a formative element in order to ensure that Central America will continue to develop improved varieties and/or competitive pre-crop material for an emergent coffee seeds industry to maintain a conduit of genetic material ready for current and future restrictions.

- **Bio – control research measurements.** As well as cultivating new and improved genetic material and a good crop management, the development of an effective biological control can supply an alternative tool to control coffee rust which will allow an organic certification and the continuous use of heirloom varieties. If an appropriate endophyte is identified (bodyguard) that can attack rust in the short term, a bio-control measurement can be created in less time than a new variety. Recommendation: Research the origins centers of Arabica for co-evolutionary endophytes in Arabian coffee. This can be done together with the previous crop program, since expeditions for the origin center of a species to identify rust resistant genes, entail similar actions.
- **Creation of Regional Capacity.** Regional capacity was highlighted during the Summit as an area that needs urgent attention in research, extension, economy and coffee policy. Recommendation: Develop a broad assessment of capacities and regional institutions with a training plan in order to fill gaps and the deliberate development of international ties with excellence centers.

Conclusion and general recommendation

Broad analysis of the viability of coffee from smallholdings in Central America. Global tendencies in climate change, coffee production, commerce and consumption suggest that the coffee crop in Central America must be reconsidered as an important source of income for growers. Recommendation: Develop studies and long term viability analysis of the coffee crop in Central America. The analysis will be based on current information and new studies including risks, costs, benefits and alternatives from various coffee production models, from simple growing at full sun, to several types of shade systems. This will help the industry to build a convincing strategy for the long term role of coffee in the region. The study must place special attention to the lands that are no longer adequate for sustainable coffee growing.

Glossary (acronyms)

AECID	Agencia Española de Cooperación Internacional para el Desarrollo (Spanish International Cooperation Agency)
ANACAFÉ	Asociación Nacional del Café Guatemala (Guatemalan National Coffee Association)
BCIE	Banco Centroamericano de Integración Económica < (Central American Integration Bank)
BID	Banco Interamericano de Desarrollo (Inter-American Development Bank)
BID-FOMIN	Banco Interamericano de Desarrollo - Fondo Multilateral de Inversiones (Interamerican Development Bank – Multilateral Investment Fund)
BM	Banco Mundial (World Bank)
CASCADE	Café y Agricultura de Subsistencia en Centroamérica y la Adaptación basada en ecosistemas (Subsistence Coffee and Agriculture in Central America and the Adaptation based in ecosystems)
CATIE	Centro Agronómico Tropical de Investigación y Enseñanza (Tropical Agronomical Center for Research and Teaching)
CIAT	Centro Internacional de Agricultura Tropical (International Tropical Agriculture Center)
CEPAL	Comisión Económica para América Latina (Latin American Economic Commission)
CIFC	Centro de Investigación de la Roya del Café (Research Center for Coffee Rust Research)
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement (French Agricultural Research Centre for International Development)
CODOCAFE	Consejo Dominicano del Café (Dominican Coffee Council)
CONACAFE	Consejo Nacional del Café (National Coffee Council) / Nicaragua
ECOSUR	El Colegio de la Frontera Sur, México (Southern Frontier College, México)
FAO	Food and Agriculture Organization
FEWS net	Famine Early Warning Systems Network

Funcafé	Fundación de la caficultura para el desarrollo rural (Coffee growing foundation for rural development)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German International Cooperation Agency)
HRNS	Hanns R. Neumann Stiftung Foundation
IHCAFE	Instituto Hondureño del Café (Honduran Coffee Institute)
IICA	Instituto Interamericano de Cooperación para la Agricultura (Inter-American Cooperation Institute for Agriculture)
MACACC	Modelaje Agroforestal para Apoyo a los Actores para la Adaptación a Cambios Globales (Agro forestry modeling of the support of stakeholders for the adaptation to global change)
OIC	Organización Internacional del Café (International Coffee Organization)
OIRSA	Organismo Internacional Regional de Sanidad Agropecuaria (International Regional Organization for Agriculture and livestock sanitation)
PCVR	Programa de Cadenas de Valor Rural (Rural Value Chains Program)
PRESANCA II	Programa Regional Cooperativo para el Desarrollo Tecnológico y Modernización de la Caficultura (Regional Program for Food and Nutritional Security for Central America)
PROCAGICA	Programa Centroamericano de Gestión Integral de la Roya del Café (Central American Program for Integral Management of Coffee Rust)
PROMECAFÉ	Programa Regional Cooperativo para el Desarrollo Tecnológico y Modernización de la Caficultura (Regional Cooperative Program for the Technological Development and modernization of coffee growing)
EU	European Union
USAID	United States Agency for International Development
SCAA	Specialty Coffee Association of America
WCR	World Coffee Research

