**R7 - Interview prof. agroindustry University of Quindio - 6-7-2022**

**Specialties/difficulties:** Some audio issues due to the quality of the connection during the recording.

**In this information, obviously, your name won’t be shown. This information is solely for research purposes and for that, we require of your authorization to record. Is it ok?**

Yes, authorized. It is ok.

**Perfect, thank you.**

Well, for Daniel and for Siban, I can tell you about the topic you are talking about. During this first semester, with the Master students who are enrolled in the Master studies on agrobusiness around coffee, they already have a research profile, but mostly aimed towards the topic that Siban wants to look into. In the third semester we have a class… Is it ok here? Can you hear me?

**Yes, perfectly, we can hear you.**

A class that is related to the utilization and transformation of coffee based eco-products. Regarding that, we have been talking and, I will already direct you to Cesar Echeverdio, Diana.

**Yes, we have already reached them, with Tecnicafé and Cesar, and everyone. Thank you so much.**

Of course. Of course, because I think they progressing significantly around the transformation related field, with coffee. With the master students, we made a list of all the by-products, or co-products, that can be obtained from coffee, we did that with Cesar back then. But as I said, it is a topic covered during the third semester so we haven’t totally covered. There are some who are already focused on their thesis project, but it would be too premature to say they have already defined it. On the second semester they have to hold ground and, let’s say, structure a thesis blueprint. Ok? That’s how we have it planned. From there on, with the project blueprints, they should be working on the topic. Here I have some slides but if you have talked with Cesar, I think you probably did an overview of all the possible co-products that you can obtain from coffee. They are a lot. That’s on one hand. I don’t know what additional thing you would like to get to know about the masters or…

**More than a question-answer interview, it is more a conversation. I have a guide, and we would like to begin with a presentation of you. Who are you? What is your context, meaning the academia, in the coffee sector. You are particularly in that sector.**

Ok, thank you very much. Well, my name is [name]. I’m an agronomist engineer. I have a specialization in business administration and a Master in sustainable development and environment, with more than 30 years of experience in the coffee farming sector. I come from a coffee farming family. My grandparents, my parents, and myself, I am too a coffee farmer. I have some plots. And I worked long time, about 23 years, together with the coffee guild. I am still linked to the sector as a producer, with associations, etc. I am still well linked and, currently, I am the director of the master’s program in agro-business, in the Universidad del Quindio. I’ve gotten to see all of this, let’s call it, change, breaking the paradigms around coffee cultivation in Colombia. Around what is related to new processes that have been implement, especially around the beneficio and the transformation, and around the marketing field. Aside from the introduction of other varieties and breeds, brought from other places into Colombia, aiming to the goal of obtaining a coffee differentiated by quality. That is the first answer to your question, Daniel.

**Perfect. There is a question that originates from this. You talk about breaking the current paradigm. Tell us a little about these paradigms that are being broken, currently.**

Of course. During the 90s, to think about exporting coffee, firstly of high quality, non. Buyers for quality started to appear as niches, starting in the 2000s, approximately, with the appearance of the first barista competitions. That’s when there started to be clients who wanted coffee differentiated by quality. We are not talking about specialty coffees but about a differentiated coffee. So that’s when that started to break. To think that we, as producers, would be able to export coffee, that didn’t exist. That was a paradigm. That didn’t exist. And now we see how many producers, many organizations, many associations have been able to directly reach that client with coffee and it being more beneficial for both parties. Firstly, a business relationship and secondly, a more equitable distribution of the income that coffee should provide. We know that in the coffee chain the one receiving the less is the farmer. Therefore, this tries to balance thing out. That’s on one hand. On the other one is the area of Beneficio. With beneficio, well, yes, there was a very important research center, we have to acknowledge it, and it is Cenicafé, with all of its contributions, but they have always made very general research for all of Colombia and never on specific research topics for specific markets. New people appeared, innovating different processes, adapted from the fermentation of many different products, where they already existed. For example, grapes, to mention one. And they started to apply them on coffee. For me, that was a big paradigm. Firstly, the marketing field, where now you can export, you can export yourself. There is a very important logistic thing, we know that you are able to export small quantities, and the other things is that we see there are already platforms that allow you to visualize yourself with coffee at the global level. Here there is another paradigm being broken. And the other thing I was mentioning you is the topic of the different processes applied in the transformation on coffee, to obtained differentiated raw materials, particularly related to quality.

**Ok. Within the… you mentioned fundamental unintelligible regarding the coffee chain. About the producers unintelligible the intermediaries, and that breaking paradigms have been reducing the gaps between them. But, currently, how is that topic? How are these three elements working?**

Well, this has been growing by an important percentage but the volumes are still restricted. Meaning that about 50% of the Colombian coffee is directed. Yes, it has grown a lot, I don’t have the exact number, but it has been growing exponentially. But, let’s say, yes, the strong one is till that traditional commercialization between the producer, an intermediary who might be a private buyer, cooperatives, between others, but I insist, yes, it has been opening up. There is something we have observed and it is that many international buyers, buying not so big volumes but well differentiated coffees, instead, do come to our country and make businesses directly. The other thing is the re-born of Colombian companies, because that is a different thing. Who used to have control of coffee at the international level? It was 4 or 5 multinational (companies) who owned the market at the national level… at the international level. When we look at the coffee exportations it is weird that Switzerland is exporting processed coffee. Of course that is what the multinational companies are doing. They come, get the coffee and take it away, to export it. That is an interesting topic to analyze. Nowadays, there are Colombian companies, even from here, from the Quindio, that have… And well, foreigners that have come and have stayed, not only in the Quindio but within all of the Coffee axis, within all of Colombia, who are exporting. Now, the destinations have diversified a lot, too. There are more… The traditional destinations at the international level are still very important. Germany, the United States… But a lot of markets have started to open. We are talking about Korea; we are talking about China, where they have become important destinations for exportation, from Quindio. For example, Korea is an important country regarding consumption of coffee from the Quindio.

**There is something very interesting here, and it is that, with coffee, it first appeared as the opportunity of a crop which can generate benefits. Currently, is it still like that? Or what is the purpose of the current practices of the coffee farmers?**

Well, this subjected, really, to the current world situation. I will refer to many things. If today the producer had a price such as the one had in 2019, I think it would be a disaster, given everything around the increment in his production costs. And why do I mention this? Because this is linked to the cultivation practices he has invested on. The farmer is still managed a technological package provided by the guild, in general, through the research it carries on. I belonged to the guild and I do my own observations. Not a critic but observations. The guild, of course, promotes sustainable practices, for it to be more a friendly farming, but I think it still lacking on agro-ecological practices towards farming sustainability. Myself, for example, as an agronomist engineer, I was educated entirely under the green revolution. In that green revolution, we knew what was that we have, in terms of products such as chemical fertilizers, plague killers, etc., and we started to change the way we were programmed to think, to start to work in a more sustainable way. If you ask me what is that the producers are doing right now, well… because there are good prices, despite the excessive production decrease due to climate change and extreme raining conditions through the last years, 2020 and 2021, here in the department, I’ve found very hard-working farmers that keep records from pluviometers and precipitation, and production, they have production reductions of over the 50%. Reductions occurring due to climate change, due to these conditions, at least, right now, due to the *Niña* phenomenon. It has been decreasing so drastically that it has, let’s say, there is a significant price for them and they try to maintain his usual activities around coffee cultivation. But there is an aggravating aspect and that is what we know has been happening with the international prices for fertilizers. When in 2019 a urea lump was worth 90 000 pesos, then it went up to 250 000, and now it went down a little again to 230 000 pesos. Each 50 kg bag of urea. That makes that even if there is a significant price, they haven’t had been able to say “I have important incomes that allow me to, again, have a very productive coffee farming”. They are still working, depending on the farmer and his economical capabilities, if they have another income source. I would say that the small farmer, tries to keep up, he tries to renew his crops, I think we have to change that concept a little, and he tries to fertilize up to where his situation allows him to. I think this is more or less what is happening. He keeps on working with a technological package provided by the guild, as I was saying. Some work a little more with sustainable agriculture. In the Quindio department, there are some farmers with organic registration. I know about the organic field and I know that the productivity is decreased by about the half, when I was working with the native people, from in Rio Sucio, who cultivate coffee and whose productivity is about half of the average productivity that could be obtained. Why? Because of the fertilization demand by coffee farming and that is where there is a gap, a gap where there has not been the alternative of an organic fertilizer, or from organic synthesis, that fulfills or that is capable to maintain crops in the optimal productivity levels. It is more or less what is happening. Yeah, in general they continue with good practices, with his practices. Now, I can conclude that today’s farmers, compared to the farmers I started to work with around the 88 or the 89, are farmers who are more aware. No matter what, there is no doubt they are farmers who are more aware of the environment, about soil conservation, about the concept of sustainability. I do consider they are. But, depending of their struggles due to production or prices, well, it will be hard for them to maintain this kind of practices.

**That’s exactly where I was going and the question is, what are the main challenges in the current system? What are the challenges?**

Well, that was the first one. Could you give me a minute? One minute, please.

**Of course, of course.**

Well, I disagree a little on the concepts… The coffee guild had some ideas about more agriculture, more production or more productivity. I consider that, nowadays, we have to talk about sustainability and that is a big challenge. But that sustainability… They have always told us “produce more, produce more” because that is the way in which we get income. But at what price? And that is the current struggle we have. We have a huge struggle around that. But that would require of a compensation system, with the producer, for him to be able to achieve it. That’s the first challenge. How am I going to be able to have good productivity while becoming focused on agroecological farming in such a way that allows me to have good productivity, even f they are not the same ones as in the peak of the green revolution, but good productivity that allows me to fulfill a life project and that allows for the new generation, my kids, to want to stay in coffee farming. That is a big challenge. The next big challenge is the topic of the work force. It is very complicated, the issue of the work force in the sector, here in Colombia. Why? Because they don’t see an opportunity, a life project, that they can take. We have to say it, we, the coffee farmers, have been benefited with the Venezuelan migration. I have to say it, in my plot there might be 7 or 8 Venezuelan farmers, even whole families of producers. If it was not because of them, it would be very complicated around the coffee harvesting and recollecting periods. And that is a worry. What is happening there? People don’t want to be in the country side. Young people don’t want to be in the countryside. That is a worry. If we look into the average age of coffee farmers in Colombia, it is very high. Very high, above 50 years old. Where is that generational overlap? I don’t know but if there is no overlap it is because they don’t see an important life project in the sector and that is a fundamental challenge. The third one is about continuing to differentiate their coffee because, with no doubt, the world market is focused on them to be able to differentiate their coffee based on quality. And there is people who is willing to pay for a good quality coffee. And that is something we have to keep after. We have to keep aiming to that niche. I think that there are some big challenges related to coffee farming around that. And I would think that for the guild, and everyone, we need to change the current way of thinking about the current production systems and to adapt them more towards the different type of coffee farmers there are in the country. But I think that is more of a challenge for the guild.

**Ok. Now we are going into the sustainability context, and that is very important, because… The challenges of the current system are related to sustainability. For you, from your role in the university or from your personal experience, do you know projects or activities focused on potentializing the sustainability of the coffee crops and the farmers’ sustainability?**

Well, from the university, I don’t know much about, let’s say, about the projects being carried on. I do know that in the agro-industrial sciences faculty they were working on many aspects, mainly focused on sustainable cattle raising. They have worked a lot on sustainable cattle raising systems as well as in swine-culture by applying good swine-culture practices, towards the idea of reducing contamination. They are working on other things; I think Diana might now more about that. I think they are mostly focused towards these directions. The university has a weakness and it is around these issues, about working with the agricultural sector. I think that is a big challenge we currently have in the university.

**I was going to ask about that. Is it really a big challenge coming from the university or due to the different actors? I refer to the existing relationship with the producer and the interest group.**

Well, no. I would say there are many other actors who have been working on this. Governmental entities… For example, here in Quindio, there is the FOLU initiative. This FOLU is around the topic of sustainability. F, O, L, U. You can look into it by internet. I don’t know if Risaralda has this FOLU initiative. It comes all the way from Europe, it is more targeted around sustainability. Poor people, I got to say. So, I think that from the guild, yeah… And like I was saying, the governmental entities are promoting more for there to be sustainability. There are businesses that have been consolidating, like the actors you mention, that have been consolidating around the topic of sustainability. I know better the case of the coffee farmers who are certified as organic ones. They are 15, they are not many, here in the Quindio department. When they started to sell their coffee in 2019, they got their certification. When they realized that the coffee overprize was not compensating on the coffee reduction, they had… But they persevered on keeping their concept and today, the price they are being paid by their organic coffee justifies the decrease in their coffee production by half, plus an additional revenue. That’s when they say “This is the way. This is the way to go”, and they think it is very important to move on with this project. So, yeah, there are other entities, other agents, that work on the department, in this specific case, mostly around this area. Let’s talk about the same guidelines given from the ministry, from the many programs and projects they have, there is always a sustainability aspect which is fundamental. I think so. And like I was saying, I think there has been a cultural change. Slowly, but it has been going.

**Regarding, well, sustainability and the price aspect, which could be a variable aspect, the international context shows us that the agrochemicals coming from Europe are increasing in price, which equalizes the situation for farmers… Does it become a mortal challenge or it simply is a natural situation for the sector?**

There is a very high risk. A very high risk because of what I was telling you earlier. We are subjects to a free market. We have important groups where we share a lot of information, and we saw how the Bolsonaro President in Brazil, supported coffee farmers by importing a lot of fertilizers. He tried to support them with that. That might lead to Brazil to be able to come back at any given time and go high with a very important harvest. That might happen in 2023 if not earlier, I wouldn’t be able to tell you, and that might, again, lead to a price decrease. If we keep these production costs, with this important increment we obtained in a year and a half, and we undergo a decrease in price, I think that the farmers tend to do the minimum interventions to the coffee crops, which, at the same time, translated to a productivity reduction. With no doubt it goes down again. This becomes a cycle. A very complicated cycle for the farmer. I don’t invest more in the crops because I don’t have more income and I don’t get more income because I don’t invest more in the crops. And it comes and comes and comes. This is the cyclic issue that often comes with it. That is where you should aim for more sustainable commercial relationships. Some producers have worked on that. I worked with a group of women in Pijao, 14 women with a international buyer, in a fair… Here we do a fair called ExpoEje, this year they are doing it again, and in 2017 we did an auction. These women went to the auction with their coffee and 4 of them were against the first 15, and this buyer said “I’m going to buy their coffee”. We went to get it at Pijao and as you might say it, they fell in love with it and they did business. And from 2016 until now, they are still making business, to the point where he is buying, not the 100% because that is hard, but he does buy somewhere around the 60% of their coffee. And there you can see there is a link because he goes outside from the price, he arranges a different price with them, there is a different negotiation there. Hopefully we could be able to achieve something like that. But there is a very high risk on expectations, there is a lot of uncertainty, what will happen with the country, what is happening with the dollar. All of that… If the dollar goes up, it is excellent for the producer when we are going to export but when we import fertilizers, well, it causes headaches. We have to close a little the gap there is between the urban and the rural sectors. That was said by the president when they did the census, the agricultural census in 2015 or 2016. What has happened? I don’t see much has happened. I’m worried, I have a plot in Corroa, there is a school and that school, in 2017, closed because of the lack of kids. There was a teacher but there were no kids. We have tried to reactivate the town. Nowadays, there are 7 kids and they have their teacher, and that is the worry there is. The big migration that has been going on from the countryside to the city. There is also a problem there and it is an issue we have to look into.

**There are many fronts or many parts that have challenges, especially in this sector. Going on with the bioenergy field, which this question is focused on… Do you have experience with projects focused on bioenergy? By knowing them or by participating in them?**

Well, I know of some but mainly based on renewable energy, meaning solar panels and such. In Buenaventura, I work with a group in a project in which I often go to the Colombian Pacific and given the many difficulties there, I work with some… I work with Naidi, something very different to coffee and, let’s say, for them the factory is very far away. Therefore, there was a project to install solar panels in order to keep fridges and a working factory to obtained the Naidi pulp and get that pulp to Buenaventura. That is done with boats. Bioenergy… I would say that the least… We are still in diapers on supplying our own plots with energy. I would say that the main thing we’ve done, during coffee drying, is to move on from cizco to carbon… I mean, moving from carbon to using cizco. We are using a coffee sub-product again in the coffee beneficio process but I wouldn’t say we have advance much on that.

**An open question, understanding that it is a basic stage, where you are standing on bioenergy, would be what are the challenges and benefits from the application of bioenergy in the sector?**

I would think that we have a significant by-product. As we known, every few cycles we have to renew coffee and we end up with some lumber, let’s call it like that, coffee stems, aside from the branches. The branches remain on the soil, decomposing. We are also left with some lumber-like that are sometimes used in stoves but the stoves have been changing, too, and each time they use it less, and there are significant utilization opportunities there, I would say. The other thing is, during coffee beneficio we obtain a pulp that goes into a transformation process that I also think we are disregarding. There might be an opportunity. There are not many plots in Colombia with biodigesters, let’s call them like that, and I think there is significant potential there, currently.

**I’m going to show you a slide from a presentation on what Siban and Susan are doing, you get you into context of the project. Can you see it?**

Yes, I see it.

**Ok, perfect. The project, well, the PhD they are doing is called *Clean shipping* and the current project is called Biohubs, specifically. It is a win-win. I don’t know if you can see the pointer in the green area…**

Yes, I see it.

**Perfect. We can understand the green area as the agro-sector, where there are many producers. For this study, and I will explain why I say that for this study, this would be the coffee axis where they are studying cocoa and coffee residues… It would be the local communities the ones doing this and they would be accompanied by biofuels producers. The handling and production of this biomass, in specific the coffee pulp, the honeys or lixiviates, the skins or cizco, the peels, the coffee shells and even the coffee trims, is what could be used as biomass for the production of biofuels. It goes into biorefineries where it undergoes a chemical process, the one I was explaining at the beginning, to produce a biocrude that goes on into a refinery that, at the end, transforms this biocrude into biofuels. In this map… yeah, in this mental map they designed, there is impact on the regional development where the soil management, I mean, the benefits for the soil would be an impact, technology appropriation and its transfer, agricultural equipment, infrastructure, employment and education are the sectors that would be more impacted. They work with a triangle in which one corner is economy, in the other one is the social aspect and in the other one is the environment. The idea is to reach equilibrium between the three elements through this kind of processes. According to what I’ve just told you, in first instance, what do you consider, from the academy and from your experience as a producer, as a coffee farmer, would be the benefits, challenges and harms from a new value chain like this one?**

You told me about challenges and what were the other ones?

**Challenges, benefits and harms.**

Well, on the challenges it would be how to get to a process, I think that is where we have many… an efficient process. Efficient… I don’t know, I think a lot on the context and on the way of working. I don’t know if this requires a lot of volume or little volume, because that would also be a challenge. If it requires large volumes, large plants or small plants that could do part of the process or that, let’s say, biofuel would come from there and then move on to a different plant, as you explained. But there would be many challenges. Number one, processes. I think it is a processes issue, with either small scale or large scale, for them to be at least at the town or municipal level, for it to work, and for it to represent a benefit to the farmer. If this would generate an extra cost for them, that, at least, for that extra cost to be covered from what could be obtained from this. I think that is the challenge. To have the technology, the proper processes, the innovation, to do this. On the benefits, wow, I think they are too many. Firstly, the way in which we better make use (of things), that would benefit the crops themselves, and we were mentioning this before, with all of these products which you refer to as biocarbon. We would call it organic products, for them to go back into the crops. The second thing this would help would be on the topic of contamination. There is still, although I don’t think that much, contamination issues presenting themselves. That would be very important. I think it would be very beneficial. And if it were to have any additional benefit, not only improving the soil, well, we know there will be less contamination because we will have less problems with the water sources, but if could also generate some energy that could be useful during the beneficio process, for example moving the de-pulping machines… I will make you a comment. One of the plots have been miscataloged due to an accountant change. It was catalogized as an industrial status 3, I believe. And when I’m harvesting, I end up paying 1 million 800 (thousand) or 2 million as if I was an industrial company in the middle of the city. For me that is too high, too expensive, for coffee. The issue with energy is that the costs are higher every day. What are the harms? I think people is a little… The farmer is a little… How to say it? What is the word? They need to see. They need to see that what will be made is in fact real. He sees it and analyses it in order to make a decision and be willing to adopt it. More than a harm it is that decision making process… He takes a little longer on that. But I think that harms would be very few, very few. It would me more of an issue on the adoption, on the adoption of a new technology since it can take him longer, unless he has pressure for a norm, from a law, let’s say, he feels pressure from that or because he is able to see that… But it would be slower for him to adopt this kind of technology or innovation.

**Ok. This question is linked to the fact that you have both roles, as an educator in the university and as a coffee farmer, but it is the same question. Do you identify… Or, firstly, would you be interested both as a researcher and as a producer, to have a role in this chain, in this new value chain and what would that role be? Your microphone is muted.**

**(Diana) Unmute your microphone. Done.**

Thank you. A very interesting question, the way you are asking. As I producer I would, I have always been interested and well, from the university as well, it would be an excellent research area to fulfil that, plus it would be something very innovative, deficiency from the academia on that sector. I think it would be very interesting. You haven’t asked but about 15 days ago I was doing courses on the production of compost. It might not be anything similar to what you are proposing since the process must be way more advanced but I was working on that. I am very interested on that. I have been working on that, changing the chip. What does changing a chip means? To change the cheap, for me, meant that in 2016 on a plot I was using 75 herbicide litters a year. Nowadays I’m using one. Those are changes that should be sought. From that perspective, where I would be working on this field, using products derived from the activity I’m doing, from all of that biomass that is left aside, it would be excellent. Secondly, for one to be able to impulse or promote, well, different communities, let’s call it like that so you can understand me better. Or for them to be on the same sector they are working on, meaning that this could be a good initiative. The issue would be more likely in the application. I mean, to be there, field work, to identify what is obtained and what is needed in order to achieve it. I think that, for us to obtain these bioproducts for the soil improvement… I think that the soils are very important, they are something we haven’t taken care of. We are just discovering it, we are identifying what it means… That change… Imagine it, in the 50’s they were considered to be dead. Now we know they are alive and there is a large amount of activity going on. That is what we are observing, the change around the field on the handling of the soil microbiota, the microorganisms, all of that. I think that is a very important thing. And as I was telling you, if aside of that there is energy generation, I think that is amazing. As I was saying, I think the issue would be at applying it. To be there, to see it, to apply it, to try it and to deliver information to this team you are calling biohubs. And that win-win, when you say win-win I think it is something we want over all of the value chain, and I think this is well integrated in the way you talk about it.

**Now, getting into the research context within the university and into the topic of obstacles, what is impeding the university from developing projects like this on?**

No, I think none. I think it is more of an issue with the internal procedures that universities have. But the universities could have the capability to develop or follow up on these things. The Quindio university will have, in about 7 months, a whole new building with labs and everything, for the agro-industrial sciences faculty. New labs, new equipment, all of that. They are finishing the construction and installation. That was an important issue. I would say that the limitations are actually the procedures you have to go through in order to do something like this but they could be overcome.

**A second question linked to these University’s internal procedures would be, what else, apart from this could threaten the existence or the creation of projects like this one?**

I think that we would have to look into the governmental entities because we have to have that green light from the governmental sector, for them to be aware of what’s going on and… What other threat do I see? No, none. I don’t really see much. I think it is in line with what is aimed for, regarding sustainability, and I don’t see many inconvenients. Right now, from the top of my head, I don’t see many.

**I will show you a grid, right now, where the different actors that interact in coffee, in the coffee sector, are related based on their interest versus their power. Let me show you. I think you can see it now. I think you can see it now, right?**

**(Diana) Yes, Dani, it is perfectly visible?**

**It is? Ok, well, on this side you have the power, on the lower part you have the interest and here you have the actors or what Siban and Susan defined as the actors that interact in the coffee sector. We have this liquid transport, and as I mentioned earlier, are the ones who would transport the crude to the biorefineries and the biomass collectors are the ones that, in the hypothetical scenario, would collect the biomass from the plots or a collection center all the way to the biorefinery. Here they put, in this grid, the actors. The first question about this grid is, what actors of group of interest is missing here? Who should be included in this grid? Your microphone is off.**

Right, we were talking about cooperatives as buyers but, let’s say, there are new coffee buyers that have appeared, who are very important. The second, the CENA has gotten into it, strongly. They already have several coffee schools here in Armenia, in Huila, that work a lot on the quality of coffee. I don’t know if they should be here, particularly regarding the topic of training of the farmers. I think that I would only place these two entities.

**Regarding the positions you see here, meaning each actor has that position according to power and interest. How do you think they should be (placed)? I mean, should we move any? If, in your opinion, we should give more interest or more power to any of them? Or even taking it away.**

No, I don’t see (the need for) a change.

**You consider these positions are ok?**

Yes, yes.

**Ok. Now, the last questions, to finish. The university, or… Let me make a compound question because you combine being part of the university and a producer. With which of these actors do you have a relationship as producer and as a producer, and how are these relationships?**

Well, with the national government, more on things related to some project rather than for something personal, also with the ministry, there is a bigger relationship with the agriculture secretary. The municipality, the place it is located is ok. Communication platforms, let’s say, there are too many, I wouldn’t know. Biorefinery there aren’t any. With the coffee guild, well, of course. I am part of the guild. The same with cooperatives. With liquid transport, no. Neither with biomass collectors. I would say that with these and with biorefineries there is nothing. The same goes for the maritime industry. And from academia, of course, we are there, of course. And with the coffee farmers we have permanent relationships.

**Ok, give me a second. Siban has some questions.**

**(Siban) So with this kind of project, what do you think is the first step we should do to make it realize [Sic].**

**What do you consider, for a project like this one, to be the first steps to be taken in order to make the project a reality?**

Well, I think that what you are doing is very interesting. Often, you have to address the governmental area more as a requirement fulfilling and legality. Remember that a project such as this one… There is much significance around permits and things like that. Regarding academia, it is a presentation. You could make use of this presentation we are doing, to start, and from there on it would be interesting to be able to interact. To do a selection of group of farmers. I will tell you about something. Right now, in the Quindio, we are doing two projects, with resources from Technology and Science. One of them took around 600 farmers to work on defining the process for the coffee beneficio. When I talk about the process definition, I mean that the producer has never placed a thermometer to know the temperature of the coffee mass during the fermentation process. He doesn’t know what microorganisms are working there, doing that. He doesn’t know what the height of the coffee mass in the tank means. He doesn’t know anything. He has done everything empirically. So that is one thing, to teach him about that, on one hand. And on the other hand, to place a platform on the field of coffee business, very interesting, in order to visualize a little how it works for coffee. So, I consider that there is big potential to work with farmers that have already been working with other things. I think it is important to make it known. As well as the collaboration with cooperatives. And I can imagine that Fedecafé and Cenicafé are in the same line. At the end Cenicafé belongs to the federation so they go on the same line.

**The next question…**

**(Siban) Let’s say, for example, that I’m going to start a project in the Quindio, in the Department of the Quindio. Does he recommend any, like, one representation of each stakeholder? Like, one association, one unintelligible, technology provider…**

**Like an executive board?**

**(Siban) Yeah, kind of. Just to mention one of each one.**

**The question is, in a project like this one, from your experience and from what you know as a farmer, do you recommend to have representation from each one of these actors in this project? I mean, like a representative board with each one of these actors?**

Well, it is a little about democracy, right? Where there is representation so someone can intervene or provide their opinion based on the interest each one. I think it is interesting and a way to, like I said, to democratize something and I think it is a good step. Yes. I would be worried about something there and it is that the Federation, the coffee guild, represents the coffee farmers. What do I mean? There are dissident coffee farmers within the federation. Therefore, at some point, Federation, Cenicafé and coffee farmers become a single thing and it is important to have, within the Quindio, some farmers that are independent. I mean, a little more of representation of who are in the sector.

**Ok.**

**(Siban) Final question, you said preparing different unintelligible, different approach, different product, right? For each of the stakeholders. Does he think that unintelligible would help to bring all of the stakeholders to create an awareness that allows us to understand others opinion as well? Does he think, from his experience, if this is possible? The people are receptive to understand others.**

**This question is more focused… Bringing together all of these groups of interests, meaning national government, municipalities, by bringing together all of these actors, it is way easier to help the others understand, I mean the farmers, the universities, to the immediate environment, in an easier way, by having this group together?**

I think… Yes, I mean, one of the big issues that the guild has had is the social base. And the social base is at the municipal committees. What do I mean? If you socialize with the municipal comities, that is where the issue is and where something could be done. Regarding the academia, no, I’m not too worried. I think it is easy to reach. I would also think the same about the Technological university, with Diana, I am sure. The universities are really open on all of these innovation topics, especially for such an important sector as it is the coffee cultivation. I think that with the university there is not an issue. But I do think it is important to present this at the base, from the municipal committees. Which are the ones there. Some criticize their representation in the departmental committees, I guarantee this is also a political thing, let’s call it like that, there are interests. So, if you do it from the base, I think it would be something very important. At the base there are some very interesting producers.

**Ok. One last question.**

**(Siban) Yes. So, he said lots of challenges like we need government support, policies and lots of things but, which trend, or which aspect should we address first? Is it you should unintelligible all the stakeholders? Or is it to change the policies? Or that should be stopped? Also unintelligible theoretical conceptual ideal but in reality, where should we start?**

**Ok.**

**(Siban) Unintelligible.**

**Ok. You mentioned that within the significant challenges, there are the policies, the registrations, the general topic of documentation but the question is, specifically, within this context, what would be the first step but in reality, in the application for the development of a project like this one? Linking the producers? Or working with the producers? Or directly with the refinery and later working with… well… Or with the universities or with the government?**

I think that… One thing, although that is something that should be defined, is the financial area, right? So that the projects don’t end up truncated. So, if the financial aspect is solved, meaning there are the required resources, there is the required technology, and the idea is to implement, there are many things that could be worked simultaneously. I could be working on the legals aspects, on the norms, while I also work on the social aspect, getting the strategic points required by the project to set the infrastructure, etc., to agree with producers, too. The other thing is thart we have to look for areas that allow them to improve, due to a volume issue, the economy around the topic and transport. Which is a topic I consider to be critical, especially when you showed me in the schematic what the liquid transport was, required to go from the biomass transformation to the refinery. So, there are many topics you could already work on. Right? You can already be working on the legal aspects. If you already have the finances, you have the technology, you have everything, then you can go on to work on the legal aspects while at the same time you start to go into the territory and like that, I would gain time, doing all of these activities. And defining areas that can be defined. When I say defining areas, I mean a concentration of coffee producing areas with farmers that are interested in the project. If I start to sell the possibility to do this, I’m also earning time with it. Right? And especially the topic on transport so it won’t become something too complicated.

**Ok. One last question.**

**(Siban) are there already initiatives unintelligible projects. How easy is it to get an investment. Investment from private or public unintelligible.**

**The question is, with a project like this one, how easy or how feasible is it to get investments, either political or public, for the development of a project like this one.**

**(Siban) To give examples of some of these parties unintelligible**

Well, I… Diana is here and she knows more about these topics than I do, but there are fields of Science and Technology. You can get resources. It could be presented there. If it is a project being presented at the departmental project, there is a better chance at obtaining resources from the central entity. This is the most important. At the municipal level, I think that the municipalities keep unintelligible. I don’t see any chance for financing there. At the departmental level, there is something but very little. I would go more towards the national level. The financing should be sought at the national level either from royalties, from Science and Technology. I would look at it more from these perspectives.

**That was the last question from Siban. Now, let’s say that the possibility… no, not a possibility… Do you have any question for Siban? About the project…**

No. If Siban is showing me this it is because there must a whole aspect of technology and innovation being implemented for the transformation of all of this biomass, especially to what is related to coffee.

**Ok, then I would conclude this interview by inviting you to a workshop. It is an activity that will be carried on the 28th of July, where different actors will interact. There will be producers, there will be academia, there will be associations and representatives from federations with the purpose of, well, firstly, for Siban and Susan to present the project and show the results, some results, from it. Also by thanking you for your time and willingness…**

**(Diana) thank you so much. You are so nice. Thanks a lot well, from me and from Susan who is the other professor who was not able to join us. Take good care, feel better and I will be sending you the invitation to the event we will be doing on the 28th and we hope you will be better by then.**

Yes, but it is way better to be careful.

**(Diana) Totally, totally.**